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Information Worlds, Artificial Intelligence, and Information in Society

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Abstract

This paper proposes that the Theory of Information Worlds (TIW) can provide intellectual context to issues around artificial intelligence (AI) and provide a theoretical framework for how AI operates in the classroom. This is an exploratory conceptual paper that includes a review of TIW and its relevance to the current higher educational system. The paper concludes that TIW offers a valuable contribution to the decades-long attempt to pinpoint the social aspects of human-computer interaction. Two research questions are formulated to inquire how TIW can be used in this way. A thought experiment anchors the theory in the use of LLMs in higher education classrooms, and a theoretical matrix for educators is constructed based on the five elements of TIW. Avenues for further research are explored. The Theory of Information Worlds is primarily a social theory, and in providing a proposal for understanding the roles of artificial intelligence in education, it offers a unique approach to conceptualizing how people, information, and artificial intelligence interact.

Keywords: Theory of Information Worlds; artificial intelligence; human-computer interaction; higher education

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1. INTRODUCTION

The adoption of generative artificial intelligence (GenAI) tools by students and faculty has been widely used, discussed, and pilloried across higher education institutions. Since the general availability of large language models such as ChatGPT in 2022, GenAI has been reshaping student writing habits, literature synthesis, and teaching workflows (Freeman, 2025; Mulford, 2025). However, this rapid ubiquity has sparked controversy. Educators and researchers actively debate the ethical boundaries of GenAI, raising significant concerns regarding plagiarism, algorithmic creation of incorrect and/or nonexistent citations, the erosion of student critical thinking skills, and the blurring of traditional authorial identity (Baldrich et al., 2025; Cotton et al., 2024; Jin et al., 2025; Kasneci et al., 2023; Wise et al., 2024a). As a result of the rapid development of GenAI in many areas of life, it is critical to provide theoretical structures to explain and describe how its presence is unfolding in educational contexts, both generally and in particular fields of inquiry or semantic arenas.

This paper will provide one theoretically bounded discussion of the presence of GenAI in higher education, particularly LLM use by students and faculty. I will contextualize issues around (GenAI) in educational environments through discussion one of the few theories developed principally through work in the library sciences, the Theory of Information Worlds (TIW) (Jaeger & Burnett, 2010). I will begin with a literature review that explains the history, development, and components of TIW. This paper relies heavily on this literature review to bring TIW to a new audience and fit it in with past work about the social aspects of technology. The methodological aspect of the paper is a thought experiment to explore how components of TIW apply to AI in the higher education context and a discussion of TIW as it relates to the foundational information science concept of information value. This conceptualization leads to a matrix that may assist educators in understanding the social implications of GenAI use in their classrooms. It concludes with a discussion about future directions this conceptualization could take. The theoretical approach of TIW to GenAI in this research is unique.

1.1 Research questions

This conceptual approach addresses the following research questions:

RQ1: How does the Theory of Information Worlds help us more fully to understand information interaction, character, and systems, and the information worlds in which artificial intelligence appears?

RQ2: Once we find AI in an information world, in what ways can the theory account for it?

Beyond these explicit questions, the paper seeks to investigate how AI fits into the five social elements of TIW, social norms, social types, information value, information behavior, and world boundaries, to determine if AI can be viewed as a true agent within these social contexts. Ultimately, this thought experiment aims to use TIW to provide intellectual context for AI issues and to conceptualize AI's role within research and educational environments.

