# Correlations between representation theory and intentionality theory: contributions to information findability

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## ABSTRACT

The Theories of Representation and Intentionality have emerged from various fields of knowledge, including Psychology, Philosophy, and Cognitive Sciences. Within the realm of Information Science, the concept of Information Representation has gained widespread acceptance, while studies on Intentionality Theory remain relatively limited. In light of the post-custodial paradigm, informational subjects are recognized as active participants in the socio-informational landscape, employing their intentionality to produce, organize, represent, and seek information across diverse digital information environments. This research endeavors to identify the correlations between Representation and Intentionality Theories within the context of Information Science, examining their contributions to Information Findability. Information Findability encompasses a theoretical-practical approach to designing, implementing, and evaluating information environments. This study adopts a bibliographical and exploratory approach, employing qualitative methods and utilizing databases such as the Coordination for the Improvement of Higher Education Personnel (CAPES) Periodicals Portal, the Information Science Database (BRAPCI), and Google Scholar. The research findings reveal correlations between Representation and Intentionality Theories, highlighting the significance of these theoretical underpinnings in enhancing Information Findability. In conclusion, the study underscores the need for further exploration of Intentionality

in Information Science, given the scarcity of research in this area and its relevance in incorporating the informational subject's perspective into the concept of Information Findability.

## INTRODUCTION

Etymologically, the meaning of the word "representation" refers to the act of making something, someone, or an idea present through another object. According to Makowiecky (2003), until the birth of the sciences with Descartes, the etymology of the word "representation" was linked to the relationship between things that occur by similarity. Thomas Aquinas, an Italian philosopher and theologian, stated that "To represent a thing is to contain the likeness of that thing."

Within this context, the concept of representation originates from the Theory of Representation, which has been developed in various areas of knowledge. In this study, the focus is on Psychology due to its points of correlation with studies in Theory of Intentionality within the realm of Information Science.

The Theory of Intentionality, in turn, is deemed the core doctrine of Phenomenology, which is characterized by the search for the essence of things in harmony with experience through the senses, "[...] configura a raiz dos atos da consciência e da intencionalidade". (Prado, 2013, p. 2)[1]. In Husserl's Phenomenology (2012, p. 332)[2], it is understood that the "[...] própria consciência é a complexão das vivências [...]", meaning a large collection of life experiences.

Within the domain of Information Findability (IF), the Theory of Intentionality supports the principle that "[...] importância em se enfatizar as experiências e habilidades dos sujeitos informacionais no projeto de ambientes e sistemas de informação." (Vechiato; Oliveira; Vidotti, 2016, p. 7)[3], This principle is recognized as one of the thirteen attributes of Effective Information (EI), specifically named the Intentionality of informational subjects.

The central question driving this paper arises from a desire to explore how the interplay between the Theory of Representation and the Theory of Intentionality might enhance Information Findability (IF) in digital contexts. Consequently, this paper aims to identify and analyze the correlations between these two theories to determine how the dialogue between them could enhance IF, particularly within digital informational environments.

## METHODOLOGY

The methodological procedures for this exploratory research, which adopts a mixed qualitative and quantitative approach, were initially established in September 2021 and subsequently refined during a review in April 2023. These procedures utilized databases well-recognized for their qualitative and quantitative rigor and significance in the scientific community. Notable sources included the Portal de Periódicos of the Coordenação de

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1        Translation: "[...] constitutes the root of the acts of consciousness and intentionality". (Prado, 2013, p. 2, editorial translation).
2        Translation: "[...] consciousness itself is the complex of experiences [...]" (Husserl, 2012, p. 332, editorial translation).
3        Translation: "importance of emphasizing the experiences and skills of informational subjects in the design of information environments and systems" (Vechiato; Oliveira; Vidotti, 2016, p. 7, editorial translation).

Aperfeiçoamento de Pessoal de Nível Superior (CAPES) accessed via Acesso CAFe[4] at the Universidade Estadual Paulista (UNESP), the Base de Dados em Ciência da Informação (BRAPCI), and Google Scholar.

For the bibliographic survey, the keywords used were: Theory of Representation; Theory of Intentionality; Findability of Information; Information Representation; Intentionality and Intentionality of Information Subjects, in Portuguese, English, and Spanish.

The search in the Portal de Periódicos CAPES was conducted using the advanced search engine, starting with the keywords in all three languages, always using quotation marks for compound terms, in the "title" and "subject" fields with the "is exact" filter. In the second line, the Boolean operator "and" was used in the "any field" area, with the "contains" filter within the field of Information Science, to find results relevant to the research scope; the numbers obtained represent the sum of searches in title and subject without year restriction or duplication checks.

The search within the BRAPCI database, which is dedicated to Information Science (CI), did not require area-specific filtering. Keywords were searched in Portuguese, English, and Spanish, with compound terms enclosed in quotation marks. The searches were filtered by 'title' and 'keywords.' The total number of texts presented excludes duplications, thanks to the database's built-in feature that automatically selects and verifies metrics to ensure the uniqueness of each entry.

For the Google Scholar search, the advanced search engine was employed without limiting the search by area, as the platform does not support such filters. Search terms were enclosed in quotation marks and searches were specifically limited to the 'title' filter. The results reported are raw data, with no restrictions based on publication year or checks for duplication. This approach is beneficial for uncovering literature from various fields of knowledge. Due to Google Scholar's ranking by relevance and the vast quantity of results, only the first three pages were considered. The relevance of these results was then assessed in relation to the research objectives, focusing on classic texts and those that contribute to interdisciplinary studies within Information Science.

It is crucial to note that this research did not aim to conduct a systematic literature review on each theme. Instead, the objective was to identify and analyze texts that could elucidate connections between theories seldom explored within Information Science. The primary focus was to establish a link between Information Representation – a key area in Information Science–and the Intentionality of informational subjects, which is currently viewed primarily as a facet of Information Findability.

Ongoing research, including a doctoral thesis, indicates that the concept of Intentionality of informational subjects, derived from theoretical frameworks, may emerge as a significant field of study within Information Science. This is particularly pertinent for understanding the roles of informational subjects who are not only consumers but also producers, disseminators, organizers, and represeters of information in the digital realm.

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4      It is important to note that this type of access is specific to the Unesp domain, as search results may differ across other domains.

Following the data collection from the databases, an exploratory study was conducted to deepen the understanding and comprehension of the scholarship that forms the basis of the paper's theoretical framework. This involved reviewing works by pioneering authors in the Theories of Representation and Intentionality, as well as incorporating insights from other disciplines such as Psychology, Phenomenology, and Philosophy."

We emphasize the study by Sanchez, Vidotti, and Vechiato (2021), which notes that the concept of Intentionality is still emerging in Information Science, both in national and international contexts. As a result, references are limited; in 2021, only eight academic papers specifically addressing the themes of the Theory of Intentionality and Information Science were identified across the databases Portal de Periódicos Capes, BRAPCI, and the Library & Information Science Collection (LISA).

