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A Critical Perspective Over Whether and How to Acknowledge the Use of Artificial Intelligence (AI) in Qualitative Studies

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A Critical Perspective Over Whether and How to Acknowledge the Use of Artificial Intelligence (AI) in Qualitative Studies

Abstract

There has been a rise in scepticism regarding the use of Artificial Intelligence (AI) in qualitative research tasks such as critical reviews, conceptualization, thematic and content analysis, and potentially theory development. Concerns have been raised over the possibility that researchers intentionally avoid discussing or even mentioning the use of AI in their studies for a variety of reasons, including the "fear" of criticism and rejection of their papers. The purpose of this paper, which is guided by critical perspective principles, is to examine the controversy surrounding the appropriate recognition of AI in theoretical discussions and qualitative research, including conceptual, critical reviews, empirical, and other types of studies of qualitative nature. Prior to a discussion of how to acknowledge the use of AI, the significance of notions of acknowledgment and academic integrity in the context of research are discussed. As the author of this paper, I acknowledge and document the use of both AI and the researcher's cognitive skills in the development of this theoretical critical perspective study through a four-phase process, while giving directions of when and how to acknowledge the use of AI in qualitative studies.

Keywords

artificial intelligence, AI, qualitative research, methodology

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A Critical Perspective Over Whether and How to Acknowledge the Use of Artificial Intelligence (AI) in Qualitative Studies

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There has been a rise in scepticism regarding the use of Artificial Intelligence (AI) in qualitative research tasks such as critical reviews, conceptualization, thematic and content analysis, and potentially theory development. Concerns have been raised over the possibility that researchers intentionally avoid discussing or even mentioning the use of AI in their studies for a variety of reasons, including the "fear" of criticism and rejection of their papers. The purpose of this paper, which is guided by critical perspective principles, is to examine the controversy surrounding the appropriate recognition of AI in theoretical discussions and qualitative research, including conceptual, critical reviews, empirical, and other types of studies of qualitative nature. Prior to a discussion of how to acknowledge the use of AI, the significance of notions of acknowledgment and academic integrity in the context of research are discussed. As the author of this paper, I acknowledge and document the use of both AI and the researcher's cognitive skills in the development of this theoretical critical perspective study through a four-phase process, while giving directions of when and how to acknowledge the use of AI in qualitative studies.

Keywords: artificial intelligence, AI, qualitative research, methodology

Introduction

Artificial Intelligence (AI) has brought about a revolution in scientific work and research by opening new doors to opportunities to analyze and interpret complex data, develop original propositions and models, and come up with novel insights (Ching et al., 2018). AI has been implemented in the creation of new computational models and simulations for the purpose of comprehending complicated occurrences in a variety of scientific fields (Chan & Zary, 2019; Mirchi et al., 2020). Furthermore, AI is utilized in the generation of summaries of scientific articles, the identification of key concepts, and the suggestion of novel research directions (Haman & Školník, 2023; Temsah et al., 2023). This is helpful for researchers in staying current with the most recent literature and generating new ideas for research to pursue. Even so, the increased use of AI in recent years has led to scepticism and criticism regarding how it is incorporated in qualitative research tasks such as critical reviews, conceptualizations, and various forms of content analysis (Miloyan et al., 2019; Moreno & Redondo, 2016). Fears are furthermore growing over the negligence or deliberate avoidance by researchers to refer to its usage. Researchers and analysts may not acknowledge the use of AI in their methodology and study methods sections, for various reasons, including the "fear" of being exposed to criticism resting on "surface-able" if not false/inaccurate content, and "automatic-generated analysis," thus having their papers rejected.

In this paper, I aim to provide a response to the dilemma and question of whether the use of AI is to be acknowledged in research papers (i.e., conceptual, empirical, or other types of research papers), as well as how this should be done. For this reason, I have adopted a

theoretical critical perspective (Hesse-Biber & Leavy, 2010; Leavy, 2012; Sanchez et al., 2019) regarding the use of AI in qualitative research (as explained in detail in the following section), by examining the increasing debate and criticism of the use of AI in research, while discussing issues and reasons for the non-disclosure of AI as a resource/analytical tool. Prior to delivering a discussion on how to acknowledge the use of AI in an academic or research study, I conclude with an analysis of the significance of the notions of acknowledgment and academic integrity within the context of research. I progress below by supporting the rationale of incorporating a critical perspective over the use and implications of AI, present a discussion of reasons for failing to acknowledge the use of AI in research studies, and conclude with a discussion of when and how AI is to be acknowledged in any qualitative study.