2. LITERATURE REVIEW

2.1 The Theory of Information Worlds

TIW was fully described by Burnett and Jaeger relying on and refining components of the Small Worlds theory of Elfreda Chatman, with whom Burnett worked at the very beginning of the 21st century (Burnett et al., 2001; Chatman, 1996, 2000; Jaeger & Burnett, 2010). The theory has been a part of the scholarly conversation in a limited way since (Burnett, 2015; Burnett et al., 2014; Burnett & Jaeger, 2011; Hollister et al., 2025; Park et al., 2022). In TIW, Jaeger and Burnett were refining and expanding upon the research and thinking of Elfreda Chatman, a librarian and information science researcher, and Jürgen Habermas, a German philosopher and social theorist. Chatman identified definable, localized social groupings, limited by geography, socioeconomics, or common interests, which she called Small Worlds, and noted that people in a specific context and population in routine, expected ways (Chatman, 1996, 1999, 2000). TIW combines small worlds with Habermas' notion of the life world into a concept called information world to explain the nature, role, activities, and analysis of information more fully in human communities than either of the theories alone can do (Jaeger & Burnett, 2010). It also includes Chatman's observation that members exhibit behavioral norms to define in-group status and reify group boundaries (Chatman, 1996). Chatman's work has had some influence in the discussion of information behaviors by researchers in the field of library science, her work has not been widely recognized outside of it, not even among those in the related field of information science (Park et al., 2022).

In contrast, Habermas' work has been hugely influential in the social science, political science, communication, economics, and cultural studies disciplines, though not particularly in library and information sciences (LIS) (Jaeger & Burnett, 2010). Jürgen Habermas developed his theories of the public sphere and the information lifeworld as a broad theory for examining the larger social world of human activity (Habermas et al., 1998; Neves, 2018). The public sphere encompasses the non-governmental areas and institutions where open exchange and critique of information occurs (Fraser, 2018; Habermas, 1992; Habermas et al., 1998). The public sphere can include the libraries, the independent press, and cultural institutions, where the public can receive, exchange, and critique information. "An active public sphere, thus, functions as an important link between the members of a democratic society and the government" (Burnett & Jaeger, 2011, p. 165). The public sphere is where authority of opinion is formed (Brunkhorst et al., 2018; Habermas, 1992). The information lifeworld, related to and encompassing the public sphere, comprises the diversity of information resources, actors, voices, perspectives, and social interactions among the whole of the social world (Bakardjieva, 2009; Burnett & Jaeger, 2011; Gorichanaz et al., 2018).

Chatman's theory of normative behavior allows information to be seen in its social and human context, shaped into shared expression in a small world. The theory of normative behavior is comprised of four components: 1) social norms or expected and appropriate actions; 2) a worldview, a collective perception and sense of belonging among members, knowledge of what one ought to know; 3) social types, or distinctions among members of the small world; 4) information behavior, a state in which one may act upon or decline to act upon information, broadly speaking. Jaeger and Burnett renamed *worldview* to *information value* because they felt Chatman's term was too easily confused with notions of the same name that are used by a variety of social and communication theorists (Burnett & Jaeger, 2011). The authors convincingly show that the theory of normative behavior provides a contextual way to see information behaviors in people within a communal cultural space, and it is also an effective strategy for evaluating social interactions with and around information within a well-defined community.

2.2 Information Access and The Five Social Elements of Information Worlds

One key principle and five social elements of TIW remain to be discussed. Librarians, and information scientists, are often concerned with a specific type of information access - the who, what, when, where, and how people can fill their information and information technology needs (Buckland, 1991; Culnan, 1984; Shah & Bender, 2024). This concept is called physical access to information, and its study has comprised the bulk of practical research in LIS (Chatman, 1996, 2000). However, TIW recognizes that true access comprises two additional types of access, intellectual access and social access (Burnett et al., 2008). Intellectual access is the ability to understand, use, manipulate, and assess information. This is a component of access that is easily forgotten by professional providers of information, because their central role is the answering of an information need, not necessarily assessment of whether the result is readily understood. Social access is the ability to communicate information and use it in social contexts; it is dependent on many individual factors, such as attitudes towards information technologies. Other factors include understanding and adherence to social norms around information, and how it is appropriate (or not) to social context (Burnett & Jaeger, 2011).

TIW conceptualizes five separate social elements of information worlds. Chatman described in her work the first four social aspects of her small worlds; Jaeger and Burnett added the notion of world boundaries (Burnett et al., 2001; Chatman, 1996, 2000). The first is social norms; these descriptive norms represent the mutual understanding and behavioral expectations observed by members of a world. The concept of social norms is used in many different theories but here describes a shared sense of how information and individuals can interact with one another in a given world (Burnett et al., 2008). The second, social types, are the roles individuals play within and between worlds, namely how individuals are perceived by others within that world. This social element of information provides many avenues for study within and between information worlds.