Given the limited research on Intentionality and the objective of this study to correlate it with the Theory of Representation, it is important to recognize the advancements in this area. While the concept of Representation is well-established in Information Science, Intentionality remains an area under development.

In this context, the search results for 'Intentionality' in the Portal de Periódicos Capes and BRAPCI encompass most of the scholarly production in Information Science. A total of twenty-five (25) publications were identified, noting some duplication across and within these databases. This reflects a national increase in relevant publications, including four new papers since the previous survey.

A significant methodological shift from the study by Sanchez, Vechiato, and Vidotti (2021) in this research is the expanded search strategy, which included using 'Intentionality' as a 'subject' term, not just within titles. In the Portal de Periódicos Capes, this approach alone located twelve papers in the subject field, with eleven in English and one in Spanish.

Adhering to the mixed qualitative-quantitative approach of our methology, TABLE 1 showcases the quantitative findings from the searches conducted in the three languages.

**TABLE 1** – Results of database searches

| Keyword | CAPES Journal Portal | BRAPCI | Google Scholar |
|---|---|---|---|
| **Teoria da Representação** | 0 | 5 | 38 |
| *Representation Theory* | 25 | 3 | 5890 |
| *Teoría de la Representación* | 0 | 1 | 115 |
| **Representação da Informação** | 112 | 215 | 479 |
| *Information Representation* | 68 | 67 | 944 |
| *Representación de la Información* | 13 | 38 | 127 |
| **Teoria da Intencionalidade** | 1 | 1 | 13 |
| *Intentionality Theory* | 0 | 0 | 18 |
| *Teoría de la Intencionalidad* | 0 | 0 | 5 |
| **Intencionalidade** | 5 | 6 | 450 |
| *Intentionality* | 16 | 1 | 7370 |
| *Intencionalidad* | 1 | 0 | 1170 |
| **Encontrabilidade da Informação** | 25 | 32 | 100 |
| *Information Findability* | 2 | 12 | 21 |
| *Encontrabilidad de la Información* | 0 | 7 | 1 |

Source: Created by the authors(2023).

Ultimately, the overall number of references used in this paper totaled thirty-six (36) publications, divided among the subjects of Representation, Intentionality, and Findability in: journal papers, book chapters, master's and doctoral dissertations – all open access. Within this total, the divisions by subject are as follows:

- Nine (9) on the field of Representation in Information Science (IS), four (4) from the area of Psychology, and one (1) from Philosophy, which contributed to the construction of the framework;
- Five (5) on Intentionality in IS, an additional four (4) from the area of Phenomenology, which complements the theoretical framework, and two (2) on elements of Artificial Intelligence that were part of the practical discussions of the research;
- Ten (10) on Findability, which is directly linked to Intentionality by presenting it as an attribute, and two (2) texts developed on Information Architecture of Information (AI), the discipline seen as a solution to Findability issues derived from AI;
- Two (2) texts on Information as a phenomenon and Informational Subjects, which were included to highlight and contextualize relationships between the Theory of Representation and Information Representation in IS, as well as to clarify the use of the term Informational Subjects (linked to Intentionality).

After outlining the methodological procedures of the study, the subsequent sections will present the results of the bibliographic survey and the development of theoretical frameworks concerning the Theories of Representation and Intentionality. This discussion aims to contribute both theoretically and practically to the field of Information Science.

## Theory of representation and the representation of informations

Representation Theory is prominent in various fields, especially those examining the cognitive aspects of individuals. The act of representation is intrinsically linked to human beings and their brain structure, which facilitates associations that are textual, visual, acoustic, and even related to smells, sensations, emotions, and memories, etc.

Fields such as Philosophy, Psychology, and Cognitive Sciences provide valuable perspectives and foundational theories for understanding Representation. Notable figures in this area include Arthur Schopenhauer, a 19th-century German philosopher known for his profound influence; Serge Moscovici, a French psychologist; and Denise Jodelet, a French philosopher and notable researcher in Psychology.

Schopenhauer is well-known for his 1819 work – *O mundo como vontade e representação*. In his studies, the philosopher addresses discussions involving the understanding of what representations are concerning the subject and object dichotomy: "Ser objeto para o sujeito e ser nossa representação ou imagem mental é a mesma coisa. Todas as nossas representações são objetos do sujeito, e todos os objetos do sujeito são nossas representações" (Schopenhauer, 1995, p. 41-42, tradução nossa)[5]. In this context, Schopenhauer understands the general concept of representation as "[...] um objeto que se relaciona necessariamente a um sujeito cognoscente [...]" (Carvalho, 2013, p. 49)[6], implying that the subject is "[...] o único capaz de transcender suas limitações através dos múltiplos conhecimentos que lhe são proporcionados pela sua faculdade cognitiva" (Carvalho, 2013, p. 90)[7]. For Schopenhauer (2005), all knowledge is representation, and the modern philosophical issues concerning the relationship between the ideal and the real hinge on the condition of consciousness.

Among the debates about the different types of representation related to the subject and the object, it is worth highlighting a connection Schopenhauer makes about the Will, which is one of the central themes of his most well-known work. For Schopenhauer, this Will can be attributed, for example, to the acts of the body or to the sensations and feelings of individuals. These discussions can be correlated with the ideas of John Searle, a pioneering philosopher of the Theory of Intentionality, whom we will mention later in the discussions of this research.

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5        Original: "Objekt Für Das Subjekt Seyn, Und Unsere Vorstellung Seyn, Ist Das Selbe. Alle Unsere Vorstellungen Sind Objekte Des Subjekts, Und Alle Objekte Des Subjekts Sind Unsere Vorstellungen" (Schopenhauer, 1995, p. 41-42). Translation: "To be an object for the subject and to be our representation or mental image are the same thing. All our representations are objects of the subject, and all the objects of the subject are our representations" (Schopenhauer, 1995, p. 41-42, editorial translation).
6        Translation: "[...] an object that necessarily relates to a knowing subject [...]" (Carvalho, 2013, p. 49, editorial translation).
7        Translation: "[...] he only one capable of transcending his limitations through the multifaceted knowledge provided by his cognitive faculty." (Carvalho, 2013, p. 90, editorial translation).

In summary, Schopenhauer (2005) argues that pain and pleasure are not representations, but rather pathological experiences of the Will manifesting through the body. However, when these bodily sensations are not attributed to the Will, they can become representations. John Searle builds on this idea by examining mental states like feelings, sensations, and beliefs, investigating whether they possess intentionality, which signifies a directedness towards objects or goals.

