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SHORT ARTICLE

AI as research partner: key implications of using AI for data visualisation in qualitative research

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ABSTRACT

Artificial intelligence (AI) can partner in a research process in multiple ways, including data visualisation in qualitative research. It can empower the researchers to (re)present data in more effective and artistically appealing manners. In this paper, we recount our interactive experiment of employing an AI-powered tool to generate a picture of a small segment of qualitative data. We then discuss three key implications from our engagement with AI: research ethical considerations, new forms of human and non-human research partnership, and importantly, roles and agency of researchers and AI in this partnership.

The recent tremendous popularity of artificial intelligence (AI) in various fields, including education, health, and communication have been well recorded in the literature (Deng, 2023; Guan et al., 2020; Siiman et al., 2023). AI, and most notably ChatGPT, has proved its efficacy in multiple ways, from conducting literature review and synthesising literature (Burger et al., 2023; Haman & Školník, 2023; Tauchert et al., 2020), to providing proofreading service and linguistic assistance to researchers from a non-native English background (Nguyen-Trung et al., 2024). AI tools like ChatGPT or scite.ai are found to extract and synthesise relevant data from studies quickly and accurately, which saves lots of time for researchers in the preparation stage of the research process. Moreover, thanks to its big data processing capacity, AI can powerfully facilitate interdisciplinary research (Butson & Spronken-Smith, 2024) and can also generate texts and images within seconds. ChatGPT, for example, is able to produce digital pictures from provided prompts. For researchers, this text-to-image function can unlock an entirely new realm to explore. The question is how can researchers, especially those who engage with and want to utilise visual media such as drawings, paintings, or sketching in their research, leverage this AI-powered tool. By recounting our own experience of employing ChatGPT for a visualisation of qualitative data in our research, we discuss three key implications related to the question we have posited: research ethical considerations, new forms of

human and non-human research partnership, and importantly, roles and agency of researchers and AI in this partnership.

AI-assisted visual method in qualitative research: an experiment

The idea for this paper stems from our little experiment, two education researchers, with ChatGTP 4.0—the most well-known and accessible AI platform as of 2024, to create a visual medium for one of our collaborative writing projects (Phan & Le, 2025). In that project, we attempted to chart the spatial movement of one of our female participants in her 20s who was born into a poor family in an impoverished village and migrated to the capital city for university education. It was, however, more complex than that (Le & Phan, forthcoming). Before higher education, she attended a secondary boarding school in a local district and then another boarding high school in the city of her province. In other words, her learning journey in each level of education overlapped with her geographical movement, which significantly formed her aspiration for upward social mobility and migration. Because of her fascinating mobility, we wanted to illustrate the trajectory in visual form in support of texts. We were greatly inspired by arts-based methodology which employs artistic practices to generate and present data and communicate with audiences (Faulkner, 2016; Finley, 2003; Leavy, 2009).

Arts-based methodology allows and encourages alternative expressions other than texts, including poetry, music, photography, drawings, collages, paintings, sculptures, weaving, and many others. In our case, we wanted to use visualisation because visual data, including images that already exist, that are created by the researcher, or by those who are being researched (Rose, 2022), have powerful effects in social sciences research (Spencer, 2023). They bring 'the embodied, the sensuous and the emotional to the forefront' (Boydell et al., 2016, p. 690) and give prominence to the embodied, aesthetic and affective ways of knowing in the research process. We wanted our participant's story to perform itself visually in a way that could touch readers, and we partnered with ChatGPT for that reason.

We separately worked with ChatGPT, provided it with prompts, waited for its AI-generated images, gave it further instructions to adjust the images as we wished or requested a new image. It should be noted that we had not agreed on the prompts we would use as it might result in the same AI-generated pictures. Furthermore, we considered this endeavour a learning space for both of us to create a partnership with a non-human assistant before we shared our experiences with each other. In short, ChatGPT offered us each about a dozen images. We each chose the image that we were satisfied with the most from our individual interaction with ChatGPT and discussed which of the two could be used in our final paper.

Reflecting on integrating AI in the visualisation of qualitative data: ethical considerations for human and non-human partnership

