Communicare: Journal for Communication Studies in Africa

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Communicare

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ABOUT THE JOURNAL

Communicare: Journal for Communication Studies in Africa facilitates scholarly discussion on communication phenomena in Africa and how these are in conversation with other regions. *Communicare* is a non-profit, open-access journal, in existence since 1980, published biannually by the School of Communication, University of Johannesburg, South Africa. *Communicare* uses a double-blind peer review system and is accredited by the South African Department of Higher Education and Training.

Communicare aims to serve as a point of reference for continental academic debate and geo-specific theorising. It thus invites articles that complement, test, refine or counter global theoretical perspectives by amplifying and consolidating African research and scholarship. The journal publishes original theoretical-conceptual and empirical articles regardless of paradigm, perspective or context and welcomes a wide range of methodological approaches. *Communicare* publishes articles in a broad spectrum of communication sub- and related disciplines, including organisational communication, strategic communication, marketing communication, corporate communication, development communication, social change, political communication, gender communication, postcolonial studies, identity politics and politics of everyday life, celebrity studies, visual communication, internet studies, gaming, digital communication, digital media, film studies, media studies, cultural studies, popular culture, and journalism. *Communicare* also publishes generic (non-region specific) research articles on topics relevant to scholarly conversations on communication in Africa.

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EDITORIAL BOARD

The *Communicare* editorial team comprises Editor-in-Chief, Editor, Editorial Coordinator and Associate Editors. The team is responsible for the day-to-day editorial management of the journal's production.

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The Editor-in-Chief directs the journal's overall strategy and editorial policy in cooperation with the key stakeholders.

The key responsibilities of the Editors are to:

- Foster good reputation of the journal.
- Keep abreast with developments in the academic publishing environment nationally and internationally.
- Review submitted manuscripts to ensure quality and focus on the journal's scope.
- Strive for academic integrity and promote ethical research and publishing practices.
- Maintain good working relationships with authors, reviewers, editorial board members and other stakeholders.
- Enable the Editorial Board to play an active role in journal development.
- Serve as an ambassador for the journal, commissioning content and attending to enquires.
- Make impartial decisions regarding the acceptance or rejection of manuscripts.
- Promote academic pluralism in communication studies.

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- Reviewing the manuscripts submitted to the journal.
- Acting as ambassadors for *Communicare*.
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- Actively encouraging submissions to *Communicare* by new and established authors.
- Occasionally publishing their own work in the journal.
- Suggesting topics for special issues.
- Accepting invitations to write editorials and commentaries on papers in their specialist area.
- Attending and contributing to Editorial Board meetings.

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Communicare is committed to upholding the integrity of the scholarly record. The journal editors, peer reviewers and authors are expected to follow the Committee on Publication Ethics (COPE) guidelines on professional publishing standards available from *https://publicationethics.org/core-practices*

SUBMISSIONS

Communicare accepts a variety of articles that contribute to contemporary scholarly debates on communication studies in Africa.

Full-length theoretical, conceptual and empirical research articles (5000-8000 words at submission, all-inclusive).

Emerging scholars' articles (3000-4500 words).

Practice-based case studies (2500-4000 words).

Editorials, commentaries and book reviews (750-2500 words).

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As part of the submission process, authors are required to check off their submission's compliance with all of the following items, and submissions may be returned to authors that do not adhere to these guidelines.

- Submit the manuscript with an abstract.
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- The manuscript is in MS Word format.
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- The length of the manuscripts complies with the prescribed length (5000-8000 words for a full-length article, 3000-4500 words emerging scholar article, 3000-4500 practice-based case study, 750-2500 editorial or commentary).
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- The manuscript has been proofread and/or language edited, at a minimum using free software such as Grammarly.
- The manuscript does not contain any information that may identify the author(s).
- I have read *Communicare's* article processing charges policy

Author guidelines

Communicare accepts a variety of articles that contribute to contemporary scholarly debates on communication studies in Africa.

Authors must ensure the following:

- Only original, unpublished work of the author/s, not under consideration for publication elsewhere, will be considered by *Communicare*.
- All authors significantly contributed to the research design, execution and/or writing of the article.
- Results are based on data that was not fabricated, falsified or inappropriately manipulated.
- Authors should comply with ethical research standards.
- This includes disclosing funding sources or any other support for the execution of research.
- Manuscripts should adhere to all the guidelines for authors. **Manuscripts not conforming to these guidelines may be returned to the author.**
- It is the responsibility of the author/s to obtain permission to use copyrighted material, and proof

of such permission should be submitted with the initial manuscript.

- **Manuscripts should not contain any information that may identify the author(s).**
- Acknowledgements should not appear anywhere in the manuscript submitted for review. Once the article is accepted, acknowledgements should be included in the final version of the manuscript. Acknowledgements are placed at the end of the article before references.
- When suggesting the reviewers, authors must ensure that the reviewers have the correct expertise and are not connected to or aware of the work.
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Authors must submit **two** documents: the **manuscript** and the **information sheet** with the **author(s) title, name, email, ORCID, institutional affiliation and country**.

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The authors should provide up to 6 keywords in alphabetical order which will be used for indexing and online search purposes.

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- The full name(s) and surnames of the author(s)
- email addresses of the authors
- The name and contact details of the corresponding author
- Author's ORCID - If the author does not already have an ORCID number, one can be created on *https://orcid.org*
- Author's affiliation (organisation and country) and email address

Incomplete submissions will not be considered.

Manuscript guidelines

- The length of a full-length manuscript at initial submission should be between 5000-8000 words, including references.
- The length of an emerging scholar manuscript should be 3000-4500 words.
- The length of practice-based case study should be 2500-4000 words.
- The length of editorial, commentaries and book reviews 750-2500 words
- An emerging scholar is defined as a person under the age of 35, who is a current or recent student (completed studies within the past three years), who has never published in a peer reviewed journal before.
- Contributions should follow the spelling rules of South African or UK (not the US) English.
- The manuscript should be submitted in Microsoft Office Word format.
- The font used in the manuscript is: Arial 11 pt, single line spacing, not justified.
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- Illustrations and photographs should have a minimum resolution of 300 dpi.
- Double quotation marks should be used for all quotes.
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All references in the reference list should be cited in-text and vice versa.