A Critical Perspective Rationale Driving This Paper

Critical thinking involves actively seeking out and questioning the existence of pre-existing assumptions about how the world works (Elder & Paul, 2020; Thorndahl & Stentoft, 2020). The purpose of this is to broaden one's perspective. To do so, one must delve beyond the surface level of a topic and explore the academic, social, and technological contexts in which it exists. One of the most significant benefits of taking a critical stance is that it encourages scholars to challenge the assumptions underlying dominant discourses and challenge the "status quo." Researchers can spot inconsistencies and question the veracity of previous studies or aspects, by adopting a critical stance. This can spark the development of fresh lines of inquiry and the exploration of new approaches to the study of a topic. Taking a critical stance can assist researchers create more nuanced and intricate understandings of a topic. Researchers can avoid oversimplification by reducing a topic to a binary opposition when they adopt a critical perspective. In taking on this perspective one can recognize the importance of multiple perspectives (Kahn, 2015; Lynch, 2001; Yanchar et al., 2005) and in this paper, I chose to present and discuss antithetical dynamics through scholarly work linked to AI, forcing (or not) the acknowledgement of the use of AI in each study.

Furthermore, the promotion of justice and equity, concepts that are especially pertinent and significant for the role and acknowledgement of AI in conceptual and empirical studies, necessitates a critical perspective. Through a critical viewpoint I had to consider arguments from a variety of perspectives, such as in this case the dilemma of whether and how AI is to be acknowledged in a study. Besides, a critical stance enables researchers to question and investigate the inherent biases and presuppositions in the subject matter of a study (Bouyssou et al., 2000; Dunfee, 2006; Lynch, 2001). Exposing assumptions, expanding understanding, and fostering justice are all possible outcomes of adopting a critical stance. The fact that AI is both fascinating as a field of study and increasingly integrated into many facets of our lives (including the work of researchers) piques my curiosity. However, AI is not without its costs and drawbacks; for example, researchers may lose the opportunity to use their own cognitive and evaluative skills if they are replaced by intelligent automated mechanisms and procedures. As a qualitative researcher, I find it interesting to investigate these important key issues and offer advice to my peers who may encounter similar difficulties and worries when using AI in their own research. To achieve this goal, I had to dig deep into the phenomenon being studied (in this case, AI), investigate the context in which it is used and studied (this case, AI linked to research implications), and look for any connections and linkages with other concepts that are deemed important for the scope of this study (more specifically, the notions of acknowledgment and academic integrity, as discussed thoroughly in the proceeding sections).

In more detail, I used a critical perspective rationale that involved a combination of technological (i.e., AI) and cognitive (i.e., human) means. In the first part of the process of writing this paper, I specifically investigated the notion of AI within the research context, while

during the second part of the process I searched for specific notions, (i.e., "acknowledgement" and "academic integrity") that were relevant to the paper's overall scope. During these phases, I drew on my understanding of the phenomenon and background as a researcher in the field of social sciences and as a qualitative-driven researcher. In more detail, I "instructed" a specific AI system (i.e., AI language model) to search for both information (content) and studies that would have assisted with the theoretical discussion in this paper by issuing specific commands (e.g., "Provide an explanation of what is AI" and "Explain the uses of AI for academic research purposes"). Explanations and papers on the phenomenon or topic under study resulted from both the first and second phases of action. In the third phase, I applied my knowledge and reasoning to the "output" (the results of the previous phases) and I checked each (one-by-one) study provided by the AI system and used certain criteria to eliminate or use specific content. The first criterion that I used was whether each study does exist- since AI may provide fake studies. Parallel to this, I used the second criterion of content examination. Besides, researchers argue that there is the possibility of AI systems producing false content (Haupt & Marks, 2023; Zhang & Li, 2021). I examined the AI-produced content (e.g., articles and summaries of these), evaluated their content in comparison with other information derived from other sources of information (i.e., Google Scholar and specific journals). During the fourth phase, research output (in this case, studies and academic papers) was carefully considered, categorized, and linked to form a network of different themes relevant to the study, such as "dilemmas of acknowledgement" and "ethical obligations" by using principles of thematic analysis in conceptual and critical papers as a guide (see Christou, 2023), while engaging in a theoretical discussion grounded in the principles of a critical perspective, to reach conclusions and provide specific guidelines and recommendations.

