Exploring the Use of Artificial Intelligence Tools in Academic Research by PhD and MPhil Scholars in Pakistan: A Qualitative Study of Practices, Benefits, and Ethical Concerns

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ABSTRACT

The study involves a qualitative approach to the topic and considers the use of artificial intelligence (AI) by PhD and MPhil researchers in one country, Pakistan, and looks at practices, perceived opportunities, and ethical issues. The study employs a framework based on the media-studies approach combining three complementary models of communication: Diffusion of Innovations, Technological Affordances, and Critical/Platform approaches by using semi-structured interviews of the representatives of different disciplines and research institutions. Results indicate that AI is primarily used to triage literature, write, polish language, and troubleshoot methods in a significant time-saving process with increased clarity. But respondents cite high risks, such as fabricated citations, bias, privacy issues and gaps in access to high-quality tools. Instead, ethical micro-practices like human-in-the-loop verification, disclosure statements, and no-copy areas became methods of maintaining the integrity of academia. As the research indicates, to achieve a balance between innovation and rigor, clear institutional policies, equitable access, and relevant literacy training on AI must be addressed. It gives recommendations to the university, supervisor, libraries, and the scholars on how to responsibly incorporate the AI into the doctoral research workflow in Pakistan.

Keywords: *Artificial Intelligence; Generative AI; Academic Research; Doctoral Education; Pakistan; Qualitative Methods; Ethics; Media Studies; Diffusion Of Innovations; Affordances.*

Introduction

Generative artificial intelligence (AI) and related AI-powered tools have quickly become part of the scholarly workflow, including conceptualizing, literature retrieval, drafting, coding, analysis, visualization and publication. Whether in acceleration or the so-called endgame of research, the gains are, to early-career researchers, researchers in particular, but also to PhD and MPhil scholars, all the more interesting: complex activities can have supporting systems, time can be saved on the routine, and even writing or methodology-related feedback can be given. Meanwhile, the AI also presents non-trivial risks biased outputs, fabricated citations ("hallucinations"), confidentiality risks, the degradation of critical thinking and craft, and novel ways of academic misconduct. Such strains are enhanced in Global South settings where the lack of infrastructures, disproportionate digital skills, and changing institutional practices form an ecology of adoption and resistance unique to the Global South.

The Pakistani case is very interesting. Institutes of higher learning are pressuring to go digital at the same time as the policies of AI integration into their courses, theses and publications suffer confusion. Irregular internet service, academic databases put behind scholarly paywalls, and uneven access to commercially available AI comprise the local performative properties of AI. In the meantime, the pressure of the promptness of publication and international recognition standards puts doctoral researchers in an awkward situation with AI also seeming like a lever of productivity as well as an ethical minefield. Gaining knowledge on how Pakistani PhD and MPhil students actually use AI, in terms of which tasks they outsource, which tool to rely on, how to deal with integrity regulations, and so on, can be used in institutional policy, training, and supporting services.

Earlier research around the world has reported increased learning and productivity alongside fears of bias, opaqueness and academic integrity when using AI-powered writing, code generation and feedback. However, the evidence in Pakistan is dispersed to overall views towards AI in higher education or technology-readiness in the classroom instead of in-depth studies in the areas of research during graduate work. The uniqueness of a qualitative and context-specific story which, by reconstructing research day of doctoral students, will uncover contextual ethics and triangulate the emerging divide of labor between the human and the machine is starkly evident.

This literature overcomes that gap. We deploy an interpretivist qualitative study to investigate how Doctor of Philosophy (PhD) and Master of Philosophy (MPhil) researchers in Pakistan use AI at the various stages of research, their perceived advantages and challenges, ethical, institutional, and infrastructural impediments and the methods and practices they initiate in order to maintain rigor and originality. Our three additions would be: (1) empirically anchored typology of AI use-case scenarios in doctoral research; (2) a media-studies-infused formal theory of interaction, that is, a fusion of Diffusion of Innovations (LODI)/Affordances/Critical/Platform theories with which to explore patterns of adoption and resistance; and (3) practical recommendations to universities, supervisors, or libraries, and to universities and scholars. Our results provide a careful, practical representation of the use of AI in the scholarly workflow, one that does not exaggerate automatization, or undermine human judgment and responsibility.