The first implication we learned from our experiment with AI is ethical considerations, here we allude to data privacy. As Ford et al. (2020) remind us, researchers are responsible for keeping participants unidentifiable while using their data. In visual research methods, anonymisation is a key concern, regardless of research-generated, participant-

generated or found images (Allen, 2015; Miller, 2015). It is important that participant's confidentiality and anonymity be kept, therefore, we were careful to not disclose any identifiable information of our participant. To construct our prompts, we used very general descriptions such as a female young adult, a poor rural village, or a capital city having skyscrapers, cars, and restaurants, although the research site, Vietnam, was included in our prompts to allow for distinctive features of the Southeast Asian country to be reflected in the image background. In so doing, we could ensure that the involvement of AI did not breach any agreement in the informed consent. Furthermore, as Kamelski and Olivos (2025) argue, AI technology can offer 'novel approaches to image anonymisation and fictionalisation' (p. 2), which can address the ethical standard of confidentiality in research involving visual dimensions. In the scholarship, Markham (2012) has suggested using the AI-replicas in qualitative research. AI-replicas are computer-generated versions of the original images which retain key elements such as composition, colour and gestures, but replace images of subjects with realistic, fabricated replicas. Nonetheless, we still have certain reservations about the extent to which data can be shared with AI-powered tools in similar endeavours. What if the visual product requires more detail? Will researchers need to consider using AI before the actual research process and reflect this intention in the participant information document and subsequently the informed consent so that participants are aware that their data can be shared with AI? According to Bouhouita-Guermech et al. (2023), AI makes many principles more challenging to assess, and AI in research ethics is still a developing area, we believe researchers should take a precaution as they involve AI-powered tools in their data analysis process.

Second, we have mixed feelings about our human and non-human partnership with AI. On one hand, we were amazed at how quickly ChatGPT could produce complex digital images just based on less than 50 words of users' inputs. If we were not satisfied with what was offered, new options would be generated within seconds, with completely new details, colours, landscape, or arrangement. That would be impossible if we tasked an illustrator or a graphic designer. AI could deliver the commissioned work efficiently within a very limited amount of time and easily fixed details targeted by users. These outstanding capacities mean that researchers now have the means to 'look at' their data from more perspectives and 'immerse in' their data in a different space. We argue that this new approach can deepen the data analysis process and motivate researchers not only to think *about* data but also to think *with* and *through* data creatively. We liken this process as playing with a multicoloured rubik's cube in which researchers can 'touch' the data, 'flip' it, divide it into layers, observe the movement of each layer of colour as we move and rotate it, just to find the correct edges and corners. In a sense, AI is able to *embody* the research process, which is useful for qualitative researchers.

Nevertheless, broken communication can occur between researchers and AI assisted technology. When we wanted to refine certain details in an image that ChatGPT generated, it could not improve that specific area. ChatGPT would either make no modification, or produce a completely new image, which entailed a new cycle of processing and evaluation for researchers. This caused confusion to us at first because we were not certain if this issue resulted from our unclear instruction or AI reaching its limitations. We then realised ChatGPT could not go further into finessing small details, nor could it work too long or too much on

one single image it created. It was patient enough to continuously generate new images but lacked the focus to refine a single image to users' exact specifications. It is understandable that AI is developing at an astonishing pace, and its capacity might alter in days. We, however, recognise its limits that at the time, it could never deliver a picture that completely satisfied us. It would fail somewhere, for instance, the car was misplaced, the texts AI included in the image was misspelt or unnecessary, or the restaurants looked more like those in other countries than that of our participant. In other words, sometimes the representation of the geographical location in everyday scenarios that AI generated for us were not typical of Vietnam, the research site, and could be easily mistaken for other places such as China or Hong Kong. This issue has been flagged by scholars, such as Lakhani (n.d.) at Harvard Business School, who expressed concerns over AI's hallucinations that cause misleading and incorrect information, Naik and Nushi (2023) who argued it is likely that AI fails to feature diverse geographical contexts, especially non-Western countries, or Nicoletti and Bass (2023) whose analysis shows that an AI art-generator tool named Stable Diffusion simultaneously amplifies both gender and racial stereotypes.

The process of collaborating with AI for text-to-image generation added a layer to our data analysis. Every time we used prompt expansion to add further descriptors to the initial general prompts or refine our prompts for ChatGPT to fix the details as we desired, we re-examined our understanding of our participant's narrative. As we discussed together to choose among the images resulting from our separate engagement with AI, we again were involved in data analysis to ensure a shared understanding of the participant's life history. Although our interpretation of the data remained the same, we anticipate that changes may occur in other cases where researchers provide AI tools with more complex inputs and prompts.

Another implication we could draw from our experiment is the researcher's role in a human and non-human partnership in qualitative research. There are many configurations of this collaboration, depending on which angle to view from, and how deep we want to involve AI into the work progress. From the standpoint of data presentation, in our experiment, AI was able to assist us in co-creating knowledge 'as a partner in intellectual exploration and problem-solving' (Butson & Spronken-Smith, 2024, p. 567) by presenting our data from an arts-based approach. Its involvement could compensate for our lack of sketching and drawing skills, while we strived to report meaningful data in a creative manner. Despite its imperfection, ChatGPT could successfully provide us with images with complex details that generally captured our ideas. However, at some point, we were more in the position of a client who commissioned a task for AI to do, rather than co-researchers. A primary reason is that AI was involved in just one particular singular phase of our research process and it worked with highly general, molecule-sized data. In fact, the data we shared with AI was limited within 50 words with very limited specific details. Therefore, researchers can act as a client in this relationship. As a client, researchers have the right to select and use the product or not by evaluating its relevance to the research and aesthetic qualities. We, therefore, echo Nguyen-Trung et al. (2024) that 'while AI-powered tools can serve as valuable assistants, the ultimate responsibility for making decisions regarding the inclusion and exclusion criteria rests with the researchers. Such decisions should reflect the research purpose, theoretical framework, and existing knowledge' (p. 15).