Serge Moscovici and Denise Jodelet two prominent scholars in the Theories of Social Representations argue that:

> [...] a noção de representação social nos coloca no ponto em que o psicológico e o social se cruzam. Em primeiro lugar, diz respeito à forma como nós, sujeitos sociais, apreendemos os acontecimentos da vida diária, as características do nosso ambiente, informações que nele circulam, às pessoas do nosso meio próximo ou distante (Jodelet, 1986, p. 473, tradução nossa).[8]

Regarding the Theory of Social Representations, Jodelet (2018) in one of her studies, presents the approach of representative phenomena occurring in social life, slightly modifying the intellectual approach to representation. She states that within these spaces of study on representation, it:

> 1) Indica que as representações, como conhecimentos práticos, implicam uma relação inseparável entre um sujeito e um objeto. O sujeito é sempre social, por sua inscrição no espaço das relações sociais e por seu vínculo com o outro. Pode ser um indivíduo ou um grupo que é observado do ponto de vista epistêmico, psicológico ou pragmático. O objeto pode ser humano (e diz respeito a um ou mais atores sociais) ou social (diz respeito a um grupo ou coletivo, ou a um fenômeno que interessa à vida pública ou privada). Também pode pertencer ao universo material ou ideal.
> 2) Em sua relação com o objeto, a representação está em uma relação de simbolização (e ocorre a dessimbolização) ou de interpretação (atribui um sentido). Em sua relação com o sujeito, a representação tem função expressiva e é produto de uma construção. (Jodelet, 2018, p. 6, tradução nossa)[9].

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8       Original: "[...] la noción de representaión social nos sitúa en el punto donde se entersectan lo psicológico y lo social. Antes que nada concierne a la manera cómo nosotros, sujetos sociales, aprehendemos los acontecimentos de la vida diária, las características de nuestro médio ambiente, las informaciones que en él circulan, a las personas de nuestro entorno próximo o lejano." (Jodelet, 1986, p. 473). Translation: "[...] the notion of social representation places us at the intersection of the psychological and the social. It first concerns the way we, as social subjects, apprehend the events of daily life, the characteristics of our environment, the information circulating within it, and the people in our close or distant milieu" (Jodelet, 1986, p. 473, editorial translation).
9       Original: "Indica que las representaciones, como saber práctico, implican una relación indisociable entre un sujeto y un objeto. El sujeto es siempre social, por su inscripción en el espacio de relaciones sociales y por su lazo con el otro. Puede tratarse de un individuo o de un colectivo al que se observa desde un punto de vista epistémico, psicológico o pragmático. El objeto puede ser humano (y concernir a uno o más actores sociales) o social (y concernir a un grupo o un colectivo, o a un fenómeno que interese a la vida pública o privada). También puede pertenecer al universo material o ideal. En su relación con el objeto, la representación está en una relación de simbolización (y tiene lugar desimbolización) o de interpretación (le asigna un significado). En su relación con el sujeto, la representación tiene una función expresiva y es el producto de una construcción." (Jodelet, 2018, p. 6). Translation: "1) Indicates that representations, as practical knowledge, imply an inseparable relationship between a subject and an object. The subject is always social, due to their inscription in the space of social relations and their connection with others. The subject can be an individual or a group observed from an epistemic, psychological, or pragmatic point of view. The object can be human (concerning one or more social actors) or social (concerning a group or collective, or a phenomenon that interests public or private life). It can also belong to the material or ideal universe.
2) In its relationship with the object, the representation is in a relationship of symbolization (and desymbolization occurs) or interpretation (assigning meaning). In its relationship with the subject, the representation has an expressive function and is the product of a construction." (Jodelet, 2018, p. 6, editorial translation).

Similar to Schopenhauer's ideas on the Will and Searle's concept of intentionality, Moscovici and Jodelet's research on social representations strengthens the notion of "informational subjects." Their work highlights how a subject's cognitive background, shaped by social contexts, influences their intentionality. In other words, the information we acquire through social interactions plays a role in directing our thoughts and actions.

Thus, the approach of Representation Theory in this text emphasizes the treatment of information as a human and social phenomenon, "[...] que compreende tanto o dar forma a ideias e a emoções (informar), como a troca, a efectiva interacção dessas ideias e emoções entre seres humanos (comunicar)". (Silva, 2006, p. 150)[10].

As previously mentioned, there are schools of thought within Psychology that have contributed to the development of studies on Representation. The psychoanalyst Sigmund Freud coined the concept of Representation Theory, with his discussions beginning in 1891 with his work titled "Sobre a concepção das afasias".

According to Peres, Caropreso, and Simanke (2015, p. 163, emphasis added)[11], Freud establishes an argument that is "[...] persuasivo, sistemático e bem fundamentado para a transformação da psicologia de uma ciência da consciência em uma ciência das **representações mentais conscientes** e **inconscientes"**.

Following this line, Representation Theory comprises two concepts: "word representation" and "object representation," which can be defined as follows:

> A **representação de palavra** corresponderia a um complexo associativo constituído por imagens acústicas, visuais, quirocinestésicas e glossocinestésicas cujo elemento acústico seria o principal fator organizador. A **representação de objeto** também corresponderia a um complexo associativo composto por imagens sensoriais variadas no qual o elemento organizador seria, mais frequentemente, a imagem visual. (Peres; Caropreso; Simanke, 2015, p. 164, grifo nosso)[12].

Regarding "word representation," according to Andrade (2016, p. 282), "[...] when the connection of the word with the representation of the object is established, the language apparatus articulates representations that produce a meaning".

The concept of "object representation" was later reformulated as "thing representation." As Andrade (2016) argues, this shift goes beyond mere terminology. It reflects a move from a neurological to a psychoanalytic theoretical framework. The "thing representation" is now directly linked to the content of the unconscious:

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10    Translation: "[...] which encompasses both the shaping of ideas and emotions (informing) and the exchange, the effective interaction of these ideas and emotions between human beings (communicating)."(Silva, 2006, p. 150, editorial translation).
11    Translation : "persuasive, systematic, and well-founded [argument] for the transformation of psychology from a science of consciousness into a science of conscious and unconscious mental representations" (Peres; Caropreso; Simanke. 2015, p. 163, emphasis added, editorial translation).
12    Translation: "The **representation of word** would correspond to an associative complex consisting of acoustic, visual, chirokinesthetic and glossokinesthetic images whose acoustic element would be the main organizing factor. The **object representation** would also correspond to an associative complex composed of varied sensory images in which the organizing element would, most often, be the visual image. " (Peres; Caropreso; Simanke, 2015, p. 164, emphasis added, editorial translation).

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> [...] provêm de, ou remetem a, representações sensoriais, porém o conteúdo das mesmas não é determinado pela coisa representada. A representação aqui se distingue do traço mnêmico, uma vez que a primeira reinveste, reaviva, este traço, que em si mesmo não é mais do que a impressão de um acontecimento. (Arnao, 2008, p. 197)[13].

The literature reveals the complexity surrounding Representation Theory, largely due to its origins in the cognitive background of informational subjects. These subjects are shaped by a multitude of conditions and circumstances that influence their development of skills, competencies, experiences, and knowledge.

