ComplianceBot: Leveraging Generative Conversational AI to Support Researchers with Academic Compliance

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To ensure that academic researchers comply with institutional and disciplinary standards such as data protection legislation and ethical research guidelines, institutions require researchers to submit forms for processing. This task can be unnecessarily time-consuming and complex from the researchers' perspective. Generative Artificial Intelligence (GenAI) implemented through conversational means (i.e., generative conversational AI systems such as ChatGPT) could be an ideal technological solution to support researchers in this process. The technology's ability as a cognitive service (i.e., being able to simulate human thought processes in domains of language, knowledge, and search) affords it an ability to support cognitively complex tasks – such as filling out academic compliance forms – in an intelligent way (e.g., providing synthesised and contextualised data insights, metacognitive support strategies, cognitive scaffolding). However, it is currently unclear what challenges and pain points researchers experience when filling in these forms and whether a conversational AI tool would be appropriate to support this process. We used semi-structured interviews to explore researchers' experiences when filling in academic compliance forms and how they could be supported in this process. We found that participants struggled to 1) navigate the bureaucratic nature of the institutional pathways involved, 2) gain access to relevant support resources and past application examples, and 3) apply their general knowledge about data protection and ethical principles to their research projects. Further, our participants identified a need for more interactive support to address these pain points, which suggests that a conversational AI tool could be an appropriate technological solution. We, therefore, propose the development of ComplianceBot, a ChatGPT-based cognitive-support tool that helps researchers learn the conceptual and procedural skills necessary for filling in academic compliance forms. This position paper contributes a user case study which demonstrates how recent developments in conversational AI technologies can now afford the rapid development of low-cost, high-fidelity prototypes to address user needs in unprecedented ways and produce deeper insights that contribute to the field of Human-Computer Interaction.

CCS CONCEPTS • Human-centered computing • Human computer interaction (HCI) • Empirical studies in HCI

Additional Keywords and Phrases: Generative AI, Conversational Agents, Cognition

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1 INTRODUCTION

Before conducting any research, academic researchers working with human participants (i.e., collecting and processing personal data) need to ensure their projects comply with research standards. This includes ensuring the research adheres to accepted ethical standards and local and international data protection laws (e.g., the EU General Data Protection Regulation (GDPR)). In the UK, universities have processes in place to achieve this: researchers need to apply for ethical approval from local or central committees and register their projects with data protection officers. This academic compliance requires that researchers fill in a range of compliance forms that ask for in-depth details about their research projects from a data protection and ethics perspective. Researchers often struggle with academic compliance due to its cognitive-demanding nature: the slow, time-consuming and bureaucratic nature of the process, copious amounts of forms to complete, and a need for assistance in meaningfully developing a deeper understanding of how to apply and translate general research ethics and data protection principles in practice [14,17,18].

Whilst existing research provides design recommendations for improving the legibility of forms [12], it is unclear whether simplified forms alone can sufficiently aid the academic compliance process, as it relies on researchers' ability to maintain compliance throughout the research process. In other words, in the context of academic research, it may be necessary to create tools that support but do not replace, the researcher's engagement with relevant rules and regulations, as they plan and secure compliance for their research. It is also vital to examine why researchers tend to find compliance challenging and to ensure that any solutions we offer focus not only on simplifying the working lives of academics but also on ensuring that they are well-equipped to conduct research in line with ethical and data protection guidelines.

Although there is a large corpus of research exploring general academic compliance, there are few in-depth explorations of the perceptions and experiences of individual academic researchers completing this process. The little existing research that does take this approach tends to focus on exploring the compliance experience at the organisational level [10,18], in private-company settings [3,7], and from the perspective of other relevant stakeholders e.g., data protection officers [3,4].

2 METHOD

We conducted a semi-structured interview study with academic researchers (n= 15) of varying academic ranks (from PhD student to Professor) based at the Psychology department at a British university. We explored their experience of filling in academic compliance forms and how they could be supported in this process. Interviews were conducted through Microsoft Teams and lasted around 45-60 minutes. The transcripts were then analysed using reflexive thematic analysis [1], taking both a deductive and inductive orientation and a semantic-leaning approach (focus on the explicit meaning of data) to the coding process.