AI involvement in qualitative research from the agential realism lens

The use of computers and softwares in qualitative research is not a new phenomenon. Computer-assisted qualitative data analysis (CAQDAS) such as NViVo or MAXQDA have become important tool kits for many researchers. In the literature, Fielding and Lee (1998) highlight the rapidly growing popularity of these computer programs and point out their advantages and disadvantages. Bringer et al. (2004) and Clare et al. (2008) discuss the use of CAQDAS in grounded theory and interpretative phenomenological analysis, respectively. Dalkin et al. (2020) illustrate how NViVo was used to aid in the complex and messy process of theory generation.

Looking beyond the point of representing the data in a captivating manner, researchers are faced with more nuanced challenges, both epistemological and ontological. In our case, first, the prompts we gave to ChatGPT were generated by and through our interpretations of abstract data and subsequent textual abstractions. The images produced by ChatGPT, therefore, could be understood as 'paraphrased visual information' (Kamelski & Olivos, 2025, p. 6). As AI followed our prompts to create an image, it reinterpreted our textual information using its own intelligence and resources, which added a layer of obscurity in data representation. In other words, it introduced 'additional distortions' to 'the original truth' (Kamelski & Olivos, 2025, p. 4). Second, incorporating an AI-generated image as visual support to our textual discussion was our attempt to transpose the post-structuralist order of things. Post-structuralism has been critiqued by scholars (Fox & Alldred, 2015) for having granted language too much power by reducing every turn, or every 'thing' into 'a matter of language or some other form of cultural representation' (Barad, 2007, p. 132). Agential realism, on the other hand, reconceptualises the process by which objects are examined and knowledge created by describing how reality is actually shaped:

> Agential realism entails a reformulation of both of its terms - 'agency' and 'realism' - and provides an understanding of the role of human and nonhuman factors in the production of knowledge, thereby moving considerations of epistemic practices beyond the traditional realism versus social constructivism debates. (Barad, 2007, p. 70)

For Barad, agential realism is not limited to the human realms, and so potentially includes nonhumans and cyborgs – an image first introduced by Donna Haraway in 1983 to indicate a third-type that crosses the rigid boundaries between human and animals, and human and machine. What this implies is human and nonhuman factors both contribute to the making of knowledge, therefore, it is likely that AI is practicing its epistemic freedom beyond human control, using human inputs.

Additionally, Barad emphasised that matter is not just passive material that is shaped by agents; it undergoes a process as it 'stabilises over time to produce the effect of boundary, fixity, and surface' (p. 213). This is a breakthrough of new materialism compared to post-structuralist philosophies,, because it decenters humans from the focus of mattering, and even insists on an alternative understanding of agency, a term closely tied to humanist/post-structuralist discussion of knowledge and power. Agency, then, 'is a matter of intra-acting; it is an enactment, not something that someone or something has' (Barad, 2007, p. 178). This agential-realist lens is crucial in exploring the (re)configurings of technology, notably AI-

generative applications, from traditional research paradigms. Does that mean AI has its own thoughts and actions, beyond the control or demand of the human-researchers? Does that mean the certain details included in dozens of generated images are the way AI shows how it understands the data? If that is the case, how have MAXQDA, NVivo or other data analysis platforms decided to interpret the input that human researchers fed them? What did they ignore, and what did they include? *Coming clean* about the level of involvement of such nonhuman factors in nowadays' research addresses the onto-ethico-epistemological concerns, or challenges, for those who wish to think with theory through their research projects, particularly those using intimate research, narrative inquiry, story telling, or life history as social inquiry.

Concluding words

Our experience working with AI can inspire other qualitative researchers to initiate their interactions with this technology and creatively explore its powerful capacity. Through this paper, we propose a novel, creative way to involve AI in data presentation in qualitative research, particularly arts-based research, while also raising concerns over our own bias and ethics in doing so. This paper contributes to the rigorous debate on AI's role in education and research in general. We hope to further the discussion on the potentials of using technology-enhanced tools in data analysis and presentation in qualitative research while unravelling its limitations and questioning its agency in a human and non-human partnership.

Disclosure statement

Notes on contributors

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