The Use of AI in Qualitative Research: Implications, Debates, and Non-Disclosure

Whether or not AI is recognized as a source of information or an analysis tool, it is increasingly being used by researchers. AI-generated or informed literature reviews, systematic reviews, conceptual papers, study approaches, and analyses (such as thematic analysis), have all been used increasingly in recent years. For instance, a GPT, "Generative Pre-trained Transformer," that is a specific type of deep learning model (one of the most prominent techniques within the broader field of AI), has been programmed to recognize patterns and relationships in text that a human might miss because it is trained on large amounts of text data (Sanderson, 2023). The academic community and researchers are also increasingly employing AI for analytical purposes (Jin et al., 2021; Wang et al., 2021) while qualitative research-derived information, such as answers to open-ended surveys or transcripts of ethnographic studies, in-depth/informal interviews, are all ideal candidates for AI analysis and classification.

The Increasing Debate and Criticism of the Use of AI in Qualitative Research

The potential for bias, false information, and inaccuracies, are all arguments that can be made against using AI for conducting literature reviews, conceptual and systematic/critical review studies. AI systems have the potential to overlook significant nuances and details in academic papers, not to mention the delivery of false content (Naumova, 2023), which can result in inaccurate or insufficient summaries. This can lead to conclusions that are not necessarily accurate, and it may also impede the development of conceptual frameworks that are accurate. In a similar vein, AI in the form of deep learning models (such as GPTs), that may be used for the construction of papers of a conceptual nature might not be able to adequately capture the complexities and nuances of theoretical frameworks, which are often the basis for qualitative empirical studies. That is, GPTs may have difficulty generating output

that accurately reflects the meaning that is intended to be conveyed by more complex theoretical concepts. Because of this, key concepts may be oversimplified or misinterpreted, which may reduce the usefulness of conceptual papers as a means of guiding future research. However, this does not imply that they may not “spark” new ideas and new ways of thinking.

The potential for a lack of transparency in the decision-making process is yet another criticism levelled against the practice of using AI systems for analytical purposes, since they may make decisions based on hidden or unclear criteria, which can make it difficult to interpret the results and understand how conclusions were reached (Edwards & Veale, 2018). This may arguably be not the case of specific AI that are specifically designed for the analysis of information/text (such as for example, *InfraNodus*), yet the “automation” of procedures (e.g., in the delivery of clusters) may lead to scepticism of which specific algorithms were followed in the clustering/thematic analysis and whether these are reliable. Thus, even though AI systems are regarded as a useful tool for assisting (if not writing completely) literature reviews, conceptual papers, and conducting various forms of analysis, there are several valid criticisms that should be taken into consideration. These include the possibility of false/fake information, bias and inaccuracies being introduced into generated summaries, the difficulty of accurately capturing intricate theoretical concepts, and the possibility of a lack of transparency being introduced into the analysis process. Researchers should carefully consider these limitations before using and eventually acknowledging their use as thoroughly discussed in the proceeding sections.

The Non-Disclosure of the Use of AI in Papers and Qualitative Studies: Ethical Concerns and Demonstration of Academic Integrity

There are various reasons why researchers might choose not to disclose the fact that they have used AI in the writing of their papers or during other qualitative research tasks (such as, the analysis process). One possible reason is the lack of comprehension or information. More specifically, there is a possibility that researchers will fail to disclose the use of AI in their work simply because they are unaware that they have employed such technology in their work. According to Bender and Koller (2020), many researchers may not have a comprehensive understanding of the technologies they are using, and they may not be aware of the extent to which AI has been incorporated into their research. The worry that one will be scrutinized or sceptically examined is another reason. In more detail, researchers may decide not to disclose their use of AI because they “fear” that their research will be viewed by others (such as editors or reviewers), in a sceptical light. This “fear” may motivate them to keep their use of AI (as in the case of deep learning models such as *ChatGPT*) a secret. This is reflected in the findings of Barocas and Selbst (2016) who demonstrated that there is a pattern in which certain researchers tend to minimize or conceal the utilization of AI or other technologies in order to avoid criticism or unfavourable perceptions, such as the fact that they have made use of a “machine” to develop their propositions or theoretical discussion of their study.