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In-text citations:

- Give only author and date, with page numbers for all quotes:
- One author: (Aziz, 2021:102)
- Two authors: (Gidens & Sutton, 2021:34)
- More than two authors (Kujala et al., 2017:16)

Reference list entries examples: journal article, publications by the same author in one year, book, internet source with no date, chapter in the edited book, thesis, news article, internet source with a date, conference paper.

Aziz, Z.A. (2021). The influence of communication on project success: a survey of the SANRAL Gauteng e-tolling project in South Africa. *Communicare*, 40(2):101-128.

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Please refer to previous articles published in *Communicare* for further referencing examples.

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Research articles and review articles are subject to double peer review, whereby the authors' and reviewers' identities are concealed.

Research articles and review articles are subject to double peer review, whereby the authors' and reviewers' identities are concealed. The editorials and commentaries are reviewed by the editorial team but are not subject to double-blind peer review.

Manuscripts are submitted online. Manuscripts undergo pre-screening by the editorial office to ensure compliance with the submission guidelines.

Manuscripts are then assigned to the Editor-in-Chief to decide whether they fall under the scope of the journal. The Editor-in-Chief may seek further guidance from the Editor and/or the Associate Editors.

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Once at least two reviews are received, the Editor-in-Chief decides on the manuscript. In case of conflicting reviews, the Editor may request a third review or consult members of the Editorial Board.

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To streamline the refereeing process, Communicare will appreciate feedback within **30 days** of receiving an article or resubmission.

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Authors must ensure the following:

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- All authors significantly contributed to the research design, execution and/or writing of the article.
- Results are based on data that was not fabricated, falsified or inappropriately manipulated.
- Authors should comply with ethical research standards.
- When suggesting the reviewers, authors must ensure that the reviewers have the correct expertise and are not connected to or aware of the work. *Communicare* reserves the right not to use the reviewers suggested by authors.
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- Authors should not re-submit a manuscript previously rejected by *Communicare* unless they were invited by the editor to do so

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The Editor-in-Chief will analyse manuscripts suspected of plagiarism in consultation with the Editor or Associate Editors to determine the extent of the plagiarism.

If the material has been plagiarised, the Editorial Office will inform the corresponding author that the manuscript is rejected due to plagiarism.

In the case of extensive plagiarism, the Editor-in-Chief may report the offence to the author/s' institution and/or funding bodies.

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Manuscripts suspected of plagiarism will be analysed by the Editor-in-Chief in consultation with the Editor or Associate Editors to determine the extent of the plagiarism.

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Authors have the right to appeal a decision if they believe it to be unfair. The appeal should consist of a letter explaining the nature of the appeal and specifying why the initial decision was erroneous. The letter should be sent to the Editor-in-Chief within ten days of the decision. The Editor-in-Chief will consider the appeal and may consult the Editor, Associate Editors, or members of the Editorial Board before deciding on the appeal. The decision of the Editor-in-Chief will be final.

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ARCHIVING POLICY

Communicare is preserved using LOCKSS, CLOCKSS and PKP PN.

ARTICLE PROCESSING CHARGES

Communicare bills article processing charges (APCs) to cover the production costs and ensure the journal's sustainability. APCs apply only to articles accepted for publication. In same case at the discretion of the Editors fees may be waivered or discounted for authors from African countries other than South Africa.

Contents

RESEARCH ARTICLES

EDITORIAL

This issue brings together articles that cover various subjects. The first four articles dwell on various aspects of AI and its implications for the field of strategic communication in Africa. AI and related technologies are increasingly permeating and changing every aspect of life, including organizational communication processes. One of the most noticeable advancements in AI are in the field of communication, a field that is intricately linked to major technological innovations in history. AI-powered tools leverage natural language processing to produce communication text, mimic human behaviors, imitate or replace human users and perform various other communication functions in the digital sphere. AI software constitutes a larger part of technologies that are increasingly automating the process and labour of communication (Reeves, 2016), making inroads into organizational communication practice, influencing how organizations communicate and interact with their stakeholders, and how people communicate in general. As Jakesch, French, Ma, Hancock, and Naaman (2019) aptly observe, "we are now entering an era of AI-mediated communication where interpersonal communication is not only mediated by technology, but it is optimized, augmented, or generated by artificial intelligence." Artificial Intelligence applications are increasingly becoming more and more complex and interconnected. This growing complexity makes it more imperative than ever for scholars to probe how new technological advances are impacting society in both positive and negative ways. Not surprisingly, artificial intelligence (AI) has become an emergent field of research across disciplines. The applications in AI have ignited several questions in virtually every discipline, ranging from mundane questions on how it works, how it impacts work, to worries that AI might pose an existential risk to humanity. In the field of strategic communication, AI is gaining traction as well and there is growing literature investigating a variety of issues: how AI is used in public relations and how it is changing the PR practice (Buhmann & White, 2022; Panda, Upadhyay, & Khandelwal, 2019), role and implications on communication professionals (Swiatek, Galloway, Vujnovic, & Kruckeberg, 2022) and the social, cultural and ethical implications of AI (Logan & Waymer, 2023). The first four articles in this issue join this growing list of literature on AI, but with a specific attention to the African context.

Anani-Bossman, Nutsugah and Abudulai investigate the knowledge, adoption, and impact of AI in the public relations and communication management industry in Ghana. Their findings show that professionals in Ghana are fully aware of AI and some of its implications, but they do not fully comprehend its impact, challenges and risks. The adoption of AI in Ghana is still in its nascent stages, given the persistent challenges of low internet speed, penetration and data costs. **Abude, Odei-Mensah and Schaling** use AI-powered text mining techniques (natural language processing (NLP) to create monetary policy communication-based indicators through an analysis of press releases from the Bank of Ghana. Press releases from the central bank constitute a valuable source of information for various stakeholders within an economy. However, as the authors note, press releases are usually qualitative in nature and hence difficult to quantify. Using AI techniques, Abude *et al.* construct communication-based indicators measuring readability, sentiment and uncertainty indexes. **Shabangu's** conceptual article examines AI's impact on the strategic communication in the South African context. It notes that there has been so far little research on the field of AI in South Africa and, hence, little understanding of how AI development is apprehended in the Global South, particularly in Africa. Shabangu further notes that South Africa is well ahead of other countries in Africa in the implementation of AI tools. Several AI research-based institutions have been established in South Africa. The article identifies several issues and challenges arising from the adoption of AI in the field of strategic communication. **Morapeli and Khemisi** explore the role of artificial intelligence in the strategic communication industry in South Africa. Their findings highlight some of the benefits of AI, such as its convenience in executing complex and tedious tasks such as collecting and analyzing data and providing templates for press releases via ChatGPT. The findings show that the AI is far from supplanting human labour as there are certain human skills that cannot be replicated by AI. They identify a need for South African industry to equip communication professionals with new technological expertise in order to fully understand the AI technology and to prepare them for organizational changes.