Literature Review

Generative AI has become a disruptive phenomenon in scholarly activity with research fields reporting the promise of increasing drafting speed, language clarity, ideating, and code writing capacities; especially those who are non-native speakers of English or new coders (Kasneci et al., 2023; Lund et al., 2023; Zhao et al., 2023). There is also experimental evidence that AI can be used with scaffolds and reflective prompts to facilitate higher-order thinking skills (Zhai, 2023). It has demonstrated an ability to create outlines, summaries, paraphrases, and stylistic comments in writing-intensive tasks, but outputs vary widely in quality depending heavily on how well the prompt is designed and user expertise (Dwivedi et al., 2023; Ouyang et al., 2022). Outside of the support of writing, AI also finds itself embedded in subsequent research processes, like triaging the literature, concept maps, data cleansing, qualitative coding, troubleshooting statistics, visualization, and addressing peer review comments (Jiao et al., 2024; Kung et al., 2023). The use and development of LLMs in qualitative research have so far been limited to coding tasks, specifically auto-coding, memoing, and theme suggestion,

typically as an exploratory or first step that would still require human validation (Zhang & Chen, 2023). In quantitative areas, AI was found beneficial in explanation of codes, repairing of bugs, and producing boiler plate (Pearce et al., 2023). In spite of these benefits, researchers and universities raise concerns regarding ethical hazards and academic honesty. Such risks entail hallucinated citations and factual errors (Else, 2023), the lack of transparency in the models processes (Floridi & Chiriatti, 2020), and the biases that may be encountered due to the data used to train the models, which may enshrine the representational harms (Bender et al., 2021; Birhane, 2021). The aspects of privacy and data security in cloud-based AI tools complicate adoption, making it even more confusion related to the issue of authorship and accountability blurring (van Dis et al., 2023). As a reaction, academic publishers and universities have started enforcing policies where they require people to disclose the use of AI, ban the inclusion of AI names on the work, and the responsibility to ensure information is accurate remains with humans (COPE, 2023). Such discussions in the pedagogical field even stretch into the scope of plagiarism detection and the moral pedagogical need to identify acceptable AI support and unethical replacement (Rudolph et al., 2023). According to Global South researchers, infrastructural disparities, financial constraints of affordability, and cultural-linguistic biases in training data impact disparities in the adoption of AI negatively (Mhlanga, 2023; Birhane, 2021). Reliance on commercial systems and the widespread use of paywalls to access special features threatens to replicate these inequalities, especially in areas of the world where policy in the public sector has not kept pace with fast technological advancement. Policy: At the national level in Pakistan, AI is imagined as an engine of productivity and innovation in citizen services, but high education policy guidance is not well developed and applied uniformly across the sector (Ministry of IT & Telecom, 2023 [draft]). The local literature shows that faculty and students have a positive interest in using digital instruments but, at the same time, raises concerns about data security, digital skills gaps, and a custom faculty development program (Ahmad & Batool, 2022). Theoretical viewpoints are of great help in understanding these patterns of adoption. Based on this theory of Diffusion of Innovations (Rogers, 2003), relative advantage, compatibility, complexity, trialability and observability emerged as important factors that impact uptake, which addresses the difference between disciplines and campuses. Affordance theory (Hutchby, 2001) moves the focus to the possibilities of actions that AI enables- such as quick paraphrase or code repair and acknowledges that they can be only realized through the proficiency of the user and limitations of the situation. In Critical/Platform approaches, locating academic vulnerabilities and dependency is a matter of enterprise design decisions, service agreements and data governance regimes (Gillespie, 2018). Collectively, these lenses have the power to provide insight as to why scholars choose to embrace AI, but they also have the capacity to explain how platform logics, institutional rules, and socio-technical imaginaries scheme ordinary research. Although the research on the topic has expanded globally, it remains an understudied act of fine-grained and context-specific qualitative research regarding doctoral researchers in Pakistan. Specifically, one does not know much about how to incorporate AI in various stages of research, how benefits received out of AI may become associated with tangible academic tasks, and how ethical concerns may interact with local infrastructural and policy conditions. The given study helps to fill these gaps as it elaborates a practice-based