An additional reason which relates to the above point is the yearning for either ownership or credit. That is, researchers might choose to conceal the fact that they made use of AI so that they can continue to claim ownership of their work/study. It is also possible that researchers want to steer clear of giving “credit” to machines and technologies (i.e., AI) for the contributions these have made in the case of specific types of qualitative research, such as conceptual papers or critical reviews. Besides, it is important that researchers demonstrate a level of evaluation and critical thinking particularly in the case of conceptual/critical review papers, in which the conceptualization may require an additional involvement of the cognitive input of a researcher to form connections and linkages of notions in order to arrive at specific propositions and conclusions.

There are additionally some ethical issues to consider. Because there are ethical considerations involved with the application of AI, researchers might choose to conceal their use. For instance, researchers may have concerns regarding the possibility of bias or inaccuracies in text that was generated by AI, as well as regarding the implications of utilizing such technologies in research that involves human subjects. When using AI or other technologies in research, there are several ethical considerations, such as producing and using false/incorrect content, or plagiarism (Anders, 2023; Liebrez et al., 2023) and these should not be taken lightly by researchers or analysts. Finally, there is the problematic issue of researchers not having specific standards or guidelines. That is, some researchers might choose not to divulge the utilization of AI for the simple reason that there are no well-defined standards or guidelines for doing so. As a result of this lack of clear guidelines, it can be difficult for researchers to know when and how to disclose their use of AI. Despite this, acknowledging sources and means used in a particular investigation/study is of the utmost significance for reasons that will be unfolded and discussed below.

Though not restricted to qualitative research, within the broad notion of "acknowledgement," research integrity and transparency require that researchers disclose the methods they employed. In fact, academics stress the importance of acknowledging but also providing details and depth of tools and processes used in qualitative research (Belotto, 2018; Elliott, 2018). In more detail, giving credit where credit is due is an essential part of scientific ethics. There are instances when not only the "acknowledgement" (in the form of a simple reference) but also the inclusion of a detailed explanation of how an AI was used to perform certain research tasks is necessary (e.g., the case of an analysis of content). Also, the validity and trustworthiness of the study must be established. Trustworthiness is built on a foundation of acknowledging the methods used with researchers arguing that trust requires transparency in research methods (Nosek et al., 2012; Stodden et al., 2013). Furthermore, for moral and practical reasons, it is crucial to acknowledge the research methods that were employed. Plagiarism and other forms of research misconduct can be charged when authors fail to give proper credit where credit is due for a technique (Abbas et al., 2021; Blum, 2009; Masic, 2014). Giving credit where credit is due is essential to fostering a community in which research is conducted in an atmosphere of openness, transparency, collegiality, and respect. Openness and transparency in scientific research, as noted by Nosek et al. (2015), foster accountability and yield more trustworthy results. Knowledge is said to be constructed through social interactions, such as the sharing of ideas and information, according to social constructivist theories (Vygotsky & Cole, 1978), while this knowledge is created in a collaborative manner, and it is important to give credit. Conceivably, this does not only apply in the case of referencing authors, but also in the case of acknowledging the use of AI to perform certain tasks (e.g., analysis of findings). More specifically, researchers must acknowledge the resources they deployed in order to complete a research task, such as the application of AI or generative content analysis techniques. In conclusion, it is crucial for ethical reasons that any research, including one that has been assisted by AI means, properly acknowledges not only academic work (in the form of citations), but also the methods used by any AI system in order to maintain trust within the scientific community, promote collaboration, and guarantee accurate and trustworthy results.