The rest of the articles in this issue cover a variety of topics. **Nyaga and Adu Gyamfi** present a comparative study of the human papillomavirus (HPV vaccine acceptability in Kenya and the USA.

They highlight that health communication plays a vital role in communicating about HPV vaccination, encouraging and persuading target audiences. The study offers some insights that can contribute to policy and practice around the issue of vaccination and health communication. **Fadipe and Molale** examine how authorities communicated COVID-19 messages to rural communities in the North-West province of South Africa. They show that several lessons can be drawn from how the pandemic was communicated. Their findings highlight the need for active citizen participation through participation, dialogue and empowerment. **Boima and Oyedemi** investigate issues of the social media economy in the African context. They examine South African youth's awareness of business models and data commodification on Facebook. They draw on the lenses of digital capitalism and critical media literacy in their study. Their finding highlights the need to increase media literacy in South Africa. **Chmela-Jones, Cronje and Snaddon** investigate the evolving landscape of visual communication design in South Africa. They note that design practices are increasingly influenced by developments in technology, sustainability and environmental issues.

Martin N. Ndlela
Guest Editor

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Artificial Intelligence in Public Relations and Communication Management: Perspectives of Ghanaian Professionals

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Abstract

Artificial intelligence (AI) is presently transforming society and industries with significant implications for the public relations and communication profession. However, scholarship on this subject in Africa is lacking. This paper addresses this gap by investigating AI in the public relations and communication management industry in Ghana. It focuses on the knowledge, adoption, and impact of AI, as well as the perceived risks and challenges associated with the application of AI. The study used the quantitative method to gather data from 275 professionals. Results revealed that professionals have a limited understanding of AI despite their knowledge of the concept. Communication professionals believe AI will impact the profession, their department, and how they work. However, they did not foresee any challenges or risks associated with applying AI (e.g. competency in using AI, motivation to use AI, and loss of jobs). The result points to the need for professionals to increase their knowledge and understanding of AI. There is also the need for public relations scholars in Ghana, and Africa for that matter, to begin having serious discussions on this issue.

Keywords

Artificial Intelligence, AI opportunities, AI risks, digital technology, Ghana, public relations and communication management

INTRODUCTION

Artificial Intelligence (AI), defined as "a system's ability to correctly interpret external data, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation" (Kaplan & Haenlein 2019: 3), is rapidly becoming a critical tool for organisational decision-making and is steadily being incorporated into modern working life, sometimes without people realising it. AI is enhancing people's capacities while actively directing and moulding them in several industries, including healthcare, transportation, education, finance, research, and manufacturing. Presently, industries use AI

and machine learning technology for varied reasons, including improving capabilities, increasing market share and revenues, maintaining sales records, gathering customer or product information, developing effective business strategies, and creating numerous news stories cheaply, efficiently, and most likely with fewer errors than a human journalist (Turksoy, 2022: 395). AI also plays fundamental roles in individual lives. AI virtual assistants such as Alexa, Siri, Google Assistant, and Cortana assist people with routine tasks such as setting reminders, making recommendations, placing events on their calendars, and booking tickets (Lopez & Ouariachi, 2021:249).

Like other disciplines, AI is transforming the public relations and communication profession (Cheng & Jiang, 2021; Soriano & Valdes, 2021). Globally, there has been growth in, and adoption of digital communication technologies for various applications and purposes. The public relations and communication industry already highlights several possible AI applications, ranging from analytics to targeting, from content creation to chatbots, and from evaluation routines to strategy development and crisis communication (Petrucci, 2018). Scholars assert that AI attributes like conversational tone, responsiveness, and social presence may affect user engagement or satisfaction (Cheng & Jiang, 2020 a,b; Jiang et al., 2022). These attributes may also have an impact on organisation-public relationships. According to Panda et al. (2019: 197), using AI tools to develop tailored messages could help public relations professionals to perform more efficiently. Brown-Devlin et al. (2022: 1) opine that AI is influencing PR and communication techniques, such as social media monitoring and posting during crises, and that these changes could result in successful outcomes such as increased measures of organisational reputation. Generative AI tools, such as ChatGPT, Jasper AI, Midjourney, and Synthesia, are a few examples of the ever-increasing number of AI technologies that can produce images and videos from written instructions and scripts. There are currently hundreds, if not thousands, of AI tools, services, browser extensions, and usage cases. This number is expected to increase in the upcoming years (Chartered Institute of Public Relations, CIPR, 2023: 12). Extant literature has highlighted the implications of AI on the public relations and communication profession, including the possible risks and challenges (Galloway & Swiatek, 2018; Liew, 2021; Moreno et al., 2015; Yaxley, 2018).

Although new technologies such as AI are transforming the public relations and communication profession, there is very little empirical research on AI's influence on the profession (Galloway & Swiateck, 2018: 735; Zerfass et al., 2020). Recent research has shown that professionals lack adequate knowledge about the concept and its application in communication (see Centre for Strategic Communication Excellence report, 2019; USC global report, 2019; Zerfass et al., 2020). Additionally, difficulties, including anxiety over AI, disinformation or misinformation, and privacy or risk concerns, have regularly surfaced (Prahl & Goh, 2021). The situation appears worse from an African, and specifically Ghanaian, perspective. Granted that recent years have seen a rapid growth of digital technology applications in Africa, but there is a lack of information on the knowledge and adoption of AI in public relations and communication management on the continent. In contrast, literature from the global north shows a change regarding AI scholarship (Pavilik, 2007; Tilson, 2017; Yaxley, 2018). This leaves a gap that needs to be filled if African public relations and communication professionals want to contribute meaningfully to the global discussion.

This paper contributes to the knowledge on the subject from the perspective of Ghana. It examines public relations practitioners' knowledge and understanding of AI, the extent to which they have adopted AI, and perceptions of the risks and challenges associated with using AI in PR.