typology of AI use-cases, identifies risks and benefits, and provides policy recommendations specific to the Pakistani higher education setting.

Theoretical Framework

There are three complementary lenses that we combine to understand AI adoption.

1. **Diffusion of Innovations (Rogers, 2003).** We consider AI tools as the innovations that spread in academic networks. Probability of adoption is influenced by (a) perceived relative advantage (e.g. quicker drafting), (b) compatibility with norms (e.g. supervisor policies), (c) complexity (learning curve), (d) trialability (free tiers, sandboxes) and (e) observability (examples of peers, lab culture). We also take into account social systems structures, such as supervisor expectations, department policies and peer communities which either speed or slow down the diffusion.

2. **Affordances of Technology (Hutchby, 2001).** Affordances are not characteristics but possibilities of actions achieved by the user in a context. The four affordances we designate as core to doctoral work are the following: (i) compression (reduction of time to draft), (ii) translation and normalization (language polishing to academic tone), (iii) scaffolding (structured prompts to elicit outlines, checklists and pseudo-code), and (iv) interrogability (conversational, iterative feedback). There are also constraints such as token/context limits, hallucinations, closed-source opacity and rate limits.

3. **Critical/Platform Studies-Perspective (Gillespie 2018; Bender et al. 2021).** We focus on the front of platform control: content moderation and policy regulation, storage and recording of user information, the ability of companies to control updates to the model, and the breeding of bias through the creation of training data. The lens rationalizes user trust calibration, shadow compliance (quiet use) and tool-switching behavior as policies get more tightly wound or costs increase.

The lenses together suggest heterogeneous, situated adoption: researchers combine tools in asymmetric fashion at different research stages, to optimize against local constraints (cost, bandwidth), and to invent ethical workarounds (local runs, redaction, human-in-the-loop verification) as local trades between speed and rigor.

Methodology

Design and position

An interpretivist, qualitative multi-site research based on semi-structured interviewing, artifact elicitation (e.g., prompts, drafts, screenshots with identifiers redacted) and reflexive thematic analysis (Braun & Clarke, 2006, 2019). To supplement interviews, we use short daily diary entries recording AI interactions over the course of a typical week of research.

Sampling and setting

Our sample is maximum-variation purposive across each province across all (public and private) universities in Punjab, Sindh, Khyber Pakhtunkhwa, Baluchistan, and the capital territory of Islamabad (one each, names kept confidential) students in social sciences, STEM, health, media/communication, management, disciplinary breadth. Aimed sample size n = 30-36 (PhD and MPhil scholars; full-time and part-time). Inclusion criteria: pursuing an MPhil/PhD program in Pakistan; have spent at least three months on research activities; have an experience in using AI tools.

Data collection

Interviews (10 15 minutes), online or in person in Khyber Pakhutnkhwa, voice-recorded with approval. Protocol is the web of research steps, selection of tools, advantages, risks, ethics, disclosure intervention, and the awareness of institutional policy.

Demographic / Context form

Discipline, stage, access to paid tools, language background, institutional policy of AI awareness.

Data analysis

We adhere to reflexive thematic analysis (Braun & Clarke, 2006, 2019): familiarization, open coding, development of a codebook, developing themes, checking themes against the data, and defining/naming themes.

Ethics

All those who desired identities kept it continental.

Figure 1. Illustrative frequency of major themes from interviews (n=30).

