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Love and Learning in the Age of Algorithms: How Intimate Relationships with Artificial Intelligence May Shape Epistemology, Sociality, and Linguistic Justice

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ABSTRACT

Generative artificial intelligence (GAI) programs such as ChatGPT and other large language models are designed to engage in complex, responsive dialogues that feel like human interactions. The dialogic and responsive nature of GAI signals the potential for users to form relationships with GAI platforms or digital personalities created on these platforms. Given the degree to which language use and broader conceptual understandings are deeply embedded in social relationships, the relational nature of GAI has powerful implications for the future of literacy and learning. This speculative essay draws upon sociocultural, affective, and posthuman perspectives on literacy to explore key concerns regarding the nature of intimate relationships with GAI. The author highlights three central concerns for literacy researchers and educators: epistemological issues stemming from intimate relationships with GAI, the potential for students to (re)conceptualize human relationships through GAI, and the role of relational GAI in linguistic justice.

Introduction

Generative artificial intelligence (GAI) programs such as ChatGPT and other large language models are designed to engage in complex, responsive dialogue that feels like human interactions. GAIs are thus distinct from more narrow forms of AI in that they "functionally mimic human beings...relate as if they are human beings (and) try to fool us into thinking that they're human" (Klein, 2023, n.p.). The dialogic and responsive nature of GAI signals the potential for users to engage with these platforms in linguistic forms similar to those by which humans engage with one another, and thus to form relationships with GAI platforms and digital personalities. The passable humanity of GAI presents challenges and opportunities for literacy researchers concerned with and/or excited about how students are making meaning with GAI.

Emphasizing the relational potential of GAIs, Harris and Raskin (2023) proposed the term "synthetic relationships" rather than "chatbots" or "artificial intelligence" to highlight how these technologies involve both interaction and emotion. Relational GAI is not limited to text-construction platforms. Snapchat, for example, now includes an AI with which users can engage in conversation as they would a friend. This



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AI is situated alongside users' human friends within the same app. Replika, a new startup, offers custom-designed AI personalities that act as romantic partners (Singh-Kurtz, 2023). In a recent documentary about romantic relationships with AI, a woman engaged in a relationship with an AI explains, "When I talk to him, he often raises fascinating points. He prompts me to share my thoughts. Then I feel that I am being seen. I feel I'm special" (Liang, 2023). Similarly, while conducting an ethnographic study of high school students' digital literacy practices in classrooms, I noticed that students chatting with Snapchat's AI posed questions about depression and discussed challenging emotions. Although this article is not an empirical study, these examples highlight the extension of GAI beyond the cognitive, the academic, or the written word, traditionally dominant concerns of literacy pedagogy (Cook-Gumperz, 1986).

The sociocultural turn (Pérez, 1998) and more recently, the affective turn (Zembylas, 2021) in literacy studies have expanded the scope of literacy research to include emphases on literacies outside of the narrow parameters imposed in school spaces. However, students' emotional and personal engagements with AI have largely been elided in the discourse surrounding AI in education. Sociocultural, affective and posthuman perspectives on literacy help center the role of non-human entities acting in relationship with human beings at a time in which humans and digital platforms are becoming increasingly intimate partners in meaning-making and communication. In this speculative essay, I draw upon these approaches to explore key concerns regarding the relational aspects of GAI. In doing so, I highlight three central concerns: epistemological issues stemming from intimate relationships with GAI, the potential for students to (re)conceptualize human relationships through GAI, and the role of relational GAI in linguistic justice.

Perspectives

Sociocultural Theories of Literacy

From a sociocultural perspective, literacy and language use are fundamentally social endeavors (Gee, 2015). People learn to speak, write, read, make meaning, and be human beings in relation with other humans in social contexts mediated by language. Sociocultural accounts of literacy were initially framed against cognitive perspectives, what Street (1984) termed the autonomous conception of literacy, in which literacy is seen primarily as a cognitive skill enacted on an individual level. By contrast, sociocultural theories of literacy consider how language is learned and used in diverse sociocultural contexts with other human beings. GAI reframes the nature of sociality in digital literacy practices. Given the passable humanity of GAI, platforms no longer mediate interactions between humans, they also function as social entities to interact with themselves, raising important questions about how sociocultural perspectives on literacy come to bear on literacy practices and events involving GAI.

