Generating Reflection: Empowering User-Generated Content Through Generative AI in Online Discussions

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This position paper explores the integration of Generative AI (Gen-AI) technologies, specifically Large Language Models (LLMs), to foster reflection among users in the context of User-Generated Content (UGC) on online platforms. By leveraging the capabilities of LLMs, this paper proposes a novel approach to organically induce reflection in users before they contribute to online spaces. This paper elucidates the mechanisms through which Gen-AI technologies can facilitate reflective engagement, going beyond the mere generation of information content. Ultimately, this paper advocates for the strategic integration of Gen-AI technologies to enhance the quality and depth of UGC on online platforms, thereby enriching the collective discourse and fostering a more reflective online community.

1 INTRODUCTION

In the digital realm, User-Generated Content (UGC) has risen as the cornerstone of online discourse, exerting profound influence over conversations, information dissemination, and policy formation within virtual communities [1, 5]. The emergence of Generative AI (Gen-AI) represents a transformative juncture poised to redefine the dynamics of UGC [3, 8]. Leveraging technologies like ChatGPT, which harness Large Language Models (LLMs), offers the capacity to generate diverse content, stimulate brainstorming [4, 11], refine language [2], and even create realistic images [9]. However, this surge in automated content creation may inadvertently foster disingenuous responses, propagate misinformation [12], and give rise to biased or misleading content [10]. In this position paper, we propose harnessing the capabilities of LLMs to introduce a novel approach aimed at cultivating users' reflective engagement before contributing to UGC online. Our objective is to elucidate how Gen-AI can serve as a catalyst for fostering reflective discourse, transcending the mere generation of content, and addressing inherent concerns in the interplay between Gen-AI and UGC.

2 DYNAMICS BETWEEN GEN-AI AND USER-GENERATED CONTENT

Recent advancements in Gen-AI technologies, exemplified by platforms such as ChatGPT, have witnessed widespread adoption for UGC creation, ushering in novel dynamics within the social media ecosystem [3, 8]. These platforms have introduced novel dynamics to the social media ecosystem, offering sophisticated capabilities to generate human-like language through text-based interactions [6]. As they seamlessly integrate into our online interactions, they possess the potential to not only shape our behaviors but also influence our opinions online.

In parallel, research focusing on LLMs and Natural Language Processing (NLP) has emphasized their pivotal role as active collaborators in content generation for users [7], with a specific focus on written content creation. Studies have elucidated how leveraging Gen-AI technologies like ChatGPT can function as a writing assistant, enhancing language proficiency [2], facilitating story creation [11], and nurturing creative writing endeavors [4].

However, amid the proliferation of larger and more powerful Gen-AI technologies, there exists a notable gap in harnessing their potential to stimulate users' reflective engagement — a critical consideration given that reflective thinking often informs our writing endeavors [13]. Addressing

this gap is essential to ensuring that the integration of Gen-AI technologies in the context of UGC creation aligns with the broader objectives of fostering thoughtful and meaningful online discourse.

3 USING GEN-AI TO GENERATE REFLECTION FOR USER-GENERATED CONTENT

3.1 Help Me Reflect - A Reflection Tool

We introduce *Help Me Reflect* [13], an interface-driven reflection tool enhanced by LLMs, specifically utilizing GPT-3.5, to offer a diverse array of textual prompts.

Help Me Reflect features five unique reflectors: persona, temporal prompts, analogies and metaphors, cultural prompts and storytelling. Each reflector serves as a distinct avenue to organically prompt users' self-reflection before they engage in content creation on online platforms. For example, the *Temporal Prompts* reflector encourage self-reflection by prompting individuals to reflect on their life experiences while the *Cultural Prompts* reflector cultivate self-awareness through reflective questions that encourage individuals to reflect on their beliefs and biases.

Help Me Reflect is a feature that can be integrated into online discussion platforms or social media platforms like Facebook or Reddit to facilitate uses in their self-reflection process when they are crafting their opinions on a topic.

3.2 User Study

We conducted a user study followed by semi-structured interviews with 12 participants to discern how each reflector contributed to their self-reflection within the online discussion context. We also asked participants to rank the five reflectors from 1 (lowest) to 5 (highest) to discern their preferences for the reflectors.