LITERATURE REVIEW

Overview of artificial intelligence (AI)

Artificial Intelligence (AI) has been defined variously from different perspectives, especially since the concept was first mooted in 1956 (Press, 2016). Definitions of AI include "is concerned with intelligent behavior in artifacts", that consists of "perception, reasoning, learning, communicating, and acting in complex environments" (Nilsson, 1998:1); "computational agents that act intelligently" (Poole &

Mackworth, 2017: 3); "a sophisticated application of technology whereby a machine demonstrates human cognitive functions such as learning, analysis and problem solving" (Valin, 2018: 5); "a branch of computer science that studies the phenomena that occur when computers perform tasks that, if performed by humans, would be regarded as requiring intelligence" (Maldonado, 2020:2); and "the replication of human intelligence by technologies intended to think and behave like humans" (CIPR, 2023:6).

Within the context of public relations, Galloway and Swiatek (2018:735) defined AI as "technologies showing humanoid cognitive abilities and performing humanoid functions in undertaking public relations activities, independently or together with public relations practitioners." In its simplest form, AI is conceptualised as the capability of computers to operate intelligently. In other words, AI can partly replicate the abilities of the human mind, such as learning and problem-solving. This means it partially copies the capabilities of the human mind, such as learning and solving problems. After reviewing various conceptualisations of AI, the definition provided by Zerfass et al. (2020:379) is adopted for this study:

> Flexible decision-making processes and actions of software-driven agents. They adapt to changing goals and unpredictable situations, learn from experience, aim for rationality, but also carry on in spite of perceptual and computational limitations. AI is based on technologies like natural language processing, data retrieval and knowledge representation, semantic reasoning, and machine learning.

AI has a variety of classifications, including narrow or weak, designed to perform specific tasks, and general and strong, which can accomplish any intellectual assignment that humans can (Kaplan & Haenlein, 2019). There are various AI tools, from the simple to the complex, ranging from chatbots that reply to consumer enquiries to self-driving automobiles. The CIPR, for instance, identified over 120 AI tools and characterised them on a five-point scale based on their function and complexity: simplification (e.g. database, wire service), social listening and monitoring (e.g. Brandwatch, Talkwalker), automation of tasks (e.g. IFFT, open data formats), AI for structured data (e.g. Google Analytics, Newswhip), and AI for unstructured data (e.g. IQ Bot, Quid), (Valin, 2018:5).

Research on AI aims to develop systems capable of executing activities that ordinarily require human intellect. But what does all this mean for public relations and communication management?

AI in public relations and communication management

AI is gradually gaining traction in the public relations and communication industry as communication professionals and scholars have begun to acknowledge its productive potential (Panda et al., 2019: 198). Despite this, the application of AI in public relations and communication has received little attention. Discussion on this subject can be found in a few industry magazine reports, blogs, and a handful of empirical studies (CIPR, 2023; Galloway & Swiatek, 2018; Maldonado, 2020; Panda et al., 2019; Valin, 2018; Wiesenberg & Tench, 2020; Zerfass et al., 2020). While most of the discussions have centred on the benefits of AI to the profession, others have looked at the potential challenges and risks associated with it. According to the CIPR (2023:11), whereas some view AI as an opportunity to enhance public relations practices, others have discarded it as nothing more than a gimmick.

Regardless of the disagreement, there is general consensus among professionals and scholars that AI will redefine and reshape the public relations and communication industry. Whitaker (2017), for example, acknowledges AI's relevance in assisting public relations organisations in processing data more quickly and enhancing the quality of their services. In other words, professionals can now process massive amounts of data much faster than before. Murr (2022) also posits that knowledge and usage of AI will enhance the ability of public relations professionals to fine-tune their messages for their target audience and gather audiences' digital footprints, i.e. summarise likes and dislikes, posts they like, websites they enjoy, and other personal characteristics.

Similarly, Penn (in Maldonado, 2020: 3) identified three main benefits of AI to the profession:

a. Automation: public relations professionals can now automate repetitive tasks like media

monitoring. Aside from taking over some of the tasks on the busy schedules of practitioners, automation is also enhancing the ability of practitioners to gain insight in a matter of seconds.

b. Acceleration: practitioners can gain real-time information from the digital environment. For instance, when events occur quickly, AI can assist in gathering and sorting information in less time than it would usually take.
c. Accuracy: practitioners can now accurately measure consumers' opinions and sentiments about an organisation and juxtapose them with other measures such as stock price, engagement or sales.

According to Maldonado (2020: 3), new skills such as user experience, big data analytics, and predictive artificial intelligence are necessary for public relations to compete with advertising and marketing and demonstrate its worth and effectiveness. Conversely, having "cheaper, faster, and better access to relevant information is giving PR professionals the ability to focus on other activities such as creative thinking, strategic planning and instincts", which are all critical characteristics that a machine does not have. Other articles and studies have demonstrated the benefits of AI to public relations and communication (e.g. Arief & Gustomo, 2020; Brotman, 2020; Brown-Devlin et al., 2022; USC Global Communication Report, 2019; Lopez & Ouariachi, 2021; Liew, 2021). Brotman (2020), for instance, asserts that AI enhances productivity by optimising and automating repetitive processes, including monitoring news and social media, analysing trends, evaluating campaign performance, and reporting outcomes. Arief and Gustomo (2020) posit that AI enables users of big data to employ more advanced analytics, encompassing both predictive and descriptive skills, while also streamlining tasks.

Notwithstanding the supposed benefits, several concerns have emerged around the subject, in particular issues such as implicit prejudice, power shifts to those with the resources to use AI, exclusion, and job losses (CIPR, 2021; Liew, 2021; Galloway & Swiatek, 2018).

Valin (2018: 7) found that AI could complement or replace 12% (out of 52 skills) of a public relations professional's overall capabilities at the time of the study, with a projection that this is likely to increase to 38% by 2023. However, Tredinnick (2017) suggests that the biggest issue that AI may present in the next decades has less to do with the replacement of professional responsibilities and more to do with the threat to communication practitioners' roles, as the professional identities and existing professional bodies of knowledge are eroded.

Despite the threat of job losses, Valin (2018) found that 32% (out of 52 skills) did not require any technical support, while 27% could benefit from minor AI applications to help in decision-making or deep analysis. However, 59% of human skills, such as trust, empathy, humour, and relationship building, cannot be replaced by AI. In essence, "Humans [are] still needed" (Valin (2018: 3). Other discussions have corroborated this (e.g. Maldonado, 2020; Liew, 2021; Lopez & Ouariachi, 2021).

