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Examining generation Z's use of generative AI from an affordance-based approach

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Abstract

Introduction. This paper uses the affordances framework to investigate how Generation Z (GenZ) students in higher education use generative AI (GenAI). There is an increasing need to gain a deeper understanding of GenZ's interaction with artificial intelligence tools to better support their integration into higher education and the workforce.

Method. Data was collated from semi-structured interviews with 34 GenZ students in higher education.

Analysis. Thematic analysis was conducted on the qualitative data collected from the semi-structured interviews.

Results. The findings suggest GenZ students have seamlessly integrated GenAI into diverse aspects of their lives. This study highlighted three main GenAI affordances that resonate with GenZ students: a) content searching and curation b) content generation and ideation, and c) content enhancement and refinement, revealing new opportunities for information access.

Conclusions. This study shed light on the perceived affordances of GenAI for GenZs, addressing a gap in the current literature on GenAI. The findings underscore the significant extent to which GenAI has been integrated into GenZ students' daily lives. Our study contributes to a better understanding of how GenAI's affordances facilitate and support GenZ students, providing invaluable insights that can inform future policies on developing literacy for AI use tailored to this group.

Introduction

Generation Z (GenZ), born between 1997 and 2012, now forms the bulk of undergraduate cohorts (Seemiller & Grace, 2017), and older GenZs have even begun to enter the workforce. As the first generation to grow up with a strong dependency on digital technology, information practices differ greatly from previous generations. (Lee et al., 2023b). Moreover, the COVID-19 pandemic coincided with their formative years, driving an accelerated adoption of technology in both educational and professional environments (Howard et al., 2023). Hence, there is an increasing need to gain a deeper understanding of GenZ's interaction with emerging technologies, such as artificial intelligence, to better support their integration into higher education and the workforce.

With the growing prevalence of generative artificial intelligence (GenAI) in education and the workplace, GenAI has become an integral component of GenZ's everyday technological resources. Specifically, GenAI affords a wide range of resources enhancing creativity, productivity, and decision-making across various contexts in their everyday life (Hirvonen et al., 2023). Prior research has shown that GenZs engage in higher levels of social activity on digital platforms and derive greater emotional satisfaction from digital media than older generations (Zhitomirsky-Geffet & Blau, 2017). Since GenZ is already accustomed to using digital media, GenZ students' dependency on resources afforded by GenAI is likely to be further amplified. (Taecharungroj, 2023). Developing a holistic understanding of how GenZ students in higher learning interact with GenAI is critical for optimizing education, preparing the future workforce, and ensuring AI tools are leveraged in ways that align with their needs.

In terms of affordance-based research, affordances are manifested in the form of distinctive technological attributes that shape the nature of communication (Lee, 2010; Sundar et al., 2015). Hence, we focus on features of GenAI deemed critical for everyday learning and interaction among GenZ students in higher learning. For instance, GenAI supports skills development (e.g. coding, writing, designing) that aligns with GenZ's tech-savvy nature. Further, GenZ students can use GenAI to brainstorm ideas, develop creative projects, and expand their critical thinking (Chan & Lee, 2023).

Within the information science domain, affordances are viewed as '*information opportunities*'—opportunities that allow individuals to engage in particular actions, thereby enabling access to information (Hirvonen et al., 2023; Lloyd, 2005). However, empirical research from such an information-oriented perspective on GenAI remains scarce. To fill this gap, this study aims to understand the affordances of GenAI that appeal to GenZs from an information-oriented perspective, focusing on how information is searched, accessed, and utilized. In the context of this study, we argue that GenAI affordances, as perceived by GenZ, create opportunities for efficient information access, shaping information practices that enable them to complete tasks more effectively.

Related work

Generation Z's use of digital technology

There are several factors influencing GenZ's information-seeking and learning processes on digital platforms. Firstly, GenZs are well-connected and go online regularly, due to their FOMO (fear of missing out) mindset (Nicholas, 2020). This mindset pushes them to constantly search for new information and to stay informed about trends, news, and social activities, whether related to personal interests, academic topics, or broader societal events (Lee et al., 2023b). Compared to previous generations, GenZ has had more access to the internet and digital media and, consequently, more access to information. Hence, GenZs are more likely to have a higher confidence level in navigating digital technology, and to prefer digital mediums for learning (Mosca et al., 2019). Furthermore, they have developed unique learning preferences as a result: they are more inclined to independent learning due to the individual nature of technology and prefer learning opportunities where they can immediately apply what they learn to real life (Seemiller & Grace, 2017; Lim & Lee, 2024).

Secondly, GenZs process information differently from previous generations. They have shorter attention spans (Giunta, 2017) and prioritize speed over accuracy (Nicholas, 2020). This could be attributed to the use of high-speed technology during formative years (Medina, 2008). As such, delivering information through concise content will likely be more effective at engaging GenZs (Tomaszewski, 2023).