3.3 Quantitative Results

The study findings reveal that the *Persona* reflector garnered the highest rating, achieving a score of 4.17 out of 5, indicating its effectiveness in stimulating user engagement. Conversely, the *Analogies and Metaphors* reflector received the lowest rating, averaging 1.83 out of 5, suggesting its comparatively limited impact. *Storytelling* and *Temporal Prompts* emerged as the second highest rated, both scoring an average of 3.42, underscoring their notable efficacy in prompting reflection. *Cultural Prompts* obtained the second lowest rating, with a score of 2.75, indicating moderate success in eliciting reflective responses from users.

3.4 Qualitative Results

Here, we detail further insights on how the *Help Me Reflect* tool stimulate users' reflection before they generate content online.

Persona. Participants highly valued the persona reflector for its ability to provide alternative viewpoints and diverse perspectives. They appreciated how it encouraged them to delve beyond their initial thoughts and provide insights into how different individuals might perceive the topic. Additionally, participants found that the persona reflector created a sense of familiarity, akin to real-life conversations, which made them more open to understanding others' perspectives. Overall, participants viewed the persona reflector as a valuable tool for fostering empathy and broadening their perspective on discussion topics.

Analogies and Metaphors. Unlike other reflectors that provide straightforward information or reflective questions, the analogies and metaphors reflector introduces a layer of abstraction, making it challenging for participants to reflect. Only one participant found it interesting and relatable, viewing metaphors as relatable real-life examples. Others viewed it humorously or expressed

dissatisfaction with its effectiveness. Some participants found the metaphors confusing or one-sided, while others felt that prior cultural knowledge was necessary to understand them, hindering their self-reflection process. Overall, the Analogy and Metaphor reflector received mixed reviews, with participants highlighting its challenges and limitations in fostering reflective engagement.

Cultural Prompts. Participants had varied responses to the Cultural Prompts reflector. Some participants noted the cognitive burden imposed by the reflector, requiring more time and effort to engage with the reflective questions. Some participants also felt uncomfortable discussing the reflective questions as they perceived it as too personal. However, despite these challenges, several participants recognized the value of the reflector in promoting deeper reflection. They appreciated how it encouraged them to consider how their past experiences might influence their current understanding of issues, fostering self-evaluation and deeper thinking.

Storytelling. Participants generally appreciated the Storytelling reflector for providing more context and diverse perspectives, similar to the Persona reflector. They found value in the variety of scenarios presented in the stories, which helped them better understand the topic. However, some participants expressed a preference for shorter anecdotes or stories, noting that the longer and less direct nature of the stories made them less engaging compared to the Persona reflector.

Temporal Prompts. Participants found that the Temporal Prompts reflector facilitated reflection on their personal experiences, particularly prompting them to contemplate past events and personal stories. However, they tended to rank it lower than the Persona reflector. This is because participants expressed a preference for understanding others' perspectives, as exploring various viewpoints enriched their understanding, whereas the Temporal Prompts reflector solely centered on their own self-reflection.

Summary. Overall, participants noted that *Help Me Reflect* facilitated valuable self-reflection and contributed to the construction of their thoughts when generating content online. They appreciated its provision of neutral and objective guidance, which prompted critical thinking when formulating their opinions online. Notably, participants expressed a preference for reflectors with shorter and less abstract prompts. This preference was evident in the top three reflectors: Persona, Storytelling, and Temporal Prompts.

4 CONCLUSION

In our research, we explored the effectiveness of interface-based reflection nudges powered by LLMs in prompting users' self-reflection prior to their online content generation. We developed *Help Me Reflect*, an interface-based reflection tool that harnesses Gen-AI technologies to facilitate users' self-reflection. Our findings suggest that leveraging the capabilities of Gen-AI technologies, such as ChatGPT, can effectively engage users and content creators in self-reflection before they generate information online.

5 AUTHORS' RESEARCH BACKGROUND AND INTEREST

Shun Yi Yeo is a PhD candidate at the Singapore University of Technology and Design. Her primary research interests lies in reflection, online deliberation and online discussion. Her current focus involves investigating how large language models can enhance opinion contributions in online contexts.

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