One key challenge that has often been raised is the lack of understanding about AI in the public relations and communication industry. According to the CIPR (2021:3), a substantial percentage (43%) of practitioners have insufficient knowledge of AI and lack confidence in employing it, with just a fraction (13.9%) feeling "very comfortable" with it. Niederhauser and Rosenberger (2018) also found that only 3% of chief communication officers in Switzerland used AI technologies. Other studies have reported similar results (Global Communications Report, 2019; Lopez & Ouariachi, 2021; Zerfass et al., 2020).

The application of AI tools is not without its hurdles and challenges. Ultimately, how AI is perceived and the implications for the public relations and communication industry in Ghana will depend on how well the concept and tools are understood. One can assume that professionals' lack of expertise and the scarcity of scholarship on the subject have resulted in a lack of knowledge and understanding among public relations professionals. It will, therefore, be essential to address the gap in the literature by exploring the knowledge and adoption of AI tools, as well as the perceived challenges and risks associated with AI. As the problem statement notes, there is a lack of empirical literature on AI and public relations in Africa. This paper, part of similar studies across Africa for this special edition of *Communicare*, will contribute to the body of knowledge on the subject from a Ghanaian perspective. The study will address these issues using the following research questions:

RQ1: What do public relations professionals in Ghana know about artificial iIntelligence (AI), and to what extent are they already using AI technologies in their daily lives?
RQ2: How do public relations professionals assess the impact of AI on the profession?
RQ3: What challenges do professionals perceive when applying AI to public relations and communication?
RQ4: What risks do professionals associate with AI in public relations and communication?

METHODOLOGY

The study used the quantitative survey method to gather data from 275 public relations and communication professionals. Two methods were followed in gathering the data: online and personal administration. For the online method, a link to a Google form was sent to professionals whose email addresses the authors had. Secondly, questionnaires were distributed in person to professionals who were given time to fill them in, after which the authors returned to pick them up. The online format allowed the researchers to gather data from many parts of the country. The reason for including the physical (in person) data gathering is that online data gathering in Ghana tends to be extremely difficult. Respondents tend to ignore such messages or requests; hence, in-person data administration was deemed essential to enable the researchers to gather as much data as possible. The data-gathering process used two sampling methods: the convenience sampling technique and the snowball sampling technique. Convenience sampling was used because the practitioners were readily available to the researchers (Bryman & Bell, 2019). Respondents were selected from a database of practitioners gathered by the researchers over the years. The snowball technique was also used because the database was inadequate. Practitioners known to the researchers assisted in recruiting other practitioners through recommendations (Bryman & Bell, 2019).

Instrument

The instrument used for the research was adopted from the literature and adapted to fit the context of the current study (European Communication Monitor, 2019; Zerfass et al., 2020). The survey instrument consisted of five questions covering AI, excluding the demographic questions. Assessment of the impact that AI will have on the profession, department or agency practitioners work in, and the way practitioners personally work was determined using a 5-point Likert scale ranging from 1 = very low impact to 5 = very high impact. Knowledge of AI was measured with a definitional question, which was presented using eight features of AI (four correct and four incorrect). Respondents were then asked to select those they perceived as being valid. The correct definition was later presented. Challenges professionals identify for implementing AI were measured with six items using a 5-point Likert scale (1 = not likely to 5 = very likely). Perceived risk for using AI was also measured with six items on a 5-point Likert scale (1 = not likely to 5 = very likely). Finally, respondents were asked about their usage of AI assistants and devices on their smartphones and in their workplaces and homes.

Respondents

The respondents were public relations and communication professionals with varied experience. Overall, 275 respondents completed the survey, consisting of 51% males (N = 141) and 49% females (N = 134). The average age of respondents was 35 years. Over half (N = 143, 52%) had a Master's degree, with 42% (N = 115) holding a Bachelor's degree, and the rest had a Diploma (N = 14, 5%) and a PhD (N = 3, 1%) respectively. Respondents worked in various sectors, including private/corporate organisations (N = 113, 41%), government/public service (N = 104, 38%), agency/consultancy (N = 36, 13%), and non-profit organisations (N = 22, 8%). Additionally, 51% (N = 141) served as team/unit heads in their organisations, with 25% (N = 68) and 24% (N = 66) being heads of public relations/communications and officers/team members, respectively. Respondents mentioned overall public relations/communication (N = 115, 96.2%), media relations/press spokesperson (N = 89, 81.7%), internal communication, change (N = 61, 56%), online communication (N = 57, 52.3%), marketing, brand, consumer communication (N = 46, 42.2%), and

corporate media, public relations (N = 42, 38.5%) as their dominant areas of work (respondents were asked to select three among several activities).

Analysis

The data were analysed using the Statistical Package for the Social Sciences (SPSS version 24). The analysis consisted of both descriptive and inferential statistics.

RESULT

The findings are categorised based on the research questions.

RQ1: Knowledge and adoption of Artificial Intelligence

From the result, most respondents can be categorised as AI adopters, indicating that they use intelligent assistants on their smartphones (85%) and intelligent devices in their homes or offices (56%). A chi-square test was done to determine whether there was any significant link between gender and the adoption of AI. The result revealed that the use of intelligent assistants on smartphones and intelligent devices in the home or office was not dependent on the gender of participants. Expressly, the two had no significant link (Table 1).

Table 1. Chi-Square Test of the Adoption of AI by Gender

	Use intelligent assistants on your smartphone			Use intelligent devices in your home or office		
Gender	**Yes**	**No**	**Don't know**	**Yes**	**No**	**Don't know**
Male	119(84.4%)	21(14.9%)	1(0.7%)	81(57.4%)	57(40.4%)	3(2.1%)
Female	115(85.8%)	16(11.9%)	3(2.2%)	73(54.5%)	57(42.5%)	4(3.0%)
Total	234(85.1%)	37(13.5%)	4(1.5%)	154(56.0%)	114(41.5%)	7(2.5%)
	$X^2(275, 2) = 1.567$, p=0.457			$X^2(275, 2) = 0.381$, p=0.827		

The respondents were asked to evaluate eight different statements to see if they understood what AI was about. Four were correct and four were incorrect. In total, 59.8% of the respondents accurately classified the definitions, while 40.2% selected the incorrect definitions (Table 2). From the result, it can be concluded that professionals do not fully understand the concept of AI.