In line with these perceptions, it is worth noting that since the inception of studies within the scope of Information Science (IS), research related to Representation Theory has been developed. These studies are found under different perspectives, such as Archival Information Representation, Knowledge Representation, Social Representation, Documentary Representation, Thematic Information Representation, and the most well-known, Information Representation.

Souza e Ramalho (2019, p. 143)[14] state that representations are responsible for grounding "[...] o entendimento humano sobre o funcionamento da vida e do mundo, são formas desenvolvidas para codificar a natureza e as relações entre os seres para uma linguagem assimilável à razão". Lima e Alvares (2012, p. 21)[15] concur, defining representing as "[...] ato de utilizar elementos simbólicos – palavras, figuras, imagens, desenhos, mímicas, esquemas, entre outros – para substituir um objeto, uma ideia ou um fato".

Additionally, Novellino (1998, p. 137)[16] onceptualizes Information Representation as:

> [...] a substituição de uma entidade linguística longa e complexa – o texto de um documento – por sua descrição abreviada. Sua função é demonstrar a essência do documento. A representação da informação é um processo primeiro da transferência da informação e necessário para enfatizar o que é essencial no documento, considerando sua recuperação.

Thus, information representation is directly linked to the speed and success with which users can access and utilize information. The retrieval, findability, and appropriation of information depend on enriched forms of representation with structures tailored to specific environments, ensuring a satisfactory user experience in accessing the desired information (Castro, 2008).

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13    Translation: "[...] they come from or refer to sensory representations, but their content is not determined by the represented thing. The representation here is distinguished from the memory trace, as the former reinvests, revives this trace, which in itself is nothing more than the impression of an event." (Arnao, 2008, p. 197, editorial translation)

14    Translation: "[...] human understanding of the functioning of life and the world; they are forms developed to encode nature and relationships between beings into a language assimilable to reason". (Souza; Ramalho, 2019, p. 143, editorial translation).

15    Translation: "[...] the act of using symbolic elements – words, figures, images, drawings, mimics, schemes, among others – to substitute an object, an idea, or a fact." (Lima; Alvares, 2012, p. 21, editorial translation).

16    Translation: "[...] the substitution of a long and complex linguistic entity – the text of a document – its abbreviated description. Its function is to convey the essence of the document. Information representation is a primary process of information transfer and is crucial for emphasizing what is essential in the document, particularly for its retrieval." (Castro, 2008, p. 75, emphasis added, editorial translation).

Makowiecky (2003, p. 23)[17] suggests that it is within representation that individuals "[...] encontra reflexos do seu próprio pensar". In the context of a socioinformational environment, individuals are considered informational subjects – diverse and active agents who produce, interpret, appropriate, and mediate information in their daily lives, both individually and collectively within society (Carmo & Araújo, 2020).

Within digital informational environments, these subjects:

> [...] ao interagirem com um determinado ambiente, devem ter em mente algum tipo de representação de segmentos deste ambiente, ou seja, ter **representações internas**. Em contrapartida, temos as **representações externas**, ou seja, manipulações que operam as representações numa externalização do comportamento do sujeito que poderia conduzir a estabilidade entre o sujeito e o ambiente. (Castro, 2008, p. 75, grifo do autor)[18].

The role of informational subjects amidst constant societal changes, particularly in the realm of Information and Communication Technologies (ICT), is crucial. These subjects constantly consume and produce information, and as Massoni and Luis note, "[...] ao acessarmos uma **informação** em qualquer prática cotidiana, estamos acessando uma **representação** sobre aquilo que é informado", (Massoni; Luis, 2018, p. 76, grifo nosso)[19].

Therefore, digital informational environments must offer effective forms of representation to ensure findability and, most importantly, to enable the appropriation of information and the subsequent generation of knowledge by socioinformational subjects. As Marcondes aptly puts it, "De nada adianta a informação existir, se quem dela necessita não sabe da sua existência, ou se ela não puder ser encontrada" (Marcondes, 2001, p. 61)[20].

**The theory of intentionality and the intentionality of informational subjects**

The Theory of Intentionality is intertwined with Phenomenology, which emerged in the mid-20th century through the works of Edmund Husserl, Heidegger, Merleau-Ponty, and Brentano. It continued into the 21st century with Post-Phenomenology, featuring theoretical studies stemming from IDHE (Oliveira, 2014; Marandola Jr., 2013; Figueiredo, 2012).

At the core of Phenomenology lies the doctrine of Intentionality, adhering to the school of thought that "[...] cada ato de consciência que nós realizamos, cada experiência que nós temos, é intencional: é essencialmente 'consciência de' ou uma 'experiência de' algo ou

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17      Translation: "[...] find reflections of their own thinking" (Makowiecky, 2003, p. 23, editorial translation).
18      Translation : "[...] when interacting with a certain environment, must have in mind some type of representation of segments of this environment, that is, have **internal representations**. On the other hand, we have **external representations**, that is, manipulations that operate the representations in an externalization of the subject's behavior, which could lead to stability between the subject and the environment " (Castro, 2008, p. 75, emphasis added, editorial translation).
19      Translation : "[...] when we access **information** in any daily practice, we are accessing a **representatio**n of what is informed" (Massoni; Luis, 2018, p. 76, emphasis added, editorial translation).
20      Translation : "It is useless for the information to exist if those who need it do not know of its existence or if it cannot be found" (Marcondes, 2001, p. 61, editorial translation).

de outrem". (Sokolowski, 2004, p. 17)[21]. Within this perspective, Husserlian Intentionality or Phenomenological Intentionality is "[...] **visada de consciência e produção de um sentido** que permite perceber os fenômenos humanos em seu teor vividos" (Husserl, 2008, pp. 28-29, grifo do autor)[22].

Thus, consciousness is Intentionality and should be conceived as meaning – initially as sense, then direction, and finally, signification. Therefore, "[...] consciência não é coisa, mas é aquilo que dá sentido às coisas. O sentido não se constata à maneira de uma coisa, mas se interpreta" (Husserl, 2008, p. 30)[23].

Alongside the central idea of Phenomenology, concerning the human-world relationship through the intentionality of subjects, Post-Phenomenology emerges with the human-[technology]-world relationship. Given the need for studies focused on concerns with the world and mediations through technological tools, this school of thought can contribute, for example, to research related to information seeking (Figueiredo, 2012).

John Searle, a philosopher and pioneer in the study of Intentionality Theory, states on one of his books covers that "[...] representação de uma sentença deriva da Intencionalidade da mente". Searle considers sentences to be intentional states, containing intrinsic states of the human mind, such as beliefs and desires. These sentences can be "[...] os sons emitidos pela boca ou os sinais gráficos que se fixam no papel" (Searle, 2002, p. 8)[24].

When discussing Intentionality, we often associate it with the notion of intention in the sense of action, purpose, desire, etc. However, Searle (2002, p. 4)[25] asserts that: "[...] intencionalidade é direcionalidade; ter a intenção de fazer algo é apenas uma forma de Intencionalidade entre outras". In a preliminary definition of Intentionality, Searle (2002, p. 18)[26] argues that: "[...] chave para o entendimento da representação está nas condições de satisfação. Todo estado Intencional com uma direção de ajuste é uma representação de suas condições de satisfação".