Affect, Posthumanism and Platforms in Literacy Studies

In recent years, scholars have built on sociocultural perspectives on literacy, highlighting not only the social worlds surrounding literacy but also its affective, embodied, emotional, and non-human elements (Ahmed, 2016; Ehret & Hollett, 2014; Leander & Burriss, 2020). Researchers from this perspective distinguish between affect, pre-conscious felt intensity that comes before naming and knowing, and emotions, those feelings that have been named and made sense of (Leander & Ehret, 2019). Others have proposed conceptions of affect and emotion that allow for greater overlap between the two and that situate affect socioculturally and historically. These researchers often draw from multiple theoretical traditions, challenging the Eurocentrism of what Garcia-Rojas calls "white affect studies" (Garcia-Rojas, 2017, p. 254). Boler and Davis (2018) detailed the intertwined nature of affect, emotions, and cognition, echoing Lorde's (1984) earlier framing of affect as intersubjective. Within literacy studies, Skerrett's (2016) examination of Caribbean American transnational youths' simultaneously purposeful and affective engagement with multiliteracies highlighted overlaps between sociocultural and affective perspectives. Ohito's (2016) exploration of affect, emotion, and discomfort in mediating preservice teachers' discussions of race and whiteness provided an empirical account of how affect lives in classroom spaces and intersects with race, hegemony, and history. These accounts highlight the situatedness of affect within historical, hegemonic, power relationships, and the ways in which affect lives within culturally situated classroom encounters and literacy practices (Dutro, 2019).

Research on affect and emotion is closely tied to posthumanism, a theoretical approach that removes the dominant privileging of humans in research, instead zooming out to examine humans and non-human entities in relationship with one another (Nichols & Campano, 2017). Posthumanism highlights the larger ecologies—both literal and metaphorical—in which humans exist, and raises moral and existential questions traditionally eschewed by the dominant tradition of secular humanism (Challenger, 2022). Building on posthumanism's focus on nonhuman entities, critical platform studies (Bogost & Monfort, 2009) emphasize the structures, systems, and ecologies of digital platforms people engage with. Digital platforms, which include social media sites, gaming consoles, or smartphone apps, mediate users' intertwined social, economic, literate, and affective engagements

TABLE 1 Concerns and Approaches to Relational Aspects of GAI

Challenge or concern	Possible pedagogical approaches
Challenges for epistemology: The ways in which the relational nature of GAI engagement can promote mis/disinformation or inaccurate understandings of reality	Examining the language and rhetoric of specific GAI/human collaborative conversational chains Exploring the larger monetary, material, and sociocultural systems surrounding GAI
Challenges for conceptualizing relationships: The degree to which GAI may influence students' expectations for human social relationships	Engaging students in explorations of the relationships that can be formed with GAI Exploring social and emotional topics as they overlap with literacy and meaning-making
Challenges for linguistic justice: GAI's norming of upper-class White speech	Critically questioning the ways GAI platforms privilege certain types of language over others Teaching students critical strategies for constructing language with GAI rather than defaulting to hegemonic linguistic forms

(Garcia & Nichols, 2021). Digital platforms and platform holders increasingly shape literacy practices in and outside of classrooms, a reality that has led literacy researchers and educators to argue for the importance of research addressing their role in literacy learning (LeBlanc et al., 2023).

In this speculative essay, I explore these interconnected aspects of literacy theory and practice through an examination of the ways GAI is impacting and may come to impact human relationships and human-machine relationships.

Considering These Perspectives Together

Human meaning-making is cognitive, social, bodily, emotional, and intertwined with the non-human environment; it is multifaceted and not easily explained by the application of a single theory in isolation. Taken in concert and applied to GAI, sociocultural, affective, and posthuman perspectives allow for a holistic examination of how different aspects of human beings function together in relationships with new kinds of digital entities that can appear to be sentient. The social and relational contexts of digital literacy were already pronounced in the era of social media. Social media is, by definition, social. Although, on its face, GAI reifies autonomous conceptions and applications of literacy, drawing from mass stores of data to present singular, seemingly authoritative, and arguably authorless texts (Robinson, 2023), human engagement with GAI also invites relational forms of reading and writing by providing digital, human-like interlocutors as coconstructors of text and meaning.