When and How to Acknowledge the Use of AI in a Study or/and Academic Paper

When asked about whether to acknowledge the use of AI in research or empirical studies, it is not possible to provide a straightforward and uncomplicated answer such as "yes" or "no." This despite the fact that journals may require from authors to submit or include a

statement indicating whether and the extent to which an AI system has been used. For instance, it may be argued that a researcher who has produced a literature review with the support of an AI will not need to include a specific section in the study methods section stating the rationale of making use of a specific AI (such as, chatGPT) and the selection of specific academic studies to be included in the theoretical discussion of their study. Yet, author/s is/are required to provide a statement that clarifies how and the extent to which AI was used for the development of the paper. Editors may in this case require in the submission process a specific statement that requests from authors to divulge whether and how AI was used in the construction of their theoretical discussion (i.e., literature review) of their paper. Nonetheless, conceptual and empirical studies should be accompanied by a section that goes into detail regarding the use of AI in the research methods employed by the researcher. This is of the utmost significance if the methodology employed led to the production of a conceptual paper or a specific type of analysis. Conceptual papers are works of scholarship that present original concepts or theories in relation to a particular topic. Such papers can be found in various fields, such as education, management, and the social sciences (Christou, 2020) and are distinguishable from other approaches because they place a greater priority on the development of theoretical or conceptual frameworks than they do on the accumulation or analysis of data. Authors who take a conceptual approach have the potential to make significant contributions to a field because they offer novel interpretations or conceptualizations of information that have already been established. They frequently include a review of the relevant body of literature, a clear and concise articulation of the novel conceptual framework or theory, as well as recommendations for additional research (Flick, 2013; Gephart, 2004; Gioia et al., 2013). In these kinds of circumstances, of conceptual work or even critical reviews, the researcher or analyst should clearly acknowledge in the methods section of their paper the use of whatever AI they have used to extract scholarly work or to analyze information to offer insights of phenomena and notions. Despite this, it is recommended that the researcher demonstrates a rationale of their own “cognitive input” for a variety of reasons in the research process, as previously explained in this paper. These reasons may include the exclusion of non-relevant and unreliable sources of information, as well as in the construction of cognitive maps, theoretical conceptualizations, and/or theory development. In addition, the researcher should be able to clearly explain and justify at which phase the cognitive (manual) input of the researcher began and at which phase/stage the use of AI commenced and completed (and for what reasons).

Furthermore, when a researcher or analyst has used AI during data analysis, it is also appropriate to discuss such involvement in their process. This can be done in the methodological section of the study/paper. In more detail, AI models may be able to execute a wide range of tasks that are associated with natural language processing, with topic modeling and semantic analysis being two such examples of the work that fall under this category. Topic modeling and semantic analysis are two distinct types of natural language processing that can be used to analyze text data, such as through the utilization of advanced software or AI. Topic modeling is a technique that is used to find recurring topics or themes within a large body of text. A form of natural language processing known as semantic analysis is one method that can be applied to the examination of textual data. This is accomplished by identifying patterns in the distribution of words across documents and identifying clusters of words that frequently co-occur with one another in the same context. The Latent Dirichlet Allocation (LDA) algorithm can identify topics by modeling the probability of generating a given word based on the topics that are present in the document. This algorithm is widely used for topic modeling and is one of the most popular methods for doing so. The LDA uses this method to figure out which topics are covered in each document (Blei et al., 2003). On the other hand, semantic analysis is a method of analyzing text that focuses on comprehending the meaning of words and phrases in relation to the context of the text that they are found in. This contrasts with

lexical analysis, which focuses on deciphering the meaning of words and phrases on their own. Conducting an analysis of the structure of words and phrases as well as the relationships between them is required in order to locate semantic concepts and themes. Semantic analysis makes use of a variety of methods, some examples of which include part-of-speech tagging, named entity recognition, sentiment analysis, and understanding of natural language (Goddard, 2011; Pang & Lee, 2008; Salloum et al., 2020). When applied to the same piece of writing, topic modeling and semantic analysis may end up producing different sets of findings because they are designed to capture different aspects of text analysis. Semantic analysis is used to achieve an in-depth understanding of the meaning and context of individual words and phrases that are present in the text, whereas topic modeling is used to identify overarching topics or themes that are present in the text. Both methods are used to analyze a body of written material. In either case, the researcher must acknowledge and document clearly the use of the specific AI to perform the analysis in the methods/methodology section of their paper, while explaining what type of analysis was performed by the program as well as the algorithms that the system used. A justification of the strengths and drawbacks of the use of the specific AI system should also be provided by the researcher/analyst.