Given this definition, it's necessary to understand the elements that comprise Intentionality. Inherent to this concept, we have mental states and intentional states, which, although related, are not identical.

Miranda (2018, p. 42), based on Searle's (2002) discussions, exemplifies these states:

> Em primeiro lugar, nem todos os estados mentais são estados intencionais, como por exemplo, alguns estados de ansiedade, exaltação e melancolia. Em segundo lugar, é preciso distinguir Intencionalidade e consciência, pois ter consciência de algumas sensações, como a ansiedade, não significa que ela esteja direcionada para algo, ou

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21      Translation: "[...] "each act of consciousness we perform, each experience we have, is intentional: it is essentially 'consciousness of' or an 'experience of' something or someone" (Sokolowski, 2004, p. 17, editorial translation).
22      Translation: "[...] **the aiming of consciousness and the production of a meaning** that allows us to perceive human phenomena in their lived content" (Husserl, 2008, pp. 28-29, emphasis on the original, editorial translation).
23      Translation: "[...] consciousness is not a thing, but that which gives meaning to things. Meaning is not ascertained like a thing, but interpreted" (Husserl, 2008, p. 30, editorial translation).
24      Translation: "[...]the representation of a sentence derives from the Intentionality of the mind". "[...] the sounds emitted by the mouth or the graphic signs that are fixed on paper" (Searle, 2002, p. 8, editorial translation).
25      Translation: "[...] intentionality is directionality; having the intention to do something is just one form of Intentionality among others" (Searle 2002, p. 4, editorial translation).
26      Translation: "[...] the key to understanding representation lies in the conditions of satisfaction. Every Intentional state with a direction of fit is a representation of its conditions of satisfaction." (Searle, 2002, p. 18, editorial translation).

seja, que possua Intencionalidade. Em terceiro lugar, o sentido de tencionar algo não significa que há uma direcionalidade com algo ou que as crenças sejam Intencionais. (Miranda, 2018, p. 42)[27].

Regarding mental and intentional states, Searle (2002) posits that both occur only within what he defines as the **Network** and the **Background**. Furthermore, according to Carvalho (2021), it is not possible to experience a mental or intentional state in isolation, as this experience is supported by a network of other states.

Searle understands the Background as a "[...] conjunto de capacidades mentais não-representacionais que permite a ocorrência de toda representação" (Searle, 2002, p. 198)[28]. This Background can be divided into two aspects: the **basic or deep Background**, related to the biological constitution of the human being (abilities, competencies, behaviors); and the **local Background**, which encompasses experiences acquired culturally in social life, meaning these capacities are acquired and can be influenced by context (social, cultural, political, technological, etc.) (Searle, 2002; Carvalho, 2021).

The conditions of satisfaction are directly linked to what Miranda (2018) calls the process-product, which encompasses both the requirement and the thing required. Within the perspective of IS studies, an example of this situation refers to the information-seeking process and the desired IE by the subject. Thus, by understanding the informational needs of subjects (their representation of intentionality), we can meet their conditions of satisfaction within a digital informational environment.

Given these explanations, we can understand that Intentionality precedes the concepts of Representation and deepens the entire process involving the act of representing something. In this sense, intentional states can be understood as representative contents. Speech acts, for example, are representations of the intentional states of subjects, even though Intentionality is not solely linguistic, as observed from the definition of sentences presented earlier.

Speech acts as a representative state of Intentionality are composed of three points: I) the direction of fit; II) sincerity when expressing a speech act with propositional content; and III) the conditions of satisfaction. The first point, direction of fit, is related to the purpose of the speech act, characterized as statements, descriptions, and assertions (assertive speech acts) and orders, commands, and requests (directive speech acts). The second, sincerity when expressing a speech act with propositional content, pertains to the content of the speech act, characterized as propositional content (desires, doubts, beliefs) or its representative content. A speech act can be insincere, ironic, or even a lie – in this case, there is no direction of fit, and the propositional content becomes presupposed by the other. The third point, the

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27      Translation: "Firstly, not all mental states are intentional states, such as some states of anxiety, excitement, and melancholy. Secondly, it's necessary to distinguish between Intentionality and consciousness, as being aware of certain sensations, like anxiety, doesn't mean it's directed towards something, that is, that it possesses Intentionality. Thirdly, the sense of intending something doesn't mean there's directionality towards something or that beliefs are Intentional." (Miranda, 2018, p. 42, editorial translation).
28      Translation: [...] set of non-representational mental capacities that allows for the occurrence of all representation." (Searle, 2002, p. 198, editorial translation).

conditions of satisfaction, is linked to the success of the speech act, meaning the fulfillment or understanding when making a statement or an order. These conditions are internal to the intentional states (Miranda, 2018).

Thus, Searle (2002, p. 244)[29] states that the "[...] principal função derivada da Intencionalidade pela linguagem é, obviamente, sua capacidade de representar". Therefore, if a:

> [...] representação é algo que está no lugar de outra coisa, e por conseguinte é intencional e, ao mesmo tempo tanto as representações de palavra, que não remetem a uma única coisa, nem as representações de coisa a um único traço mnêmico ou objeto indiferente à maneira de objetivo, então o próprio conceito de intencionalidade se torna mais complexo e, com ele, o de significado. (Arnao, 2008, p. 200)[30].

As for the perspective of meaning, Searle (2002) suggests that there are two aspects to the intentions of signification: the intention to represent and the intention to communicate. In this context, "[...] para a consciência, o objeto seria nada, se ela não consumasse um representar que o fizesse precisamente objeto e tornasse, assim, possível que ele fosse também objeto de sentimento, de desejo etc." (Husserl, 2012, p. 368)[31].

In the field of Information Science, the intention to represent occurs with the possibility of adjustments in communication processes, aiming to meet the informational needs and facilitate the appropriation of information by subjects. In other words, information is our object.

Bringing the discussions about the Theory of Intentionality to an approach from the perspective of human-social Information within the scope of IS, it is evident that few studies have been developed. Miranda (2010), in her thesis, was the first to address the theory in this area. The author develops discussions about information as a property in the context of Intentionality and Findability – the English term for the concept of IF. Regarding IF, the author addresses the definition of the concept of Intentionality for Findability, which:

> [...] significa *direcionalidade* de informação e se funda na experiência de cada sujeito (*user experience* para controle na produção, organização e partilha de informação); a informação que é produzida é sempre *acerca de e dirigida a*, isto é, um sujeito, com a sua experiência, cria informação acerca de e dirigida a para atingir seus objetivos. E é nesse sentido, da capacidade da experiência do usuário, da consciência Intencional, que se baseia a *web* da inovação, do paradigma atual (Miranda, 2010, p. 273)[32].