Thirdly, many GenZs are currently navigating transitions to the next stage of education or the workforce (Lee et al., 2024). Individuals undergoing transitions engage in various practices to overcome challenges in the new information environment, such as calibrating their behavior by comparing with local practices and collecting important information (Hicks, 2022, Mulaudzi, 2023). For example, social media can provide the resources needed for calibration, by offering a glimpse into university social life (Dennen & Bagdy, 2024).

While research about GenZ's relationship with digital technology is abundant, there is a lack of literature specifically addressing their use of GenAI, largely because it is relatively new.

Affordances of generative AI

The affordances of an environment are what it offers the user, either for good or for ill (Gibson, 1986). Affordances are relational and exist in the interaction between an individual's subjective perception of utility and objective qualities of a technology (Schrock, 2015; Lee, 2010). Individuals perceive the functions and constraints of the technology, possess different levels of capability to use the technology, and interact differently with the technology depending on cultural norms and institutional regulation (Davis, 2020).

The theory of affordances highlights that technologies request, demand, encourage, discourage, refuse and allow certain actions and social habits (Davis, 2020; Lee et al., 2023a). The development of GenAI has led to a new generation of affordances for everyday information-seeking. For example, GenAI encourages users to seek information by generating it or modifying existing content and discourages users from comparing multiple sources (Hirvonen et al., 2023). GenAI also has numerous learning affordances. It allows anyone to generate text without deep understanding of the topic, allows readers to modify texts to different genres or styles, and provides writing feedback that could be used to consolidate learning (Warschauer et al., 2023). Examining interactions of people and GenAI through the lens of affordances can help us understand how the technology enables and constrains their information practices, and how GenAI will shape information practices towards a direction to complete an information-seeking task. In particular, this study focuses on understanding GenAI affordances that resonate with GenZ students and their potential implications.

Methodology

A total of 34 GenZ students entering university were recruited in Singapore to participate in a semi-structured interview. Of these, 47% of participants were male (n=16), and 53% (n=18) were female. Participants' ages ranged from 19 to 23. Data for this study were part of a larger study to examine Generation Z's information practices and the digital media they adopt in their transition to university. To incentivize participation, each participant was given S\$25 SGD after completion.

Each interview lasted approximately 45 to 60 minutes and was audio recorded and transcribed for analysis. All interviews were conducted virtually and led by one interviewer and a note-taker. Questions specific to this study included perceptions of GenAI, how they used GenAI to verify, access, and search for information, and reasons for doing so. Participants were asked to describe their interactions with GenAI, focusing on its specific features and tasks they were performing. Specifically, we asked participants to critically reflect on these experiences with GenAI. The six-phase thematic analysis for qualitative data analysis was conducted (Braun & Clarke, 2006). After reviewing the interview data, the first two authors initiated an initial round of semantic coding to generate inductive codes. They then coded each transcript by highlighting and annotating data items, independently identifying emerging patterns. Any conflicts regarding such themes were

resolved through discussion between the two authors. Through this process, three main themes related to the affordances of GenAI were identified.

Results

Preliminary results reveal that the three main themes include 1) content searching and curation, 2) content generation and ideation, and 3) content enhancement and refinement. Additionally, participants interviewed mostly used ChatGPT, and a few shared they used other GenAI tools (e.g., Grammarly, Gemini, Co-pilot) occasionally.

Allows simultaneous content searching and curation

Participants use GenAI as an alternative to traditional search engines by directly keying in questions they have into GenAI platforms to see what insights they can derive from GenAI's output. Unlike traditional search engines such as Google which presents a list of separate relevant sources in response to a query, GenAI systems can consolidate desired information from different sources and present it through human-like interactions. This makes it easier to use GenAI to find information on a specific topic, eliminating the need to look through various sources. This viewpoint is echoed by various participants and here is an example from a male participant (Electronic and Information Engineering),

I just went to search what labs they have for my department, and the kind of research they do. It comes out a lot easier instead of having to scroll through. There's a lot of information on the website.

Notably, content information sought and consolidated by participants varied widely, spanning topics from makeup to motorcycles and personal details to publicly available information. This diversity highlights how GenAI serves as a resourceful tool for content curation across a wide array of subjects, catering to both casual inquiries and in-depth research. This affordance also aligns with Gen Z's experience of FOMO (Fear of Missing Out), which often drives their information-seeking behaviors as they strive to stay updated.

Encourages content generation for preliminary ideation

Participants use Gen AI to generate ideas and brief pointers, which serve as a starting point upon which they can further build and edit. This is observed in both academic contexts and non-academic contexts in everyday life. A male participant (Economics and Data Science) explained, '*I would prompt ChatGPT that I am applying for [a] scholarship and ask what I should say to the hiring officer.*' Here, the emphasis on content generation is on academics.