Of keen interest to Jaeger and Burnett is the notion of information value, which they describe as a rich web of information content (or aboutness), perception (unrelated to content and including qualities of the presentation of the information), control (both of information quality and of access), and information economies (Burnett et al., 2014; Hollister et al., 2025). That value can be used as a form of exchange or can be reduced through lack of use, or dismissal. Information behavior, the fourth social element of information worlds, includes all the activities and practices related to information, even its avoidance or rejection (Burnett et al., 2001; Jaeger & Burnett, 2010). Finally, all information worlds have boundaries, which vary in permeability and may be embedded or created in a lifeworld. At the boundaries of information worlds can exist conflict, communication, the creation of new information, or even additional worlds.

TIW is a socially based theory, therefore, which aims to describe, explain, analyze, and make predictions about the uses of information, information behaviors, and the multi-level social contexts where information exists, from the small worlds of individuals' daily lives through the meso-worlds of institutions and larger cultural and professional entities to the expansive information world embedded in society (Burnett & Jaeger, 2011). Their theory was criticized by Yu (2012) for focusing too single-mindedly on social contexts for information and dismissing the emotional, psychological factor of individuals. To respond, Burnett wrote an expansion of TIW to respond to Yu's critique in 2015 (Burnett, 2015; Park et al., 2022; Yu, 2012). This conception of TIW sought to incorporate the cognitive and affective aspects of individuals acting in information worlds into the theory. Library science is increasingly conceptualizing information and information behavior not only in the context of libraries per se, but also in the broader context of how information permeates a wealth of human activities outside of these institutions (Burnett, 2015).

2.3 Computers as Social Actors (CASA)

It is important to recognize the significant body of research into the social treatment of computers and media that has fruitfully examined the ways that human beings interact with technology. The theory of computers as social actors (CASA) has found wide adoption over the last three decades, and influenced much research in human-computer interaction (HCI) and media affects (Gambino et al., 2020). CASA describes and models the many ways in which humans respond to media and computers as if they were social participants even as they deny that computers should be treated as human (Nass et al., 1994; Nass & Moon, 2000; Reeves & Nass, 1996). CASA explains that people interact with media and

computers in automatic ways, using social scripts, sometimes even stereotyping. People respond to social cues (even if they are pre-programmed) and perceived agency as it relates to communication (Nass et al., 1995, 1996; Nass & Moon, 2000). As GenAI has become more ubiquitous and appears cues more human-like, conversational wording, responsivity, emotional wording, CASA has provided insight into how people behave with these technologies even as some scholars feel that expansions and alterations of the theory seem necessary (De Freitas et al., 2026; Feine et al., 2019; Gambino et al., 2020; Kirk et al., 2025; Roe & Perkins, 2026). As discussed here, TIW should not be seen as a competitor in the theoretical attempt to understand the nexus of human beings, AI, and information behavior but rather as interacting with and enhancing this body of knowledge.

3. DEFINITIONS AND METHODOLOGY

Now that the essential aspects of the theory of information worlds have been discussed, it remains to explore how AI fits into the theory. The notion of information world has been explained and indirectly defined in section 2. For the sake of clarity, an information world is a specific social environment where shared norms, values, and roles dictate how people access, use, and trust information. They are composed of five elements, social norms, social types, information value, information behavior, and boundaries. Information worlds can exist within other information worlds and individuals can exist in multiple information worlds. They may be formulated in response to social isolation, power differences, or conventions within institutions. Higher education is an information world, as is a particular field of study or an individual classroom.