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29    Translation: "[...] the main function derived from Intentionality by language is, obviously, its capacity to represent" (Searle 2002, p. 244, editorial translation).

30    Translation: "[...] representation is something that stands in place of something else, and is therefore intentional, and at the same time both word representations, which do not refer to a single thing, nor thing representations to a single mnemonic trace or object indifferent in the manner of an objective, then the very concept of intentionality becomes more complex and, with it, that of meaning" (Arnao, 2008, p. 200, editorial translation).

31    Translation: "[...] for consciousness, the object would be nothing if it did not accomplish a representation that precisely made it an object, thus allowing it to also be an object of feeling, desire, and other experiences." (Husserl, 2012, p. 368, editorial translation).

32    Translation: "[...] means directionality of information and is based on the experience of each subject (user experience for control in the production, organization, and sharing of information); the information that is produced is always about and directed to, that is, a subject, with their experience, creates information about and directed to achieve their goals. And it is in this sense, of the capacity of the user's experience, of the Intentional consciousness, that the web of innovation, of the current paradigm, is based." (Miranda, 2010, p. 273, editorial translation).

Following Miranda's (2010) thesis, Vechiato (2013), addresses the concept of IF and the theme of the Theory of Intentionality through the creation of the attribute **Intentionality of Informational Subjects**, which is loaded with,

> [...] experiências, necessidades e competências (tanto as informacionais quanto as tecnológicas), entendimento, cognição e satisfação, fornecendo, inclusive, subsídios para a estruturação de sistemas e ambientes informacionais (Vechiato; Vidotti, 2014, p. 113)[33].

IF is connected to the concept of Architecture of Information (AI): both terms employ a conceptual and operational approach regarding the design, implementation, and evaluation of digital informational environments (Brandt; Vechiato; Vidotti, 2018). For Vechiato and Vidotti, IF occurs in two intances: "[...] a partir da busca prévia de informação por meio da **navegação** ou de estratégias de pesquisa em um **mecanismo de busca** (*Search Engine*), as quais, em um primeiro momento, são realizadas via palavras-chave" (Vechiato; Vidotti, 2014, p. 110, ephasis added)[34]. Its application should be viewed based on both the potential of the **functionalities** and the quality of informational resources inserted into an information system, as well as on the **characteristics and behaviors of informational subjects** (Vechiato & Vidotti, 2014).).

In line with the importance that Miranda (2010) places on the subject in her definition of Intentionality, Vechiato and Vidotti (2014) state that, for Intentionality to sustain IF, informational subjects have the role of being mediators in all processes of infocommunicational flow and mediation – "[...] deriva dos termos informação e comunicação, explicando que só há informação se ela estiver inserida em um processo de comunicação" (Custódio; Vechiato, 2016, p. 3)[35].

In this context, Intentionality is not isolated but rather contingent on relationships. Thus, within the scope of Intentionality, several actors come into play: the information seeker, information professionals, the information producer, the informational space, the type of information, language, the material embodying the information, the context, the forms of information representation, and others.

To provide a foundation for the discussions on the correlations between the Theory of Intentionality and the Theory of Representation, and their contributions to digital informational environments through the perspective of IF, it is necessary to present Table 2, which establishes IF's thirteen (13) attributes.

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33    Translation: "[...] experiences, needs, and competencies (both informational and technological), understanding, cognition, and satisfaction, even providing subsidies for the structuring of information systems and environments." (Vechiato; Vidotti, 2014, p. 113, editorial translation).

34    Translation: "[...] rom the prior search for information through **navigation** or search strategies in a **search engine**, which, at first, are performed via keywords" (Vechiato; Vidotti, 2014, p. 110, added emphasis, editorial translation).

35    Translation: "[...] derives from the terms information and communication, explaining that there is only information if it is inserted in a communication process" (Custódio; Vechiato, 2016, p. 3, editorial translation).

**TABLE 2** – Attributes of Information Findability (AEI)

| Attribute | Description |
|---|---|
| **Navigational Taxonomies** | Used in top-down organizational structures, they refer to the organization of informational categories to facilitate navigation and the discovery of information. These categories, for example, are usually organized in menus or in the body of web pages, in communities and collections of repositories, or in captions used for subject description on library shelves, organized in advance from a classification system. According to Aquino, Carlan, and Brascher (2009), navigational taxonomies should be supported by the following aspects: coherent categorization of subjects in relation to the understanding of subjects; terminological control to reduce ambiguity; hierarchical relationship between terms; and multidimensionality, allowing a term to be associated with more than one category according to the context of use. |
| **Terminological Control Instruments** | Include controlled vocabularies, such as thesauri and ontologies, to support the representation of informational resources. |
| **Folksonomies** | Related to the social organization of information, they allow subjects to classify informational resources, as well as find information through navigation (a tag cloud, for example) or search mechanisms, expanding access possibilities. They are used in bottom-up organizational structures. When associated with controlled vocabularies and semantic technologies, they enhance the possibilities of information findability.. |
| **Metadata** | Comprise the representation of informational resources and are stored in databases for information retrieval purposes. |
| **Mediation of Computer Scientists** | Associated with the development of systems, devices, databases, and interfaces using computational languages, aiming at information management and retrieval. |
| **Mediation of Information Professionals** | Occurs in informational environments where there are institutional subjects involved in the selection, structuring, and dissemination of information. |
| **Mediation of Informational Subjects** | Related to the infocommunicational actions that informational subjects undertake in any information systems and environments, for example, regarding the production and organization of information and knowledge in collaborative environments, generated from their knowledge, behavior, and competencies that characterize their Intentionality. |
| **Affordances** | Function as incentives and clues that objects possess and provide to subjects to perform certain actions in the environment's interface. These actions are related to orientation, location, findability, access, discovery of information, among others. |
| **Wayfinding** | Associated with spatial orientation, using aspects that facilitate the location, findability, and discovery of information through navigation in the environment's interface. |
| **Information Discovery** | Conditioned by the other attributes of information findability regarding the facilities that the interface (navigation and/or search mechanisms) offers to find the information appropriate to the subject's informational needs, as well as possible secondary informational needs. |
| **Accessibility and Usability** | Related to the system's ability to allow equitable access to information (accessibility) within the scope of the target audience established in a project with facilities inherent to the use of the interface (usability). |
| **Intentionality** | The theory of Intentionality underlies the importance of emphasizing the experiences and skills of informational subjects in the design of information environments and systems. |

| Attribute | Description |
|---|---|
| **Mobility, Convergence, and Ubiquity** | Associated with the environment, external to information systems and environments, but including them, making them dynamic and enhancing the possibilities for subjects to find information through different devices and in different contexts and situations. |

Fonte: Vechiato, Oliveirae e Vidotti (2016, p. 7).

Observing the composition of these attributes, it becomes evident that Information Representation and the Intentionality of informational actors directly and indirectly influence the thirteen (13) attributes of IF. Both concepts can be understood as structural pillars that affect the performance of a digital information environment in both its user interface and underlying infrastructure.