Table 2: How public relations and communications professionals define AI

Decisions and actions by software-driven agents	85.0%
Learning from experience	40.3%
(Computer-assisted activities by humans)	72.2%
Adapting to changing goals and unpredictable situations	49.8%
Processing natural language	48.7%
(Understanding emotions)	27.5%
(Owning all human abilities)	22.7%
(Experiencing feelings)	22.7%

Note(s): Incorrect definitions appear in parentheses. Frequency based on the question: Artificial Intelligence" is characterised in various ways. Please pick all definitions which you think are appropriate. Artificial intelligence refers to……

RQ2: Impact of AI on public relations and communication management

Professionals in Ghana believe that AI will influence the public relations and communication profession as a whole (M = 3.58, SD = 1.15), the way their department/agency works (M = 3.41, SD = 1.16) and the way they personally work (M = 3.44, SD 1.26) (Table 3). This means despite their limited understanding, professionals do realise the impact of AI on the industry.

Table 3: Perceived Influence of AI on public relations and communication

Artificial intelligence will have an impact on….	*M*	*SD*
The profession of public relations and communications as a whole	3.58	1.15
The way our department/agency works	3.41	1.16
The way I personally work	3.44	1.26

Note: Artificial intelligence is becoming part of everyday life; for example, in language-based assistants (Apple Siri, Amazon Alexa) and algorithms used on news sites and e-commerce platforms. This might also impact public relations and communications management. In your opinion, how much impact will artificial intelligence have on ... mean scores are based on a 5-point Likert-type scale where 1 = Very low impact and 5 = Very high impact.

RQ3: Challenges in implementing AI in public relations and communication

A key component of the research was to determine the perceived challenges when implementing AI in public relations and communication. A one-sample t-test showed that professionals did not feel that applying AI in public relations and communication would pose problems. In essence, professionals are aware of how AI is transforming industries and society as a whole but believe that requirements such as competencies/skills (76.7%), motivation (77.5%), organisational infrastructure (66.9%), management support (72.7%), societal infrastructure (61.1%), and user acceptance (72.7%) would not be difficult to obtain (Table 4). This is noteworthy and perhaps unsurprising given how the world is moving and the fact that AI is the present and the future.

Table 4: Perceived challenges of implementing AI in public relations and communication

	Test Value = 4 (difficult)			
	M	*SD*	*t-test*	*p*
Competencies of public relations/communication practitioners to use AI	2.65	1.11	-20.038	0.000
Motivation of public relations/communication practitioners to use AI	2.59	1.12	-20.696	0.000
Organisational infrastructure (e.g. IT, budgets, responsibilities)	2.91	1.16	-15.483	0.000
Support from top management, leaders, and clients	2.88	1.09	-16.913	0.000
Societal infrastructure (e.g. high-speed internet, legal rules)	3.05	1.25	-12.542	0.000
Acceptance by users and external stakeholders	2.94	1.05	-16.685	0.000

Note: Artificial intelligence (AI) can be described as flexible decision-making processes and actions of software-driven agents. They adapt to changing goals and unpredictable situations, learn from experience, and are based on technologies like natural language processing, data retrieval and knowledge representation, semantic reasoning, and machine learning. Taking this definition into account and thinking of your organisation, how difficult is it to secure the following requirements for using AI in communications? Mean scores are based on a 5-point Likert-type scale where 1 = Not difficult and 5 = Very difficult.

RQ4: Risk of bringing AI into public relations and communication

A one-sample t-test demonstrates that professionals do not believe AI poses any risk to their jobs (73.5%), salaries (73.5%), staff competence (69.5%), responsibilities (71.3%), core competencies (80%), and identity (80%). (Table 5). Respondents demonstrated confidence in their ability to remain relevant despite the ongoing technological evolution. The low mean ratings significantly differ from the test value of 4 and are quite remarkable.

Table 5: Perceived risk of bringing AI into public relations and communication management

	Test Value = 4 (likely risk)			
	M	*SD*	*t-test*	*p*
Communication practitioners will lose their jobs	2.59	1.24	-18.663	0.000
Communication practitioners will receive shrinking salaries	2.64	1.24	-18.059	0.000
Organisations will struggle with varied staff competence	2.87	1.18	-15.663	0.000
Organisations will struggle with unclear responsibilities	2.66	1.26	-17.520	0.000
The public relations/communication profession will lose its core competencies	2.3	1.24	-22.575	0.000
The public relations/communication profession will lose its identity	2.21	1.27	-23.261	0.000

Q: What could be possible risks that artificial intelligence brings to communications? Mean scores are based on a 5-point Likert-type scale where 1 = Not likely and 5 = Very likely.

DISCUSSION AND CONCLUSION

The impact of AI on the public relations and communication profession has been highlighted several times in literature. These have mostly been in terms of papers and essays. The few empirical studies available have examined professionals' knowledge and understanding, skills, challenges, and the adoption of AI (see literature review). Although public relations and communication professionals acknowledged awareness and some level of understanding of AI, the overall result, as depicted in the low mean scores, especially for the possible challenges and risks in the implementation and bringing of AI to public relations and communication, demonstrate that professionals do not fully understand AI and its implications. This is inconsistent with previous findings and literature (e.g., CIPR 2021; USC Global Communication Report, 2019; Lopez & Ouariachi, 2021; Zerfass et al., 2020). For example, whereas competencies of communication practitioners (M = 3.58, SD = 1.04) and organisational infrastructure (M = 3.54, SD = 1.15) were found to be key challenges for implementing AI in public relations activities by Zerfass et al. (2020), the present study demonstrated the opposite - (M = 2.65, SD= 1.11) and (M = 2.91, SD = 1.16) respectively. Regarding AI risks, responses also varied significantly from Zerfass et al. (2020).

Given that AI and its implications on public relations and communication in Ghana is a topic that is rarely discussed by the industry and even academia, one is inclined to believe that professionals and academics have not made an effort to examine the issue. Indeed, discussions by the corresponding author with some top public relations professionals (personal communication, March – April 2023) revealed that professionals are aware of AI and some of its implications for the industry. However, they do not fully comprehend AI's impact, challenges, and risks as they have not paid much attention to it. Again, some professionals believe it will take time before the impact of AI is truly felt in the industry in Ghana. Others were of the view that because of the interpersonal nature of communication in Ghana and Africa in general (see, e.g., Anani-Bossman & Tandoh, 2023), professionals will still be needed to interact

with stakeholders - a view already postulated by Valin (2018) and Maldonado (2020). This view by the respondents aligns with the assertion by some that AI is nothing more than a "gimmick" (CIPR, 2023).

