

## Social representations of digital technologies with public high school students

### ARTICLE

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Tatianne Melo Dantas<sup>i</sup>

Escola Superior Batista do Amazonas, Manaus, Amazonas, Brasil

Cleusa Suzana Oliveira de Araujo<sup>ii</sup>

Universidade do Estado do Amazonas, Manaus, Amazonas, Brasil

#### Abstract

With the aim of investigating the values and beliefs of public high school students regarding the use of digital technologies, this research was developed based on the principles of qualitative research in Social Representations, with first-year high school students. The Free Word Association test was used, with the term "digital technologies" as the inducing stimulus. The results showed that social networks and cell phone use are at the core of students' representations, revealing a strong link between digital culture and the construction of these young people's identities. These findings point to the need for pedagogical practices that critically and meaningfully integrate digital technologies into the teaching and learning process.

**Keywords:** Digital Culture. Public Education. High School. Social Representations. Digital Technologies.

#### Representações sociais das tecnologias digitais com estudantes do ensino médio de escola pública

#### Resumo

Com o objetivo de investigar os valores e crenças dos estudantes do ensino médio de escola pública sobre o uso de tecnologias digitais, esta pesquisa foi desenvolvida com base nos princípios da pesquisa qualitativa em Representações Sociais, com alunos do primeiro ano do ensino médio. Foi utilizado o teste de Associação Livre de Palavras, tendo como estímulo indutor o termo "tecnologias digitais". Os resultados evidenciaram que as redes sociais e o uso do celular constituem o núcleo central das representações dos estudantes, revelando uma forte ligação entre a cultura digital e a construção identitária desses jovens. Esses resultados indicam a necessidade de práticas pedagógicas que integrem as tecnologias digitais de maneira crítica e significativa ao processo de ensino e aprendizagem.

**Palavras-chave:** Cultura Digital. Educação Pública. Ensino Médio. Representações Sociais. Tecnologias Digitais.

## 1 Introduction

The aim of this study is to investigate the central core of the Social Representations (SR) of a group of students regarding “Digital Technologies with High School Students” and the possible implications of the use of these easily accessible technologies for young people in contemporary society. The way people think, act, relate to others, and express themselves occurs with reference to socially constructed meanings (Madeira, 1991). This means that individuals carry with them a set of knowledge and experiences shared among the members of the group to which they belong, which is referred to as social representation (Moscovici, 2003). According to Moscovici's line of thought (2003), social representations of a given object are not our own way of reasoning, nor something imposed on us, but rather a form of socially elaborated and shared knowledge, with a practical purpose, which contributes to the construction of a reality common to a social group.

These socially constructed meanings and perceptions guide individual and collective attitudes and behaviors, characterizing social interaction within a given group of people. In this way, social representations constitute an essential mechanism in the creation of group identity and cohesion, as they enable individuals to relate to and understand the world based on shared values and meanings.

This structure of SR, with its central core and peripheral elements, helps to explain how cultures, beliefs, and values are transmitted and perpetuated in different contexts, while other aspects are more susceptible to change. According to Mazzotti (1997), studies on SR seek to make explicit the central core from which intervention actions can be generated in order to promote changes in these representations.

By identifying the central values and beliefs that structure a social representation, researchers can propose strategies aimed at transforming these elements, when necessary, in order to change behaviors and attitudes anchored in SR.

This approach is relevant in areas such as health, education, and public policies, in which the modification of social representations can promote significant changes in the practices and perspectives of a social group. By examining how collective meanings are

constructed, shared, and re-signified, this perspective makes it possible to understand how beliefs, values, and interpretations guide behaviors and influence interactions in different contexts, especially within the educational field.

## 1.1 Digital technologies in contemporary society

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According to Carvalho (2016), the 21st century is marked by major changes and technological advances, offering innovative pathways in social, educational, and cultural practices, as well as in relationships with society. The internet can function as an attractive resource to be incorporated into teaching strategies through hypermedia language, creating space for greater interaction mediated by electronic genres and supported by interdisciplinarity. Schools need to adopt a new teaching paradigm in order to address existing educational demands.

Teachers are required to rethink their pedagogical practices and the strategies used to qualify the teaching process. According to the author, it is necessary for educational institutions to adhere to digital education by expanding access to information and articulating different educational theories, in order to build a more universal language foundation. This movement implies the consolidation of a contextualized pedagogical practice, capable of transforming the learning process by positioning students as social, participative, and active subjects, while simultaneously articulating education and technology.