For the purposes of this paper, AI is defined as the technological attempt to perform the activities of human intelligence, to replicate the processes, achievements, and creativity of human thinking, learning, and communicating by machines. It includes a variety of technological techniques, including large language models (LLM), narrow AI, algorithmic processes, machine learning, artificial neural networks, and artificial general intelligence (AGI) (Manning, 2022). It should be noted, however, that much AI has become pervasive and almost fully integrated and invisible in much of daily life. Algorithms and AI lie behind a great deal of the technologies which human beings now use regularly; search engines, shopping recommendations, scholarly databases, just to name a few, all currently use different algorithmic technologies to work and have been doing so for some time. This structured thought experiment is confined to the generative AI (GenAI) that is used by large language models (LLM). The terms GenAI and LLMs will be used interchangeably for expositional flow. The expectation that GenAI will continue to be a part of human life creates a need to understand its status both theoretically and practically. The theory of information worlds may provide a good starting point for this understanding. Despite this potential, this researcher has been unable to find any notable theoretical or practical literature that purports to incorporate AI into TIW, which makes this a unique scholarly contribution. In the two most recent surveys of TIW use in academic literature, there is no evidence of treatment of AI broadly, or LLMs in particular (Hollister et al., 2025; Park et al., 2022).

As a methodology, this work began with the introduction of TIW to an unfamiliar audience, to motivate its use in a structured thought experiment. Thought experiments have been used philosophically and in a variety of sciences as a means to provide articulation of significant conceptual analysis since the era of the natural philosophers (Brown & Fehige, 1996; Sorensen, 1999). This particular discussion is an attempt to demonstrate that TIW can be used to address a phenomenon that has emerged since the creation of the theory that hints at ways that TIW is in conversation with other theories that treat computer technologies and media as social entities, such as CASA (Gambino et al., 2020; Hollister et al., 2025; Reeves & Nass, 1996).

4. A THOUGHT EXPERIMENT – WHAT IS AI IN INFORMATION WORLDS

AI, in practice, may be one avenue of all three types of access to information. AI physical access of information is not physical in that it is embodied, but the computer technologies, servers, cables, and CPUs which are used for AI are physical items. If AI is doing something like learning, which it may be argued is the case, then AI is exhibiting intellectual access to information. Even if we maintain that AI is not truly learning as humans or other animals do, it is clearly using and manipulating information for an objective. Again, that intellectual access does not appear to be exactly like what human beings are doing, but in that the technologies are clearly producing evidence of analysis, it is possible that intellectual access explains part of what is happening with the algorithms and their results in AI. It

remains a question whether AI is accessing information socially, but since AI can serve for communication or as communication, it may qualify as having or exhibiting social access qualities. Chatbots, especially customer service and AI assistants, respond in real-time with human beings, and human beings are known to address AI in ways that replicate social interaction between human beings (Gambino et al., 2020).

AI exhibits all of TIW's five social elements of information. AI adheres to a specific role in information worlds; it responds to information requests – in most LLMs, these requests are known as prompts. It provides information in expected (i.e. normative) ways. AI personal assistants require specific behaviors for interaction, perhaps more codified than many interactions between human beings, but when considering how information exchanges may be quite ritualized and rule-bound in some information worlds (e.g. governmental or political agencies, online communities, or gaming groups) these behaviors look to be sufficiently familiar to qualify as adhering to social norms. LLM generated text exhibits or mimics specific roles related to information requests, use, and response; for example, a chatbot will generally provide information based on known issues and may sometimes appear to be a gatekeeper to information access.

AI can add or subtract information value; AI technologies are used by businesses and other organizations specifically to add value through algorithmic treatment of different types of data. In terms of information behavior, AI already exhibits a full range of information-related activities: provision, analysis, use, manipulation, organization, and response to information. AI learns from incorporating new information as well as creating it. Finally, AI crosses information world boundaries in addition to helping to form them. As AI technologies create new information there are opportunities for the creation of new information worlds. Because it serves as gatekeeper to many jobs, customer service personnel, and even medical care, it explicitly polices small and larger world boundaries. AI is also a boundary crossing entity itself. Even with the limited and controversial ways AI exists in daily life its qualities resemble a full agent in information worlds, differing from but also needing human interaction to achieve full utility (Gasparini & Kautonen, 2022).

Other possibilities for how to interpret AI with TIW remain. If the notion that AI is an agent that interacts with humans and information seems too strong for the state of AI as it stands at this writing, it is possible to view AI as something like strongly enhanced information, information that *does things*. Since AI tools at present have to be trained on a body of text, or binary representation of information, perhaps it is not much more than the sum of its parts. There are thinkers who believe so (Bender et al., 2021). If this is so, AI is quite easy to account for in information worlds – it is a form of information which can be sought, exchanged, valued, ignored, analyzed, used, and repackaged for members of information worlds.