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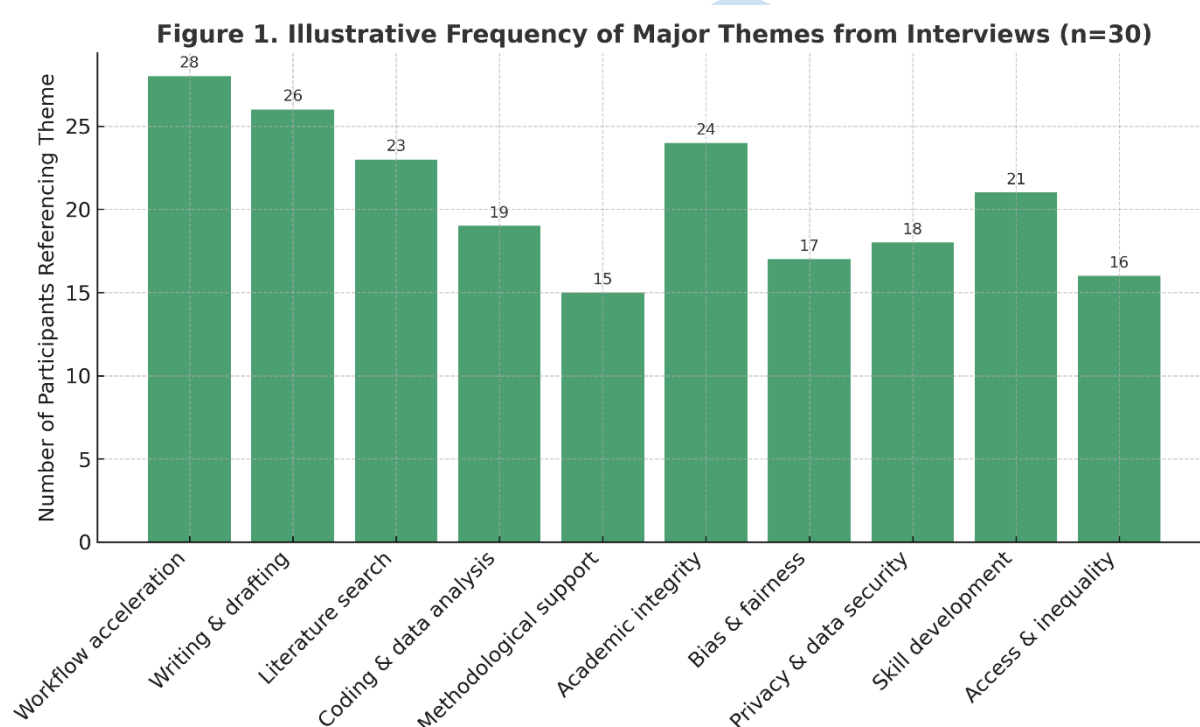
Findings

We present seven cross-cutting themes.

1. **Human check with Workflow acceleration.**

Respondents reported using AI on a first-pass basis to outline and construct sections in a study (particularly background and methods) and to simplify dense technical writing, and then using a human rewriter to provide flavor and originality. Intensification was the greatest in writing and literature review.

2. **Rhetorical Scaffolding and Language Support.**

The academic community especially those who publish in English-medium journals applied AI to tones, grammar, and organization of arguments and this was presented as linguistic equity, not the thinking shortcut when done with openness.

3. **Codeless Tracing and Methodological Tutoring.**

During the qualitative work, sampling frames, interview probes and initial codebooks were solicited among participants.

4. **Risk Awareness: Hallucinations, Citation Integrity and Gaps in the Field.**

One of the recurrent issues was false or even obsolete sources. Researchers resorted to verification procedures (checking DOI, triangulation with libraries databases), and the idea of the so-called no-copy zones appeared, when researchers avoided using AI text in particular sections or used it only in order to improve their style.