With the consolidation of the internet, the world has come to be configured as a broad digital platform, enabling different devices and systems to provide access to information. Through virtual pages, it is possible to watch television programs, listen to radio stations, read newspapers, and access research content, connecting everything and everyone (Carvalho, 2016).

In the school context, especially in the classroom, this scenario could not be ignored. However, many students still consider classes uninteresting, with or without the use of these technologies, because the methodologies applied often do not allow students

to be more creative and do not provide cognitive challenges, which makes the classroom a demotivating environment (Carvalho, 2016). It is identified that digital technologies are not always used in a didactic and productive way, and that there may be difficulties related to their use in teaching practice.

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Several factors have contributed to the slow pace of the integration of digital technologies into the teaching and learning process in Brazilian educational institutions. Studies conducted by Branco, Adriano and Zanatta (2020), as well as Silva and Teixeira (2020), show significant deficits in infrastructure, scarcity of materials and equipment, and limited access to technology as the main obstacles to the effective pedagogical use of these tools. Although Castro *et al.* (2022) point to an improvement in access to technologies, the authors emphasize that such progress is still insufficient in view of the profound social inequalities present in the country, which compromises equity and the effectiveness of the use of educational technologies.

There is resistance among some teachers to use these tools in the classroom. This resistance can be attributed to several factors, such as structural, technological, and behavioral aspects (Corrêa; Dias, 2016). In this way, it is observed that digital information and communication technologies have changed the dynamics of schools and classrooms, including the organization of school time and space, the relationships between learners and information, and the interactions among students and between students and teachers (Mantoan, 2012).

New applications and technologies are constantly made available to users, affecting not only the ways of seeing, understanding, and doing things, but, above all, worldviews and the emergence of new paradigms. Consequently, the limitations of the school become more flexible, fostering critical thinking, creativity, and innovation within the school environment. In this sense, such changes must be rethought by the school community, especially the role of the educator in future society, in which new literacy practices and a new pedagogy are required (Carvalho, 2016).

Currently, digital technologies occupy a central space in young people's lives, influencing not only how they communicate and interact, but also how they understand the

world and construct their identities and opinions. The school, as a space of education and socialization, becomes an essential environment to study how these representations are formed and shared among students.

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In the context of public high schools, the integration of digital technologies can be particularly impactful. These tools can facilitate access to information and the construction of knowledge in more dynamic and interactive ways. However, there are also challenges related to access, quality of use, and appropriate pedagogical mediation, especially considering socioeconomic disparities that influence the use of these technologies. As students deal with different technologies, they need to develop different skills in order to achieve their goals.

Therefore, studying the social representations of high school students in relation to digital technologies is relevant to understanding how these young people perceive their role in the digital world and how these media influence their relationships and perceptions. This study can contribute to more inclusive pedagogical practices that are connected to students' realities, enhancing the use of technologies to develop critical skills and promote a more engaged and transformative education.

Digital culture plays a central role in young people's lives, influencing the construction of their identities and their ways of viewing the world (Castells, 2003; Buckingham, 2007). In the school context, access to the internet and social networks, for example, expands cultural horizons and allows students to establish networks of interaction and connect with different cultures and sources of information. At the same time, these technological tools influence how they interpret and reproduce societal values and how they interact with their peers. For high school students, the use of digital technologies can represent an opportunity to build autonomy, as well as to develop critical thinking in relation to the content they consume.

The context of public schools involves issues related to limited resources, inequality of access to technology, and challenges in the development of pedagogical practices that efficiently integrate digital resources (Pretto, 2002). Digital inequality can influence how students represent and use technology, as the resources and opportunities

for access to devices and networks can vary considerably. In this scenario, the study of students' social representations represents an opportunity to understand how they deal with these disparities and how they adapt to the use of technologies in the school environment, considering their needs, aspirations, and socioeconomic context.

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## 2 Methodology

This research adopts a qualitative approach, based on the assumptions of the Theory of Social Representations, as proposed by Serge Moscovici (2003). This perspective makes it possible to understand how subjects construct and share meanings about the use of digital technologies in the educational context, considering their values, beliefs, and experiences.

The study was conducted in a public educational institution with high school students. The sampling was intentional, considering subjects directly involved in the teaching and learning process mediated by technologies.