3 FINDINGS

Through our analysis, we found researchers needed support in coordinating the overall academic compliance form application process, which included:

- A need for support around navigating the complex bureaucratic institutional pathways involved (e.g., information on what forms to complete, what order, and timelines to work towards).
- A need for support around planning/reflecting upon high-level aspects of their research project from a data protection and ethics perspective.

- A need for support resources (e.g., FAQs, information about data protection principles, example applications) to be more accessible and personalised to their project scope.
- Importantly, participants identified a need for the above issues to be supported through interactive means.

4 DISCUSSION

The findings from this interview study show there are three main types of needs to address if we are to support researchers in filling out academic compliance forms:

1. A need for accessible information support around data protection and ethics processes at the global level (i.e., principles) and the local level (i.e., applying them to academic compliance forms in an institutional context).
2. A need for cognitive support around thinking about/reflecting upon their research project in ways that align with data protection and ethical principles.
3. A need for support around the former two needs to be achieved through interactive means.

We posit that a generative conversational AI interactive tool could help to address the identified needs. Generative conversational AI refers to a class of Large Language Models that can generate human-like text responses in response to human input – with 'ChatGPT' now being used as a shorthand for such systems [5]. Indeed, conversational interactions are ideal for supporting cognitively demanding tasks that are often new to the user, open-ended and ill-defined – which filling in academic compliance forms falls under [14]. They can do so by providing personalised and summarised information [2,6], and by guiding/scaffolding users' thinking and decision-making around task objectives [15,16,19]. Indeed, AI-powered conversational agents have been previously implemented to address form-filling tasks in a university administrative context. For example, designing and deploying an agent to support students in completing a disability disclosure process [8,9,11]. In our case, we envision the development of the conversational AI tool 'ComplianceBot', a ChatGPT-based cognitive support tool that has the following functionalities:

- Synthesises and provides summarised information to researchers about data protection, ethical principles, and institutional pathways in a personalised way.
- Supports researchers in thinking about/reviewing their research project details from these perspectives.

We envision that researchers can interact with ComplianceBot before, during, or after completing the academic compliance forms. Depending on the point of usage, the bot would gather necessary user information (e.g., researchers department, research project details) through conversational means or via uploaded documents (e.g., an ethics application form) to provide support. Importantly, to align with GDPR-compliance itself, the bot will explicitly state to the researcher to only share personal data about themselves they are comfortable providing and to not under any circumstances share personal data about other persons,

To deliver these functionalities, we plan to build a high-fidelity prototype of ComplianceBot using the newly released OpenAI 'GPT builder' [13]. This feature allows individuals to create custom versions of ChatGPT for their own specific purposes which can then be shared publicly. Through an iterative design process, we plan to explore what forms of conversational interactions are best suited to deliver the above functionalities i.e., how and when these interactions should occur, and evaluate whether interacting with the bot allows researchers to develop the necessary conceptual skills (i.e., knowledge on data protection and ethics principles and the institutional processes for academic compliance form applications), and procedural skills (i.e., the ability to think about their research projects from a data protection and ethics perspective) to fill out academic compliance forms.

The development of such advanced tools for building conversational AI has enabled us as interaction designers to expand the potential design space of technological solutions to address user needs (such as the ones outlined here).

Previously, the iterative development and testing of conversational agents with the desired functionalities would have required intensive time, effort, and resources. This would have meant potentially focusing on fewer (potentially simplified) functionalities and developing lower-fidelity prototypes to test. But with recent developments from OpenAI, we are now realistically able to rapidly build and deploy low-cost, high-fidelity prototypes with a range of complex functionalities. In turn, this allows us to deploy solutions that better address user needs and also to evaluate more deeply a range of system functionalities and interactions. These new opportunities allow us to produce richer and more meaningful insights that contribute towards our understanding of conversational agent design and how users interact with such systems in situ.

5 CONCLUSION

Recent developments in conversational generative AI have rapidly expanded the opportunities for how interaction designers can explore and address user problems around completing cognitively demanding tasks in an unprecedented way. In this position paper, we outline a real-world user case study (academic researchers filling out compliance forms) that demonstrates how conversational AI could be implemented into the interaction design workflow. We posit that leveraging generative conversational AI to develop technological solutions (ComplianceBot) can help us as researchers to more effectively address user needs and produce deeper insights that contribute to the field of Human-Computer Interaction.

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