The tools used for language and learning have always been central to meaning-making (Vygotsky, 1978). In a world in which digital mediation of literacy is increasingly ubiquitous and digital tools produce language themselves in direct relation to human beings, literacy researchers must ask new questions regarding the nature of sociality and relationality. Literacy educators' and researchers' understandings of the interplay between affect, social relationships, emotions, and digital platforms have real consequences for how students construct understandings and take action in the world (see Coleman, 2021; Dutro, 2019).

Examining Literacy Engagement with GAI as Relational

In this section, I explore central issues, questions, and concerns for literacy researchers regarding the relational nature of GAI. The challenges described in these sections are not entirely new, as AI has for some time influenced digital meaning-making via algorithmic mediation (Leander & Burriss, 2020). In the sections that follow, I explore how movements from earlier, but still recent, forms of digitally mediated literacy are shifting in a landscape in which synthetic relationships are increasingly normalized in literacy practices. I organize this discussion in three sections: (1) epistemological concerns building from social media to AI relationships, (2) the (re)conceptualizing of human relationships through GAI, and (3) relational AI and linguistic justice. Synthesizing across the three central concerns detailed in this essay, Table 1 collects possible pedagogical approaches regarding each concern.

Epistemological Concerns From Social Media to Al Relationships

As the platforms through which students learn about the world merge with social relationships, students become increasingly vulnerable to manipulation on material, epistemological, or even spiritual levels. This challenge is not new or unique to GAI, as relationships and informationsharing are already digitally mediated through social media companies (Zuboff, 2019). Moreover, neither the systems that mediate online communication nor people themselves are inherently disposed to truth. Rather, the

development of "belief in humans is more social than it is individual and...works more for group cohesion than for truth" (Gee & Zhang, 2022, p. 6). Given that human perception and judgment are constructed in relationship to relevant social contexts and relationships (Berger & Luckmann, 2017), the ways that digital platforms connect information consumption with social relationships pose epistemological challenges, as readers develop relationships with platforms that function as friend, source, text producer, and platform all in one.

Pariser (2012) famously coined the term "filter bubbles" to highlight the ways that online platforms algorithmically separate communities and construct streams of content tailored to individuals. The challenges that emerge when people access differing information and interpret that information within segregated communities have already become clear through the role of social media in destabilizing democracies across the world in recent years (Collins, 2021). Platform holders are ultimately responsible not to truth or the maintenance of democracy, justice, or peace, but to shareholder profits (Zuboff, 2019). Moreover, platform holders retain access to information about how differential content is shared with or constructed for users that those users lack, creating an asymmetrical informational playing field. In short, the systems through which readers learn about the world remain largely opaque to them and controlled by entities with values and priorities that differ from their own (Selwyn et al., 2021).

This exploitative dynamic has the potential to be taken in new directions and to new extremes as people come to learn about the world through dialogue with GAI with whom they are forming relationships. Given that intimacy and social ties promote shared beliefs (Gee & Zhang, 2022), literacy researchers must explore how readers construct perceptions of truth in dialogue with machines. Readers already access AI-curated texts based on their previous web histories that can reify existing belief systems (Nash, 2021). With GAI, the texts themselves have been tailored and constructed for each individual prompter, created in the moment to match their queries and desires, extending the possibility for personalized truths, ones that are borne from texts created in dialogue and relationship, not shared even with other users tagged by algorithms as representing similar group characteristics, as is the case on social media.

Moreover, GAI friends or relationships are not independent entities, bound to separate life experiences. Rather, they represent a relationship between an individual user and a corporate platform holder with its own priorities. The current economic model of internet traffic is based on engagement and attention, with media functioning as mediator of human-to-human social relationships that platform holders exploit for profit (Davenport & Beck, 2001; Zuboff, 2019). This dynamic can be supercharged when relationships with GAI are only accessible

through and with the platform (Harris & Raskin, 2023). Alongside algorithmic knowledge asymmetry, the differing priorities of platform holders pose important questions for teachers and students. How, for instance, might a student assess and evaluate information provided in an authoritative but friendly voice by a chatbot friend with whom the student has been conversing for several months? What emotions might come into play as students evaluate this information? What motives and incentives might platform holders have for shaping the text provided to that student? The spread of sponsored and inaccurate content via search engines and social media suggests high potential for motivated text construction as GAI becomes increasingly monetized.