For data collection, instruments such as free word evocation were used, which made it possible to capture the participants' social representations regarding the use of digital technologies in education, in accordance with Bardin (2016), seeking to identify emerging categories related to social representations.

The research is part of a broader project, approved by the Research Ethics Committee of the Universidade do Estado do Amazonas (CAAE 09703719.4.0000.5016), and was carried out with 25 high school students from a State Public School in Manaus, State of Amazonas. Data collection took place during the second semester of the 2024 academic year.

**Table 1 – Distribution of students by age group**

AGE	NUMBER OF STUDENTS
15 years old	23
16 years old	1
17 years old	1
<b>TOTAL</b>	<b>25</b>

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Source: Prepared by the authors (2024).

### 3 Results and Discussion

To determine the central core of the Social Representations of this group, the free word evocation procedure was used, in which participants wrote the first five words that came to mind in relation to the topic “Digital Technologies.” Subsequently, they were asked to rank the words according to their degree of importance, assigning numbers from one to five, starting with the most important word and ending with the least important (Rocha, 2009).

The analysis of the evoked words was carried out according to the criteria used by Magalhães Júnior and Tomanik (2012), which make it possible to determine the Mean Order of Evocation (MOE) and the Mean Frequency of Evocations (F), allowing the organization of the words into a table composed of four quadrants and the identification of possible elements that compose the central core of the representations. Based on Magalhães Júnior and Tomanik (2012), participants were also asked to write freely about the same topic to achieve a better understanding of the representations. Additionally, some personal data, such as biological sex and age, were collected in order to better characterize the group.

According to Melo and Furtado (2006), the school constitutes an environment in which ideas and information are shared, configuring itself as a space that generates social representations. In this context, the school plays a fundamental role in the construction and

dissemination of collective meanings that influence individuals' perceptions and behaviors. The interactions that occur among students, teachers, and the school community in general contribute to the formation of social representations that shape students' attitudes and expectations regarding the educational process, influencing how subjects perceive not only teaching, but also the role of educators and the very dynamics of the school. Thus, the school is not only a place of academic learning, but also a space for the social construction of meanings and values. Authors such as Magalhães, Maia and Alves-Mazzotti (2009) consider that social representations influence the teaching–learning process, making it important to investigate them.

By investigating social representations, it is possible to identify the pre-existing conceptions that students bring into the school environment, as well as the expectations that teachers have regarding learning. This understanding is crucial for the creation of pedagogical strategies that take into account students' experiences and context in the classroom, thus promoting more meaningful and effective learning. Furthermore, by recognizing the influence of social representations, educators can work to transform limiting or mistaken conceptions, fostering an educational environment that favors critical reflection and the construction of knowledge in a more dynamic and inclusive way.

Access to information in digital environments challenges teaching practices and traditional teaching centered on printed books. In this context, the media contribute to the dissemination of the conceptions and representations that individuals construct about the world. Teachers must understand the representations that students bring to school, since "social representations are formed and disseminated mainly through non-formal and informal learning processes" (Chaib, 2015, p. 365).

Regarding the profile of the group investigated, all participants were adolescents, first-year high school students, aged 15 years (23 students), 16 years (01 student), and 17 years (01 student), totaling 25 participants. All demonstrated enthusiasm when talking about digital technologies, with social networks being the most frequently mentioned, followed by mobile phones, applications, internet, modernity, computers, goals, technological devices, and digital entertainment. Education, although centered on the

formative processes of individuals, is articulated with Social Representations (SR), by considering the individual as the elaborator of these representations, understood as contextualized constructions (Spink, 1993).

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Social representations influence the way members of a group act and manage issues related to education (Gatti, 2003, p. 192). Therefore, knowing the social representations of a social group is relevant, as they influence the teaching–learning process (Magalhães; Maia; Alves-Mazzotti, 2009). Consequently, research in this area can generate information that enables more concrete and directive actions within the school environment. In this sense, this study aimed to investigate the central core of the Social Representations of a group of students regarding “Digital Technologies with High School Students.”

From a total of 127 words recorded about digital technologies, 7 were different and mentioned only once and were therefore discarded. Nine semantic groups were obtained with words of similar meaning and, after determining the mean frequency (13.33) and the mean Order of Evocation (3.00), it was possible to organize the words into four quadrants and identify the possible elements that compose the central core of the representations (Box 1). The test was applied collectively in the classroom and took approximately 20 minutes.