Interestingly, participants also indicate that GenAI can be a source of inspiration for other miscellaneous tasks in everyday life. For instance, a female participant (Communication Studies) provided an example, '*to generate a packing list of what I would need to move in [to hostel]. I kind of use that to ensure I don't miss out on anything.*' Another female participant (Psychology) shared, '*when I'm baking or cooking, maybe I would use ChatGPT to search for some recipes.*'

Across various purposes, the generated content was primarily utilized for preliminary ideation and brainstorming where participants asked GenAI to generate ideas on a wide range of topics in everyday life (e.g., recipes and scholarship interviews). Findings indicate GenAI's versatility in enhancing creativity and providing quick access to 'initial' information aligning with the 'information opportunities' highlighted by Hirvonen et al. (2023).

Iterates to enhance and refine content

Apart from generating a first draft (ideation), participants used GenAI to gather feedback on a piece of work they had previously created. Thus, participants could refine the original work through multiple iterations. Because all participants were interviewed right before they entered university, they talked about their experiences during university and scholarship applications, which may require essays as part of the process. Here, GenAI was used to improve university application

essays or resumes and this viewpoint was highlighted by many participants. A female participant (Business Administration) informed,

I put in a paragraph of everything I want and if I'm not satisfied with the answer, I will refine it like, 'Can you make it more concise.' And I'll do it until I'm happy with the answer.

GenAI's ability to curate past interactions plays a crucial role in improving the content refining process, particularly by catering to Gen Z's short attention spans. By retaining and referencing previous exchanges, GenAI tools offer more relevant and personalized responses through multiple iterations, reducing the need for users to remember the details and explain their queries repeatedly. Continuity is an important affordance that allows for more efficient enhancement and refinement.

Discussion

This preliminary study identified three types of GenAI affordances (content searching and curation, content generation and ideation, as well as content enhancement and refinement) that facilitate information seeking and shape the information practices of GenZ students. Together, these affordances highlight GenAI's potential to transform traditional information-seeking behaviors by not only providing access to information but also actively shaping the way users interact with, interpret, and apply the information. Indeed, as digital natives, Gen Z is well-positioned to leverage GenAI's affordances, unlocking new 'information opportunities' surrounding the three themes to create values during information seeking.

The present study's approach to GenAI affordances sheds light on practical use cases and on how GenZ students perceive and utilize the technology to achieve their goals. First, the uniqueness of GenZ's GenAI usage stems from their greater comfort and familiarity with digital technology compared to older generations. Their inherent ease with technology gives them the heightened ability to discover GenAI affordances independently, and quickly adapt these affordances into diverse aspects of their lives, from academic research to everyday problem-solving. Second, the affordance-based approach focuses on identifying how GenAI provides specific opportunities for users to interact with the technology effectively. For GenZ users, this means understanding how AI's features and capabilities enable them to perform various informational activities.

Affordances perceived by GenZ can cause problems in the long run. Firstly, because GenAI affords the generation of original content, there are potential negative implications for human creativity if there is an overreliance on technology for idea generation. This raises the question of whether GenZ students will begin producing uniform answers inspired by AI-generated content, instead of fully developing their creative ideas. Specifically, Google's recent advertisement on their GenAI platform Gemini showcased a father using it to help his daughter write a letter to Olympic athlete Sydney McLaughlin-Levrone, sparking controversy about the role of GenAI in producing creative work (Duffy, 2024). There is a need to discuss where ethical boundaries should be drawn and to guide GenZ students in navigating these considerations.

Secondly, using GenAI for information searching leads to an increased risk of misinformation. Specifically, a phenomenon called hallucinations, where the GenAI model generates false information that does not align with real-world facts, is a major risk for GenZ students (Lee, 2023). The problem is exacerbated by a lack of transparency over how exactly the model arrives at an output or which sources are used, making it difficult to verify AI-generated information. GenAI literacy programs in higher education need to be enhanced so GenZ students are taught to assess the credibility, accuracy, and reliability of GenAI content. In particular, understanding the 'checkworthiness' of GenAI content, which refers to content that needs verifying before accepting it as true or using it, is an important first step for GenZ students (Wright & Augenstein, 2020).

Conclusion

This study reveals the perceived affordances of GenAI for GenZs, addressing a gap in the current literature on GenAI. The findings underscore the significant extent to which GenAI has been

integrated into the daily lives of GenZ students. Due to the 'technoholic' nature of GenZs, they are more likely to embrace AI technology in different areas of their life compared to millennials or Generation X (Chan & Lee, 2023).

This study's research and practical contributions should be noted. Using affordances as a framework to examine how GenAI affords resources to GenZs, this study identified affordances that contribute to the literature and raise awareness of how Gen AI can be integrated into formal and informal education settings. More broadly, our findings can help inform educators and policymakers about the development of AI literacy policies for GenZs.

We acknowledged that the relatively small number of participants (n=34) limits the generalizability of this research. Nevertheless, the qualitative results can serve as a helpful starting point on GenZs' information practices surrounding GenAI. Additionally, self-reported data on GenAI use in this study did not capture all aspects of GenAI use, such as frequency, variety of applications, or interactions with different types of AI models. Future work can use a mix of self-reports, usage logs, and analytics to obtain a more comprehensive view of GenAI use.

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