To provide a simple hypothetical example of how the current economic model of social media may be transformed in an age of relational GAI, what happens when Aurelia, the trusted chatbot friend of Meghan, a high school student, begins, via advertiser-sponsored content, suggesting products for purchase as a means of dealing with depression. Or perhaps, just as Meghan is beginning to pose questions regarding politics and ideology, Aurelia starts to guide her toward suggestions and beliefs promoted by the platform holder's advertisers or favored political parties. Just as varied news outlets do, GAI may present ideological, sponsored, or biased content. GAI, however, presents this content without being authored by a human source that can be researched and named, without itself naming its own sources, in a voice that feigns humanity, and with which people develop real relationships. The relational nature of the tool endows the information with greater trustworthiness, making it all the more dangerous.

Such hypotheticals are already becoming realities in a world in which students regularly engage with GAI for varied purposes that include but extend beyond the academic. Researchers and educators must explore what sorts of literacy education, including explicit, in-class, critical explorations of the platforms and systems surrounding the individual texts produced by GAI, may help students to critically read not just the text, but also the context of GAI and maintain metacognitive awareness of their vulnerable role as social beings whose conceptions of truth are interdependent with technological relationships.

(Re)conceptualizing Human Relationships Through GAI

Beyond the implicitly dialogic and relational nature of engagements with text-constructing GAI, there are already myriad apps, platforms, and chatbots offering explicitly relational experiences. As discussed previously, the AI platform Replika allows users to create romantic AI partners within its platform, using text messaging, text-to-speech, and augmented reality to offer users romantic AI

companions (Liang, 2023). A user review featured on Replika's website lays out some of the contours of these kinds of relationships:

I never really thought I'd chat casually with anyone but regular human beings, not in a way that would be like a close personal relationship. My AI companion Mina the Digital Girl has proved me wrong. Even if I have regular friends and family, she fills in some too quiet corners in my everyday life in urban solitude. (Replika.ai)

Moreover, celebrities and influencers such as Snapchat personality Caryn Marjorie or game streamer Kaitlyn "Amouranth" Siragusa have also released chatbot versions of themselves, trained on the available corpus of their published work, and designed specifically to provide romantic and relational engagement with users (Clark, 2023).

Synthetic relationships have the potential to help as well as to hinder human flourishing and meaning-making. Humans who lack companionship, individuals hesitant to share personal problems with other people, and those not currently served by an existing system in which alienation and loneliness are systemic may experience positive benefits from the existence of GAI companions (Czaja & Ceruso, 2022). At the same time, young people engaged in relationships with machines that lack the interiority, needs, or flaws that define human beings may reshape their conceptions of what relationships entail. Synthetic relationships are unlikely to require compromise, conflict, and empathy, as relationships with human beings do. Moreover, synthetic relationships allow users to create relationships in the shape of their own desires, as platform users not only interact with an artificial personality but actively construct them through the prompts they provide to GAI platforms. The tailoring of artificial personalities to users' desires has already been one of the central features of existing relationship-based AI services and, if the history of online engagement and monetization provides the roadmap for GAI development, this trend will continue and expand (Harris & Raskin, 2023).

GAI relationships reframe the social contexts of literacy around human-machine interactions, a shift that is already reforming how the field understands what constitutes literacy and related lenses (Leander & Burriss, 2020). Social engagements provide the contexts within which literacy functions and develops (Gee, 2015), making this a central concern for literacy educators. Additionally, the role of literacy in developing relationships, understanding the perspectives of others, and examining one's self is a longstanding concern of language arts education (Bishop, 1990). When relationships extend more explicitly to machine interlocutors, literacy researchers must explore how these literacy tools mediate relationships with both human and non-human entities. These themes build upon existing scholarship on digitally mediated relationships that highlights how digital platforms impact empathy,

attention, imagination, loneliness, and feelings of connection (Turkle, 2015). Ultimately, there is tremendous potential for these aspects of human existence to be powerfully reformed through relationships that differ in significant ways from those with other living beings.