An essential aspect of the findings is the assertion by professionals that issues such as organisational infrastructure (e.g. IT, budgets) and societal infrastructure (e.g., high-speed internet) will not be a challenge. Even though information and communication technology (ICT) infrastructure has expanded rapidly (especially during and post-Covid 19) in Africa, there are still challenges with bandwidth/internet speed, data costs, and penetration (Gopaldas, 2021; International Telecommunication Union, 2021). The ability to use AI tools successfully will depend on several things, including organisational and societal infrastructure, which is clearly a problem in Ghana and Africa (ITU, 2021; Skinner, 2013). It must be pointed out that legal rules and, to some extent, internet speed may not necessarily be prerequisites for applying AI to PR successfully. This, nevertheless, does not mean that they are not needed, especially in an environment where internet usage is problematic.

Insight so far shows the need for public relations and communication professionals in Ghana to start familiarising themselves with AI. Clearly, professionals have not completely grasped the full implications of AI on their work and how the infrastructural challenges (organisational and societal) can negatively affect the successful deployment of AI tools. The limited knowledge means professionals must begin to pay attention to AI's disruption within the public relations environment by making a deliberate effort to educate themselves. There are several AI tools that can enhance the work of professionals. However, as Zerfass et al. (2020: 386) argued, the use of AI-based devices in daily life does not make one an expert; hence, one should carefully assess the "learning by doing" approach. This also aligns with Galloway and Swiatek (2018:734) advocating for professionals to gain sufficient knowledge and understanding of AI and its potential uses without necessarily becoming "expert technologists". Although AI is unlikely to mimic every aspect of human behaviour, such as emotion and empathy, it does not prevent practitioners from becoming "masters of the data" (Zerfass et al., 2020: 386). The conversation can start with the national association, the Institute of Public Relations (IPR, Ghana). Through the association, practitioners are likely to start focusing on AI.

Education should not be limited only to professionals. Public relations and communication educators must also start focusing on how to engage their students on AI and its impact on the profession. For that to happen, educators must have adequate knowledge and understanding of AI. This means undertaking certificate courses to further understand the concept and how to apply it. The ability of educators to impart relevant knowledge to the next generation of professionals would depend on the systematic effort to learn about AI. Of course, this does not mean educators must necessarily become technological experts overnight.

LIMITATIONS AND IMPLICATIONS FOR FUTURE RESEARCH

Given that this research is the first of its kind in Ghana (at least as far as the authors of this article are aware), it has some limitations. First, the authors could not gather comprehensive data nationwide due to the lack of response from most professionals invited to participate in the study, leading to a smaller sample. The result can, therefore, not be seen as an accurate representation of public relations practice in Ghana. The study also did not fully analyse the extent of knowledge and understanding of AI, AI tools, programs, systems, and the most relevant skills.

Overall, the study presents an initial appreciation of the knowledge and adoption of AI in public relations and communication management in Ghana. Future research can, therefore, broaden this research and make it nationwide. A future study could also use a mixed-method approach to determine whether quantitative results align with qualitative results. This is especially essential in light of the outcome of informal interactions with communication professionals.

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Developing Artificial Intelligence-Powered Monetary Policy Communication Indicators for Macroeconomic Inquiries in Ghana

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Abstract

Central bank communication is a valuable source of information designed to shape the expectations of economic agents within and outside an economy. In particular, the content of Monetary Policy Committees' press releases and statements reflects the central banks' view of current and future macroeconomic developments, making them useful for creating high-frequency indicators as alternatives to traditional, but slower-to-publish, macroeconomic indicators. In this study, Artificial Intelligence (AI)-powered text-mining techniques were employed to create monetary policy communication-based indicators, namely the Monetary Policy Readability Index (MPRI), the Monetary Policy Sentiment Index (MPSI), and the Monetary Policy Uncertainty Index (MPUI), using press releases from the Bank of Ghana's monetary policy committee spanning January 2003 to December 2022. The findings suggest that while readability and sentiments generally declined over the sample period, uncertainty increased, indicating persistent macroeconomic imbalances and vulnerabilities in the domestic economy. The newly developed time series-based indicators demonstrate Granger causal relationships with key macroeconomic variables, affirming their relevance to the central bank, the Ministry of Finance, researchers, investors, and development partners. Notably, the indicators can serve as an early warning system for monitoring and predicting the country's macroeconomic risks, forecasting lagging indicators, assessing the effectiveness of the Bank's monetary policy communication, and addressing monetary policy inquiries.

Keywords

Artificial Intelligence, Central Banks, Macroeconomic Indicators, Ghana, Monetary Policy Communication

INTRODUCTION

Economists rely on leading macroeconomic indicators to predict the business cycle. This is also to establish early warning systems to pick up signals of imminent economic risks and shocks in real time and prepare sufficiently to either prevent or reduce their impact on the economy (Jung & Jeong, 2011;

Sutrisno et al., 2021). Owyang and Stewart (2022) identify the decline in disposable income, real Gross Domestic Product (GDP), employment of non-farmers, survey-based employment, real household consumption expenditures, real retail sales, and industrial production as some of the leading indicators of recession in the United States (U.S). Similarly, Kiley (2022) posits that high inflation and low employment are indications of high risks of recession in the U.S. in the near to medium term.

However, the use of these indicators to monitor the macroeconomic environment in most emerging market and developing economies is limited because of their unavailability or publication lags. In Ghana, for instance, annual and quarterly GDP estimates are published with six-month and four-month lags, respectively, while inflation rates are published with a two-week delay, even though price data are collected during the first week of the month (GSS, 2020). The delay in publishing these statistics could be attributed to the unavailability of data, inadequate resources (funding, logistics and human resources), weak central coordinating system for statistics, poor standardisation of statistical activities, and lack of technological infrastructure (NDPC/GSS, 2018).

Therefore, relying solely on traditional macroeconomic indicators and other anecdotal evidence in an attempt to predict business cycle dynamics may be inadequate, incomprehensible and outmoded in the Fourth Industrial Revolution (4IR), which is driven by "Big Data". In this context, big data refers to the voluminous amount of unstructured, semi-structured and structured data which require advanced information technology tools and techniques to store, pre-process and analyse (Tissot, 2017).