5. **Ethics-in-Practice: Disclosure, Boundaries, Human-in-the-Loop.**

The most common one was to adhere to an internal policy about revealing the use of AI in acknowledgments or methodology; restriction of analysis and interpretation to humans; and non-uploading of sensitive or embargo data to cloud services. In cases where the institutional policies were not clear, the students turned to the supervisor or conservatism.

6. **Injustices of Access and Platform Dependency.**

Tool choice and the degree of use were influenced by access to paid tiers, bandwidth limitations and institutional subscriptions. Paid users claimed to have an easier working process and more quality results, which causes concern as to research equity.

7. **The changing Pedagogies and the Institutional Uncertainties.**

Leaders ranged between a permissive, skills-oriented supervision (prompt engineering, verification) and prohibitive kinds. Nontechnical, gradated policy (allowed, allowed with disclosure, and disallowed) was uncommon; students asked libraries and writing centers to give them training specific to disciplinary convention.

Discussion

The framework of media studies which we have adopted sheds light on the fact that AI adoption is not a matter of individual decision but a negotiation of affordances, norms and the platform governance. Diffusion—the adoption is heterogeneous due to relative advantage: drafting and language polishing is relative advantageous; complexity is reduced because of the conversational interface; peer examples disseminate observability. Affordances allow compression and scaffolding but are limited by opacity and hallucinations, therefore the emergence of the verification rituals. The factors behind the phenomenon of access stratification resulting from the platform dynamics pricing, rate limits and data retention quantity are particularly relevant to the Pakistani infrastructural situation.

More importantly, scholars can formulate ethical micro-practices of disclosure statements, no-copy areas, and redaction that comprises a practical ethics of AI. Instead of wholesale prohibitions or naive excitement, participants are drawn to hybrids of the human-in-the-loop in which interpretive judgment is retained but not left idle as the efficiencies are tapped.

Conclusion

AI has become a common aid in Pakistan doctoral research where there are real benefits of speed, precision and problem solving at least where writing and coding is concerned but where careful human supervision is needed to avoid the pitfalls of inaccuracy and originality as well as being unethical. There is institutional ambiguity infrastructural reality that forms the adoption; equal access and situational counseling are central. An aspect of balanced governance is the necessary transparent use, skill-building, and intact verification, which is possible.

Recommendations

In the case of universities and HEC-congruent policy makers

1. Tier (permissible/ permissible with disclosure/ prohibited) AI-use policies, by task, with annexes of punishments.

2. Contract campus-wide licenses/subsidies on vetted AI tools; bargain enterprise agreements that protect privacy.

3. Incorporate AI literacy (prompting, verification, citation hygiene, data privacy) into writing centers, research methods curriculum.

To departments and supervisors

1. Make it a practice of co-negotiating AI-use contracts during the beginning of a project (what is acceptable, disclosure).

2. Demand checking of the reference procedures (DOI tracking, database cross-check).

3. Promote reflexive memos about times and ways in which AI helped.

In case of libraries and research support units

1. Craft tool (comparators of capabilities, costs, data policies) and workflow playbooks that correspond to research stages.

2. Run AI and Citation manager, GNU Code notebook, and qualitative analysis program integration clinics.

In case of PhD/ MPhil scholars

1. It is not about replacing analysis and interpretation using AI as an accelerator and scaffolding tool.

2. Have no-copy zones on empirical findings; reveal the use of AI transparently.

3. Shield data privacy: blackout sensitive data; deploy confidential data at device level or enterprise levels.

With regard to journals and conferences

1. Standardize AI declaration language; compel authors to take accountability of fact and references accuracy.

2. Made authoritarian rules clearer: tools are no authors; human responsibility stays at the center-stage.

Limitations and Future Research

This qualitative research study is limited in depth instead of narrow; results are in self-report as well as situational. In subsequent work, interview data should be triangulated with trace ethnography (logs, version histories), learning and performance outcomes should be analysed longitudinally, and comparison across institutional regimes (e.g., not-for-profit and enterprise AI deployments). Such cross- national comparisons can be made within the context of South Asia and may shed more light on the effects of infrastructural and policies.

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