The Intentionality of Informational actors is manifested through its formalization, which are the forms of representation. Thus, every decision made by an actor within an environment, such as the choice of specific visual and textual elements that influence IF, navigation and discovery, has been shaped by Intentionality. In particular, the concept of Intentionality is intertwined with the Mediation attributes, referred to within the IF concept as: mediation of computer scientists, mediation of information professionals, and mediation of informational actors – as these are attributes linked to human action.

Regarding Information Representation, it's possible to look beyond its conceptual aspect and envision various applicable forms, informational and technological resources that can enhance this environment, such as: the use of open and international metadata standards; the use of Semantic Web technologies like ontologies to improve the terminological control instrument attribute; the use of elements from Artificial Intelligence, such as natural language processing incorporated into the environments' search mechanisms, thereby enriching the information discovery attribute.

## PRESENTATION AND DISCUSSION OF RESULTS

This section will present discussions and reflections from two perspectives: theoretical and practical, as well as a table summarizing the study's results regarding the guiding question and objective of this research.

### Theoretical Reflections

Based on the literature review presented, it was possible to establish correlations between the theoretical contributions of Representation Theory and Intentionality Theory. Initially, we can begin these discussions by stating that Intentionality precedes the representation

process carried out by informational actors, as it is through intentional states that the representational phenomenon occurs. We can thus say that the Intentionality of informational actors is intrinsic to Information Representation.

It is relevant to present and clarify the importance of the concept of Information Mediation linked to the Theories of Representation and Intentionality. Rojas (2018) states that mediation and intentionality are inseparable, as intentionality supports, directs, and gives meaning to documentary records. Through the attributes presented in TABLE 2, it is noted that the concept of Mediation also occupies an important space in IF, with three (3) of the thirteen (13) attributes dedicated to this act, which are divided into: mediation of computer scientists; mediation of information professionals; and mediation of informational actors.

Thus, considering the relationship of mediation with both theories, we can affirm that the extrinsic mediation of information – which would be like the "product" of mediation – can be understood as the representations within a digital information environment, which will always be imbued with Intentionality, as they are independent of the qualification of the mediator (computer scientist or information professional). As an informational actor has their particularities, in this case, there is an even greater concern regarding professional responsibility and ethics when mediating, to make it possible to transfer and not manipulate information.

In this sense, when we establish the importance of the informational actor and their intentionality when representing information, we must consider that these are multifaceted and complex beings who carry in their cognitive baggage a series of aspects that influence and determine their interpretation upon receiving information. Social, cultural, political, linguistic, and technological aspects intertwine with aspects inherent to human characteristics, such as intelligence, skills, senses, aesthetic perceptions, knowledge, values, desires, feelings (love, hate, happiness, sadness, anxiety) (Rojas, 2018).

Given this complexity, the relevance of information dissemination stands out, as it is a:

> [...] ato social para o qual o reconhecimento do contexto é fundamental. O significado de cada informação não é estabelecido previamente por quem organiza, mas vai sendo estabelecido durante o processo de comunicação, havendo um sentido partilhado de valor, considerando-se, não apenas a essência ou o conteúdo da informação mas, também, seus contextos de produção e os possíveis contextos de uso (Novellino, 1998, p. 138)[36].

In this context, organizing and representing information within a digital information environment must always consider the specific context and target audience. Offering diverse ways to share information is crucial, ensuring the environment is suitable and enriched with various forms of representation, particularly in its interface, thereby enhancing IF. This dynamic

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36      Translation: "[...] social act for which the recognition of context is fundamental. The meaning of each piece of information is not established beforehand by the organizer, but is established during the communication process, with a shared sense of value, considering not only the essence or content of the information but also its production contexts and the possible contexts of use" (Novellino, 1998, p. 138, editorial translation).

approach to providing information within a given space caters to diverse information seekers who can interpret the same content or resource differently, particularly due to their unique perspectives (social, affective, or cognitive).

It is essential to clarify that IF is not synonymous with Information Retrieval, as retrieval is just one component of the Findability process (Vechiato & Vidotti, 2014; Roa-Martínez, 2019). IF aligns with the satisfaction an information seeker experiences when their information need is met. This satisfaction stems from the quality and structure of information resource representations within a digital information environment. Information Retrieval, conversely, focuses on the results: the environment must provide the best answers to the user's query; the Findability process can only occur based on the quality of these results.

Revisiting the discussions of psychoanalyst Freud and philosopher Searle, Freud's science of conscious and unconscious representations resonates with Searle's beliefs regarding networks of intentional states and the background of information seekers, thus supporting the assertion that intentionality precedes representations. Additionally, both Freud and Searle extensively discuss the significance of speech and/or language and the power of signification inherent in this act. In this same vein of signification, both engage with the concept of object and visual perceptions. Therefore, despite their complex discussions on consciousness and unconsciousness, it is possible to identify correlations that, when combined, can substantially contribute to the concept of Intentionality of Information Seekers within the field of IS.

Miranda (2018) defines Intentionality as a characteristic of information, classifying it as a process, and from this understanding, it can be evaluated within information systems under the following variables: I) Intentionality: thoughts as beliefs about things; II) Consciousness: experience coupled with subjectivity; III) Privacy: mental states (unique and intimate); and IV) Directionality: continuity.

For the author, information possesses intentionality, from which meanings emerge. In this sense, it is suggested that studies related to information seekers in the IS field should extend beyond mapping search behavior in a digital information environment.

In conclusion, it can be inferred that within Information Science studies, the concepts of Intentionality, Representation, and Mediation are intertwined, and the combined theoretical contributions of each can enrich research on Information Findability, particularly concerning the design of digital information environment projects. The notion that users should participate throughout this entire process, not just in the system evaluation stage after implementation, is advocated here.

**Practical Reflection**

When discussing different forms of information representation, particularly within the IS field, we find examples of textual and visual elements that enhance information environments, either through their functionalities in interoperating systems or through the ability to standardize computational language models.

The IF attributes, previously presented as foundational for developing digital information environment projects, also assist in the implementation and evaluation of these spaces. In conjunction with these attributes, Vechiato and Vidotti (2014) propose a model and recommendations to facilitate their application in the various existing layers of environment construction.

Within the model, the Intentionality attribute is linked to two moments: information production and search. The authors establish and reaffirm the prevailing paradigm where information seekers are both producers and consumers of information. In this sense, the involvement of information seekers from the outset of digital information environment design can enrich and advance prior and subsequent stages of resource development needed for implementation. This participation can incorporate important aspects of their intentionality, potentially enhancing findability and, consequently, the environment's success.

Information Representation is supported by metadata within the realm of Information Science. According to Landshoff (2010), metadata qualifies information and describes a digital object. Thus, it is:

> [...] uma prática imprescindível para que os recursos sejam localizados. Para tanto, os metadados precisam ser adequados ao que se intenciona disponibilizar, no que se refere às suas características e especificidades. Por outro lado, é relevante certificar-se do uso adequado das estruturas de representação, visando favorecer a descoberta dos dados por máquinas. (Torino; Vidotti; Vechiato, 2020, p. 13)[37].