Nonetheless, it is possible that the researcher or the analyst will need to be prepared to respond to any criticism on grounds including the rationale, applicability, and reliability of the use of AI in order to carry out such tasks. For example, reviewers may challenge the use of a particular AI system to perform a specific form of analysis. It is unlikely that a straightforward instruction of creation of clusters/themes will survive the editor's review of the paper, much less a stringent peer-review procedure. The researcher is hence advised to clarify at which point "cognitive" input (as explained earlier) was re-enforced to reach conclusions. Thus, the importance of researchers and analysts ensuring that they acknowledge the use of AI in their research is emphasized in addition to the reasoning that lies behind doing so, for reasons embracing amongst others key notions of acknowledgement, ethical obligation, transparency, and academic integrity.

Concluding Remarks

There has been growing skepticism and criticism of the ways in which AI is being incorporated into research activities like systematic/critical reviews, conceptual papers, theory development, and various analysis techniques. The widespread adoption of these technologies over the past few years is largely responsible for this development. Researchers and analysts are encouraged to mention them (such as in the form of a statement and/or in their methodology/study methods sections), but may fail to do. This occurs for several reasons, such as the "fear" of having one's work critiqued or even rejected because they relied on "artificial means" to develop their papers. The purpose of this paper was to offer a response to the conundrum of whether to acknowledge AI in research papers, and if so, how to acknowledge it. For this reason, I have taken a theoretically critical stance on the use of AI particularly in qualitative research, discussing issues and reasons for the non-disclosure of AI as a source by researchers and analysts, while addressing the growing debate and criticism surrounding their use. Prior to engaging in a theoretical discussion of when and how AI is to be mentioned and justified in academic studies, I have discussed the concepts of acknowledgment, academic integrity, and ethical obligations of researchers. Nonetheless, this paper does not come without limitations. The first is about the methodology adopted for this paper. While taking a critical stance on a unique and contentious topic has its advantages (Paradis-Gagné & Pariseau-Legault, 2022; Sunday et al., 2020), the approach is not without its drawbacks since there is always a chance that the phenomenon will be interpreted differently by different researchers. One more has to do with the "depth" of the information that has been given, that is restricted

(due the paper's scope) in a specific topic of discussion linked to the acknowledgement of AI in research.

Even though AI is becoming increasingly popular in academic circles as a resource, research, and analysis tool, there are still a number of questions that have not been answered. For example, it is highly likely that AI systems will continue to evolve and eventually be able to construct complex conceptual diagrams. To what extent are these systems intended to be used in papers that have, up until this point, depended on the expertise, skills, and cognitive input of the researcher to form such conceptualizations and reach conclusions in qualitative studies of a conceptual and critical nature? Another question that has not been satisfactorily answered to this point and calls for further investigation is how AI can most productively be used to contribute to the creation of new knowledge, such as "theories". In the future, researchers may conduct studies that are both empirical and conceptual in nature in order to shed light in this direction. Furthermore, more research is required to answer questions about how AI should be used by researchers and analysts and how its inclusion in studies should be properly implemented and justified.

Despite the questions and points raised above, this paper did address the critical issue of recognizing and acknowledging the contribution of AI to research. To be more specific, and as discussed in the previous section of this paper, it is important for researchers to acknowledge (e.g., by means of a declaration statement) the use of AI to develop the literature reviews and theoretical discussions contained within their respective papers. In the case that AI means are used for the development of specific studies as a whole (e.g., conceptual papers, critical perspective papers, or systematic reviews) or as a methodological tool (e.g., for the analysis of qualitative findings), then researchers are obligated to mention what type of AI they have used, how it has been utilized, and justify its use in the methodology sections of their respective studies. As the author of this paper, I have taken my own advice in this regard and commented on, as well as justified the rationale behind incorporating AI means for the development of my paper. I used a critical perspective method, which, as was previously explained in detail, involved a combination of technological (that is, AI) and cognitive means, and it involved a specific process of differing phases. As a concluding remark, I encourage scholars to publicly acknowledge and justify the use of AI in their own research/papers, and I hope that this paper will spark fruitful theoretical discussions on the topic.

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