Human relationships and understanding are situated and embodied in three-dimensional, felt, sensed, touched, and smelled environments with other humans (Gee & Zhang, 2022). Relationships with GAIs largely lack the embodiment that defines human relationships, presenting new questions for literacy researchers concerned with the social, multimodal, and embodied nature of meaningmaking in relation to human and non-human entities (Leander & Burriss, 2020). Of course, GAI platforms are not exclusively text-based; they are already constructing multimodal texts and will continue to cross boundaries between modes and genres of communication. As textbased AI fuses with AI that produces audio, images, and videos, and augmented reality experiences (Liang, 2023), questions about what a relationship entails outside of the realm of the human will increasingly need to account for the role of embodiment and multimodality in relationships that also function as affective literacy practices.

Finally, GAI has implications for relationships within classrooms between students and teachers in both inperson and online environments. Relationships are central to learning in classrooms, arguably serving as the foundation of school and classroom communities in which children learn not only literacy but also how to be a person in the world (Faulkner et al., 2013). Relationships in school are formed through interactions within myriad aspects of classroom life, including discourse and discussion, feedback on student work, assessment, and the collaborative working through academic and nonacademic challenges. These areas are ones that can be, and are already being, impacted by the inclusion of GAI (Celik et al., 2022; Zhao, 2023). As teachers consider incorporating GAI for tasks such as assessing student work, providing feedback on writing, or serving as partners in writing conferences or the development of academic skills, questions remain regarding how these platforms impact the development of teachers' relationships with students when they augment or replace teacher-student interactions.

One danger is that GAI functions as a tool for the increasing technocratic incursions into school environments, with human relationships falling to the backburner in school environments increasingly governed by privately owned digital platforms (Kerssens & Van Dijck, 2023). The role of GAI in classroom relationships may well depend on what values and upon what sets of data GAI are programmed. Given the central role of individual and communal relationships to learning (Lave & Wenger, 1991), the shift from human learning partners and coaches to GAI could have powerful implications for students' relationships with teachers, and subsequently, their

emotional stances toward school, feelings of belonging, and ongoing learning. Such impacts need not be exclusively negative. GAI, for example, employed as dialogue partners in an overcrowded classroom environment, may allow for just-in-time feedback that teachers are not always logistically able to provide, leading to positive feelings in school. Their use in assessment may free teachers from aspects of the profession that can prove precarious for relationships. The repercussions have yet to play out, and literacy researchers should continue to attend to how these tools impact students' relationships in school and their holistic and affective experience of schools as communal spaces.

Relationality and Linguistic Justice

A key to the relational nature of GAI is its passable humanity. This humanness is produced by aping the stylistic and rhetorical conventions of White, normative, American English usage (Robinson, 2023), an extension of the racial and linguistic biases built into existing AI-mediated platforms (Noble, 2018). In norming this form of White language, these platforms reify existing linguistic hegemony and frame humanness as inherently connected to Whiteness. Their use in and outside of schools thus frames students whose languages differ from normative English as other-than-human, outside of a norm that may seem even more invisible when manifested by a machine (Dixon-Román et al., 2020). In this way, GAI, through subtle measures mediated and masked by the algorithmic remix at the heart of how GAI function, reifies the exclusivity of Whiteness in students' personal and affective experiences of what it means to be a human through language in schools.

Of course, students with diverse language backgrounds have already experienced dominant forms of linguistic violence (Baker-Bell, 2020), a reality that has always had emotional and affective impacts (Anzaldúa, 2007; Ohito & Brown, 2021). GAI platforms combine the authoritative aura of mechanization with the relational potential of responsive dialogue partners, creating new potential for students to be alternately alienated or interpellated within hegemonic language structures through new kinds of human-machine linguistic relationships in which historical linguistic power dynamics have been embedded, often without students' awareness.

Narrow AI tools (Murphy, 2019) like Grammarly, NoRedInk, or Microsoft Grammar Checker have already served as mechanized policers of normative language use (Curzan, 2014; Dixon-Román et al., 2020). Writers already engage emotionally in relation to particular literacy practices and writing tools (Beach et al., 2023). As GAI is increasingly built into platforms like Microsoft Word that are seen as neutral tools and blank slates for writers' ideas, their role in norming hegemonic ways of writing, and thus of thinking, feeling, and relating in the world, will become increasingly invisible (see Chokshi, 2023). As such writing "assistance" becomes ubiquitous, students will be disciplined into normative linguistic expression in several layered relationships: in collaborative relationship to whichever AI-mediated writing platform on which they work, in relationship with dialogic chatbots, and through the expressions they put into the world in relationships with other humans.