Metadata is one of the main pillars for the success of a digital informational environment – its application relates to the whole of a project, influencing all stages of operation and IF (search mechanism and/or interface). In this sense, Ferreira (2018, p. 136)[38] points out that "[...] interface é o primeiro contato do usuário com o ambiente e, sendo assim, deve estar programada para permitir experiências significativas"; urthermore, they say that the greater the specifications implemented in an environment, the greater the subject's level of satisfaction.

Given these statements, we can reflect on the applications of the Intentionality of information seekers through textual or even visual representations embodied in some IF attributes. Among them, we find affordances, which are:

> [...] possibilidades/pistas de ação e sua detecção depende de fatores cognitivos – experiências/vivências/memórias, competências, habilidades, isto é, a Intencionalidade do sujeito (Vechiato; Trindade 2020, p. 18)[39].

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37　　Translation: " [...] an essential practice for resources to be located. For this, the metadata needs to be adequate to what is intended to be made available, regarding its characteristics and specificities. On the other hand, it is relevant to ensure the proper use of representation structures, aiming to favor the discovery of data by machines" (Torino; Vidotti; Vechiato, 2020, p. 13, editorial translation).

38　　Translation: "[...] the interface is the user's first contact with the environment and, therefore, must be programmed to allow for meaningful experiences" (Ferreira, 2018, p. 136, editorial translation).

39　　Translation: "[...] possibilities/clues for action, and their detection depends on cognitive factors – experiences/memories, competencies, skills, that is, the Intentionality of the subject" (Vechiato; Trindade 2020, p. 18, editorial translation).

From the same perspective, we have the attribute of wayfinding, which consists of the spatial orientation of the individual in certain environments, which is instinctive to humans and establishes the decision-making of subjects (Miranda; Vechiato, 2017).

Thus, it is noted that wayfinding is linked to the attribute of affordances, as subjects "[...] enxergam e **atribuem** aos objetos **funções** mediante a sua Intencionalidade" (Vechiato; Trindade, 2020, p. 18, grifo nosso)[40]. We also have the attribute called folksonomy, a suitable resource for some types of environments. It allows for the application of user Intentionality by enabling them to assign meaning through the social classification of content available within the environment.

Among other resources related to the enrichment of textual representations, notably in search mechanisms, are applications related to the Semantic Web and Artificial Intelligence. These leverage techniques such as machine learning[41] and natural language processing, thus making the Information Retrieval process more semantic, intelligent, and aligned with user needs (Coneglian, 2020).

Searle, in some of his texts, discusses Artificial Intelligence and advocates for the superiority of the human mind in representation, particularly in its semantic capacity. His perspective can be understood through the analysis presented by Carvalho (2021, p. 15) on this topic:

> Searle nos lembra que a nossa mente não é um fenômeno biológico com apenas uma estrutura formal, mas também com um conteúdo semântico. Esse conteúdo semântico foi provavelmente desenvolvido por meio de nossa intencionalidade intrínseca e do *background*. [...] é necessário que esse computador digital possua de fato uma vida mental com as propriedades naturais e biológicas que nossas mentes apresentam, e não que apenas que ele simule ter algumas dessas propriedades mentais (Carvalho, 2021, p. 15)[42].

Nevertheless, semantic improvement within a digital information environment will increasingly facilitate user interaction, and Information Science, in conjunction with Computer Science, can develop studies and applications that enhance this resource to meet the ever-evolving information needs within the digital context.

In summary, Information Representation can be viewed as a cornerstone of Information Findability. Inherent to Information Representation is Intentionality; therefore, it is imperative that digital information environments utilize harmonized, structured, and enriched models, standards, and information resources to ensure Information Findability, thereby fostering information appropriation and the generation of new knowledge.

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40      Translation: "[...] they see and attribute functions to objects through their Intentionality" (Vechiato; Trindade, 2020, p. 18, added emphasis).
41      "[...] The field of machine learning seeks to create softwares that learn from the experiences the system undergoes." (Coneglian, 2020, p. 92).
42      Translation: "Searle reminds us that our mind is not a biological phenomenon with only a formal structure, but also with semantic content. This semantic content was probably developed through our intrinsic intentionality and background. [...] it is necessary that this digital computer actually has a mental life with the natural and biological properties that our minds present, and not just that it simulates having some of these mental properties" (Carvalho, 2021, p. 15, editorial translation).

## RESULTS

The paper addresses theoretical and practical reflections on the Theories of Representation and Intentionality. After presenting the discussions from both perspectives, **TABLE 3** seeks to present, concisely, the main points of these reflections that correspond to the results of the study.

TABLE 3 – Correlation between Representation Theory and Intentionality Theory

| Results | |
|---|---|
| I | Intentionality is inherent to the concept of Representation and can be seen as a prior process, since Intentionality is formalized through representations; |
| II | The concept of Mediation is linked to both theories and is an important pillar to ensure Information Findability; |
| III | In Information Science, we can find the foundations of Representation Theory in a field of study known as Information Representation: there is an effort in the area to produce, consolidate, and standardize forms of representation; some examples are the studies on: thesauri, controlled vocabularies, ontologies, metadata markup language, etc; |
| IV | The attributes of Information Findability are fostered by three pillars: the Intentionality of Informational Subjects, the forms of Information Representation, and the processes of Information Mediation; and |
| V | The concept of communication can be seen as a common objective between the Theories of Representation and Intentionality in the context of Information Science. Thus, the correlations lie in the act of communicating and how this action is loaded with meanings. |

Source: Created by the authors (2022).

Finally, the results presented in **TABLE 3** address the research problem of this study, which aimed to understand how the correlations between both theories could contribute to enhancing IF in digital information environments. These results achieve the proposed objective, presenting the positions of Representation Theory and Intentionality Theory within the Information Science landscape.

## CONCLUSION

Reiterating the research objective, which was to identify the correlations between Representation Theory and Intentionality Theory to understand how their dialogue could enhance digital information environments from the perspective of Information Findability, it can be concluded that these correlations primarily relate to the theoretical-methodological foundations of the terms.

Studies on IF within Information Science are relevant due to the intensity with which the information phenomenon occurs in the digital realm. The concept encompasses foundations that can improve digital information environments by considering the cognitive background of information seekers.

The concept of IF is still undergoing consolidation within the field, but, as observed, it is supported by a network of well-defined concepts in Information Science, such as Information Representation and Information Mediation.

Finally, it is now necessary to continue studies addressing Intentionality Theory and, particularly, the formalization of the newly established attribute, Intentionality of Information Seekers, as a distinct area of study within Information Science. The literature review reveals a scarcity of developed works in this area, which are of paramount importance for solidifying the role of information seekers, who are contemporaneously involved in the entire process of info-communicational flow/mediation within the digital context.

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