## Box 1 – Elements of Social Representations concerning the use of Digital Technologies

Central Elements – 1st Quadrant			Intermediate Elements – 2nd Quadrant		
High Frequency and Low Mean Order of Evocation $F \geq 13,33$ and $MOE < 2,77$			High Frequency and High Mean Order of Evocation $F \geq 13,33$ and $MOE \geq 2,77$		
Word	Freq.	MOE	Word	Freq.	MOE
Cell Phone	17	1,13	Social Media Apps	27 14	3,62 3,28
Intermediate Elements – 3rd Quadrant			Peripheral Elements – 4th Quadrant		
Low Frequency and Low Mean Order of Evocation $F < 13,33$ and $MOE < 2,77$			Low Frequency and High Mean Order of Evocation $F < 13,33$ and $MOE \geq 2,77$		
Word	Freq.	MOE	Word	Freq.	MOE
Internet Modernity	12 10	1,50 2,50	Computer Goal Technological Devices Digital Entertainment	10 10 10 09	4,36 3,20 3,70 3,33

Source: Prepared by the authors (2024).

It can be observed that, in the upper left quadrant, the term *cell phone* presented a frequency of 17, while, in the upper right quadrant, *social media* recorded the highest number of evocations, with a frequency of 27. The lower left quadrant presented frequencies ranging from 10 to 12. The lower right quadrant, which concentrates the greatest representativeness, presented frequencies between 9 and 10.

Within this scenario, it can be observed that social media, followed by cell phones, are the most frequently cited items in the word evocations. In the students' interpretations, it is perceived how highly relevant the use of digital technologies is in the social lives of these students aged between 15 and 17 years.

The results show that *cell phones* and *social media* occupy a central place in students' lives, which confirms Moscovici's (2003) ideas regarding the collective construction of meanings that guide behaviors and social interactions.

The findings corroborate the observations of Carvalho (2016) and Corrêa and Dias (2016), who highlight the need for schools to rethink their pedagogical practices in order to effectively integrate digital technologies. Furthermore, they reveal challenges similar to those pointed out by Castro *et al.* (2022), especially with regard to inequality of access and the critical use of these tools.

In this way, understanding how students perceive technologies allows educators to plan more contextualized and inclusive strategies, fostering the construction of meaningful learning aligned with students' realities.

#### 4 Final considerations

It is therefore concluded that this research investigated social representations regarding the use of Digital Technologies among high school students from a state public school located in the central region of Manaus. Data analysis showed that the term "Digital Technologies" is strongly associated with social networks and mobile phone use, indicating the need to broaden the debate within the educational context in order to understand the factors that contribute to the dissemination of digital culture in the school environment, considering how students perceive, interpret, and position themselves in relation to technological innovations.

By adopting a qualitative approach, the study sought not only to identify structural or technical difficulties, but also to understand the meanings attributed to technology, the discourses that circulate about it, and how these elements influence its acceptance or resistance in everyday school life. It is expected that the results of this research will contribute to the debate on public policies and formative practices, offering support for a more critical and meaningful integration of digital technologies in education, taking into account the realities and perceptions of the subjects involved.

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<sup>i</sup>**Tatianne Melo Dantas**, ORCID:0000000157832703

Graduada em Licenciatura em Letras Inglês pelo Centro Universitário do Norte-UNINORTE (2016). Pós-Graduação com Especialização em Docência da Língua Inglesa pela Escola Superior Batista do Amazonas ESBAM (2018). Pós-Graduação com Especialização em Docência em Educação Profissional e Tecnológica pelo Instituto Federal do Espírito Santo (IFES) Campus Colatina (2022).

Author contribution: escrita e revisão

Lattes: <http://lattes.cnpq.br/2708081403468610>

E-mail: [tatianne.m.dantas@gmail.com](mailto:tatianne.m.dantas@gmail.com)

<sup>ii</sup>**Cleusa Suzana de Oliveira Araujo**, ORCID:0000000226348895

Pós-Doutorado em Educação e Ciências pela Universidade Estadual de Maringá (CAPES) e pela Universidade do UMINHO - PT (2020). Pesquisadora da Universidade Nilton Lins, atuando nos Programas de Pós-Graduação de Biologia Urbana e Aquicultura, níveis de Mestrado e Doutorado.

Author contribution: revisão e edição

Lattes: <http://lattes.cnpq.br/7489509648411701>

E-mail: [cleusasuzana.araujo@gmail.com](mailto:cleusasuzana.araujo@gmail.com)

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