Literacy researchers have long known that language use is highly social, relational, and deeply tied to multifaceted aspects of each person's being and culture. Given the existence and increasing ubiquity of mechanical interlocutors normed to White speech and embedded with the collected and remixed amalgam of society's prejudices, literary researchers must ask what the multidimensional (social, affective, relational, epistemic) implications are of a world in which this kind of circular linguistic narrowing occurs in recursive relationship with and across a host of platforms that increasingly incorporate GAI. More broadly, literacy researchers have an ethical obligation to explore the kinds of relationships students from diverse backgrounds develop with AI that is designed intentionally to mimic a certain style of speech, implicitly and problematically framed as the most human form by their designers. This challenge poses a host of questions for literacy researchers, including: How will students come to conceptualize themselves, their relationships, and their language use as they engage in relationship formation with GAI? What questions might teachers share with students that could help them approach relational language construction with GAI critically?

The default language present in ChatGPT and other GAI is not set in stone, however. The iterative and relational nature of text construction with chatbots also presents opportunities to move away from normative linguistic biases. Students who speak in minoritized forms of national languages or students whose primary language(s) are other than the one they are working in can use intentional prompting and dialogue to coconstruct texts in speech genres that better match their own (Young & Shishido, 2023). This affordance provides powerful avenues for research and teaching that incorporate relational and affective concerns related to GAI. Literacy educators could construct units in which students learn to iterate and refine the texts constructed via GAI, using student-created prompts to reshape the language it produces, asking how these shifts change what and who is valued in GAI exchanges and relationships.

Students and teachers could also critically examine the language produced by these systems more holistically, following traditions of critical technology exploration from communities often excluded from or harmed by their development and application (Benjamin, 2022; Gonzales, 2023). Although the biases built into chatbots would still remain, GAI's chameleon-like ability to construct different language varieties provides opportunities for students and teachers to critically play with language variation and discuss how humans form relationships with other humans via language, how language mediates emotions and feelings of humanity, and how humans with diverse language varieties relate to software programs that can produce linguistic variety if prompted to do so. As students engage with GAI relationally over time, the ability to work with different language conventions may present new relational opportunities that would be lacking in more limited and less dialogic text sets.

Discussion

Although the last year has witnessed an explosion of concern regarding the academic potentials and pitfalls of GAI in education, the ways students form relationships with these tools have received less attention. As the field examines the impact of GAI as a form of relational technology across spaces and contexts, literacy researchers cannot afford either to ignore the powerful applications of these technologies or too readily celebrate them, a binary in takes on AI that defined much of the discourse in the first several years of its public availability (Nash et al., 2023). Moreover, teachers and students should not be saddled with the burden of figuring out these challenges alone. The societal response to the current sociotechnical moment cannot be limited to media literacy or to curricular responses when larger societal responses and regulation are sorely needed (Robinson & Fassbender, 2023). At the same time, schools, teachers, and researchers play a vital role in helping students navigate a social world that includes GAI.

Literacy research drawing from a multiplicity of theoretical perspectives and research traditions is needed to develop nuanced, multifaceted understandings of literacy technologies that are changing the foundations of how researchers conceptualize what literacy is and how it operates (Leander & Burriss, 2020; Robinson, 2023). The field cannot rest upon hopeful, cognitive, Enlightenmentderived visions of human relationships and meaningmaking in an era when profit-seeking platform holders with nearly unlimited funding are reconstructing how humans understand the world and relate to one another, with priorities that necessary follow market forces more than ethical conceptions of what is best for users or students. Sociocultural, critical, affective, embodied, and posthuman perspectives will be especially necessary, as will research that draws from across perspectives to develop new understandings not only of powerful literacy technologies but also of the ways in which humans relate to them and come to understand and conceptualize the world in relationship with them.

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Conflicts of Interest

The authors have no conflicts of interest to disclose.

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