Thirdly, we could propose that it is something altogether different from prior agents, worlds, components, or keystone ideas to TIW. In that case, it would be important to discover whether small worlds, information worlds, or lifeworlds can be expanded or altered to accommodate what AI is becoming in the knowledge and information economies. Since AI is continuously developing even as this paper is being written, TIW may help to clarify its social qualities. A more specific theoretical analysis of GenAI in educational contexts can help us make sense of some of these issues.

5. AI IN HIGHER EDUCATION: AN ANALYSIS

Of all the domains in which artificial intelligence is currently making its presence felt, education may be one of the most consequential and, through the lens of TIW, one of the most analytically revealing. The emergence of generative AI tools, particularly LLMs, has introduced into educational settings a new element whose activity and character does not map neatly onto prior conceptions of student, teacher, or resource. Higher education institutions and the libraries that serve them are each distinct information worlds, with their own social norms, social types, information values, information behaviors, and world boundaries. These information worlds are interactive and mutually supporting, and the role of GenAI is complicating. However, the entry of AI into these worlds both tests and enriches the explanatory power of TIW.

5.1 The Classroom as an Information World

A classroom demonstrates all five of the components of the information world discussed above and in the development of TIW (Burnett et al., 2001). Students and instructors operate within a highly codified information environment: there are recognized authorities (the instructor, the textbook, peer-reviewed literature), recognized information behaviors (reading, searching, citing, arguing from evidence), and a shared or expanding mutual understanding of what constitutes legitimate knowledge. The social types within this small world are relatively stable, and the information value of particular genres (the scholarly article, monograph, encyclopedia, etc.) is socially and institutionally reinforced.

The introduction of AI into this information world disrupts several of these elements simultaneously. Social norms around authorship and intellectual work are called into question when a student can generate a coherent, well-organized essay through a language model prompt rather than the difficult work of research, drafting, and editing. The information value assigned to student-produced text, previously understood as evidence of learning, becomes ambiguous when the degree to which the student is the author is obscure. Social types are destabilized as well: if a generative AI can perform tasks previously attributed to the expert social type (synthesis, explanation, argument construction), what distinguishes the knowledgeable instructor from the readily available machine? TIW provides a framework for naming these disruptions precisely; table 1 encapsulates the ways in which components of the classroom are affected by GenAI. Due to its length this explanatory matrix has been placed in the appendix.

5.2 Social Norms and Institutional Response

The social norms of academic information worlds are among their most powerful and least examined features. In TIW terms, these norms are descriptive rather than merely prescriptive: they reflect what members of the world actually do and expect of one another, not simply what policies prohibit. The norm that a submitted paper represents a student's own thinking is so deeply embedded in the educational small world that until recently it required no explicit articulation. AI has made this norm visible by threatening it.

Institutions have responded by attempting to reassert or renegotiate these norms through policy: AI-use disclosure requirements, assignment redesigns that privilege in-class or oral demonstration, and the deployment of AI detection software (An et al., 2025; Baldrich et al., 2025; McDonald et al., 2025). Each of these responses is, in TIW's terms, a norm-maintenance behavior — a community effort by human members of the information world to police its boundaries and reaffirm its values in the face of a boundary-crossing actor. What is striking, from an information worlds perspective, is that different educational institutions, and even different departments within the same institution, have arrived at divergent normative rules. Some small worlds within higher education have embraced AI as a legitimate tool, analogous to a calculator or a grammar checker; others treat any AI involvement in student work as a violation of the world's fundamental information values (Butson & Spronken-Smith, 2024; Cotton et al., 2024; Milton et al., 2024; Perkins, 2023; Wise et al., 2024b). This divergence reflects exactly the kind of intra-lifeworld variation that TIW is well-positioned to map and analyze.

6. CONCLUSIONS

This paper has proposed that the Theory of Information Worlds offers a productive and underutilized lens through which to understand artificial intelligence, particularly generative AI, as it increasingly permeates research and educational environments. In describing the depth of analysis TIW provides for genAI as boundary crossing in the information world of education, the work here addresses RQ1 but, because this research is the first attempt to do so, it is necessarily limited. It remains to future research, both theoretical and experimental, to more fully understand how the information behavior of people with AI and the apparent but opaque information behavior of LLMs and other AI.

Similarly, the exploratory thought experiment argues that AI exhibits all five social elements of TIW — social norms, social types, information value, information behavior, and world boundaries — and engages with all three forms of information access. The educational information world offers a particularly rich site for the application of TIW to AI. The specificity of its norms, the clarity of its social types, the high stakes attached to its information values, and the visibility of its boundary conflicts all

make it a productive domain for theory-driven analysis. The thought experiment and the construction of the explanatory matrix comprise an effective, but preliminary, conceptual model for understanding AI in the classroom, and the beginning of an answer to RQ2 and foundation for building proactive, subculture-specific institutional policies and resilient pedagogical strategies. TIW's socially grounded vocabulary provides a flexible set of tools for naming the disruptions, tensions, and possibilities that AI into the information worlds of higher education.

Furthermore, the TIW's capacity to operate simultaneously at the level of small worlds, institutional meso-worlds, and the broader information lifeworld makes it especially well-suited to a phenomenon as rapidly evolving as AI. The exploratory thought experiment in this paper has pointed to three different possibilities as to how to conceptualize AI within TIW: 1) full social agent; 2) rich or special information; 3) and entirely new theoretical construct and boundary crossing entity. Further research and observation of AI development can potentially explain this further. We have seen, however, that AI can be approached as a social entity; I believe that a more thorough expansion of elements of TIW alongside the robust evidence of CASA theory can provide a rich theoretical understanding of human-AI interaction, but this research is outside the scope of this preliminary investigation. As AI continues to develop, so too must the theoretical frameworks used to understand it. The Theory of Information Worlds, with its roots in both the intimacy of Chatman's small worlds and the civic scope of Habermas's public sphere, offers an intellectually rich starting point for that ongoing work.

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APPENDIX

Information World Component	IW components as represented in traditional classrooms	Disruptive behaviors and effects of GenAI
Social Norms	Expectations include acknowledgment of authorship, citation practice, and originality of student work.	AI follows ritualized, rule bound norms when responding to user prompts, but it also reinforces itself and draws on opaquely collected human created content.
Social Types	Educational roles; teacher and student are stable and mutually supportive Recognizable social types such as expert, learner, author are visible to individuals.	GenAI text can appear authoritative, and its language is reinforcing to the user. AI has effectively assumed a social type that resembles that of the research tutor, the writing assistant, or the on-demand explainer: a role previously occupied by human actors (professors, writing center staff, reference librarians, teaching assistants) and now potentially delegated to a non-human agent.
Information values	These values include: shared understanding; legitimate knowledge; levels of information reliability; evidence of learning; scholarly communication hierarchies; primary, secondary, and tertiary resources.	In adjusting register and tone a learner can produce works that appear authoritative by use of a prompt, but the product can no longer be assessed as clear evidence that learning has occurred. Times when AI retrieves erroneous information and non-existant citations thoroughly obscures the significance of legitimate research vs. summation.
Information behaviors	Notable information behaviors are: reading, writing, arguing from evidence, established methodologies	The ways that GenAI 'learns' or 'knows' are opaque. GenAI complicates how we look at work the student produces. AI can be conceived as a tool, enhanced information, a form of method, or an actor, and these roles cannot be easily discerned in a particular piece of generated work.
World Boundaries	Boundaries in classroom components, inputs, and outcomes (products of learning) are traditionally described, utilized, and assessed.	AI may be functioning as an access mechanism by enabling student understanding of the technical vocabulary and information world of a discipline or translating the work of a researcher into another language. In this way, AI lowers the threshold of intellectual access in democratizing ways. But, at the same time, it may undermine the learning process through which students earn genuine membership in the information worlds of their disciplines.

Table 1. Information World Components in Relation to LLM Use in Higher Education