Kelley (2019) and Ismail et al. (2022) have argued that there could be other novel and robust indicators for predicting impending economic recessions or expansions and other macroeconomic developments in an economy in real time. In this regard, a few researchers have been exploring the possibility of analysing and developing indices from textual reports, including newspapers and social media, for economic analysis (Baker et al., 2022; Ahir et al., 2022; Blinder et al., 2022). Given that communication has become an important tool in the toolbox of (inflation targeting) central banks for implementing monetary policy leading to the anchoring of expectations, a number of useful indices can be developed from their documents. Some of these documents are the Monetary Policy Committee's (MPC) press releases, statements and communiqués, monetary policy reports, banking reports, speeches by governors, and media interviews published on their corporate websites and social media platforms (Oksiutycz, 2012).

Monetary policy committees are primarily responsible for formulating and implementing monetary policy decisions for promoting and preserving monetary stability. In discharging this responsibility, they meet regularly to assess the macroeconomic environment with a special focus on key indicators, such as inflation, economic growth, employment, financial stability, and fiscal balance, among others. Presently in Ghana, the MPC of the Bank of Ghana (BoG) meets bi-monthly and concludes its meetings by issuing a MPC press release to announce the monetary policy rate (MPR) and the reasons underpinning their decisions. The MPR signals the monetary policy stance and anchors short-term interest rates in the money market to achieve price stability.

Even though the Bank has conducted the MPC process for two decades, between 2003 and 2022, and issued 109 MPC press releases, not much has been done to quantitatively analyse their content and construct text-based indicators using Artificial Intelligence (AI)-powered text-mining techniques. With rigorous analysis of these press releases, we assessed the readability and effectiveness of the central bank's monetary policy communication, as well as estimated the causal relationships among key macroeconomic indicators. In particular, we constructed the Monetary Policy Readability Index (MPRI), the Monetary Policy Sentiment Index (MPSI), and the Monetary Policy Uncertainty Index (MPUI), following the study of Bhohat et al. (2015) and Blinder et al. (2022). Furthermore, this study sought to develop an automated AI-tool for analysing the rendition and orientation of MPC press releases. Some earlier studies attempted analysing MPC press statements especially in advanced countries (e.g. Bhohat et al., 2015; Blinder et al., 2022; Oshima & Matsubayashi, 2018). However, there had been no or little effort to construct longer time series indicators and further estimate their causal relationships with traditional macroeconomic variables.

In the context of this study, the MPRI measures the extent of rendition, understanding and clarity

of the Bank's MPC press releases. Effective communication requires information in the right quantity, leading to a better understanding of monetary policy decisions and less uncertainty. The MPSI assesses the level of optimism or pessimism about the prospects of economic conditions as expressed in the MPC press releases. Finally, the MPUI gauges the degree of predictability of the economic environment based on the MPC press releases. These indicators are theoretically and intuitively expected to have casual relationships with some key domestic and external macroeconomic variables. Also, the newly developed indicators are expected to have strong predictive power to nowcast or forecast lagging macroeconomic indicators, including inflation, real GDP growth rate, MPR, exchange rate, consumer sentiments, business confidence, and inflation expectation rate.

This article expands the strand of literature in two significant ways. First, the study assessed the readability of MPC press releases using the Flesch Readability Ease Index (FREI), which had been used extensively in other fields of study other than monetary policy communication. The FREI is the most widely recognised and reliable readability analysis formula and compares with the Flesch-Kincaid Grade Level, the Gunning-Fog Index, the Simple Measure of Gobbledygook Index, the Coleman-Liau Index, and the Automated Readability Index (Liguori, 1978; Loughran & McDonald, 2021; Spadaro et al., 1980). Second, the study employed the novel Loughran and McDonald master financial dictionary, unlike many other studies which used non-financial dictionaries like the Relative Sentiment Shift (RSS), SentiWordNet, SentiWords, Vader, and natural language sentiment analysis to construct financial/economic-related indicators (Nyman & Tuckett, 2015; Segawa, 2021). The Loughran and McDonald (2021) master dictionary contains 86,533 financial and economic terms/words for sentiment and uncertainty analyses in the field of economics and finance. This dictionary was chosen primarily because it is purposefully designed for economic-financial analyses and contains more words than other dictionaries. Lastly, we conducted a validation and robustness test by estimating the bivariate correlation and causal relationships between the text-based indicators and some key macroeconomic variables with the assumption that central bank communication would influence these variables positively.

The rest of the article is structured as follows: Section 2 discusses the related literature on the subject, while section 3 covers the description of the data and methodology employed in the study. Section 4 presents the empirical and robustness test results, and the final section entails the conclusion and policy recommendations.

LITERATURE REVIEW

Central Bank Monetary Policy Communication

Central bank (CB) communication can be examined from the Rational Inattention (RI) theory propounded by Christopher Albert Sims in his seminal work in 2003. The RI theory states that economic agents are "picky and choicy" in their information absorption even when information is readily available (Sims, 2003; Maćkowiak, et al., 2021). Sims argues that human beings are not able to pay full attention to every available piece of information, but pay more attention to what they consider to be important to them. By extension, Blinder et al. (2022) and Maćkowiak et al. (2021) established that households and firms have little interest in monetary policy-related news compared to banks, financial market participants and investors, mainly as a result of the communication style of central banks. Monetary policy communication is important to anchoring inflation or target interest rate expectations among economic agents. Previously, central banks' communication was secretive, due mainly to the infamous phrase of the former Governor of the Bank of England, Montagu Norman, that one should "never explain, never excuse." On the contrary, the former Federal Reserve Chairman and Nobel Laureate, Ben Bernanke, underscored the crucial role that effective monetary policy communication plays in central banking (Bernanke, 2015). He posited that, "When I was at the Federal Reserve, I occasionally observed that monetary policy is 98 percent talk and only 2 percent action. The ability to shape expectations of future policy through public statements is one of the most powerful tools the Fed has". In a way, Bernanke's remark suggests that central bank communication is a policy tool in itself.

Naghdaliyev (2011) proposed a conceptual framework for monetary policy communication in central banks and argued that they should have clear objectives with regard to communication to prevent information overload. Figure 1 depicts the modified conceptual framework of Naghdaliyev (2011). It indicates that the objectives of monetary policy communication should encompass intermediate goals of transparency, accountability, and financial education, which must result in credibility and anchored expectations. It is argued that greater transparency leads to higher monetary policy credibility. Monetary policy credibility has recently been identified as a central banks' most important asset, given its role in expectations formation in line with their targets (Akosah, 2020; Al-Mashat et al., 2018). This implies that a CB with low policy credibility may experience slower monetary policy transmission than those with high policy credibility, and vice versa.

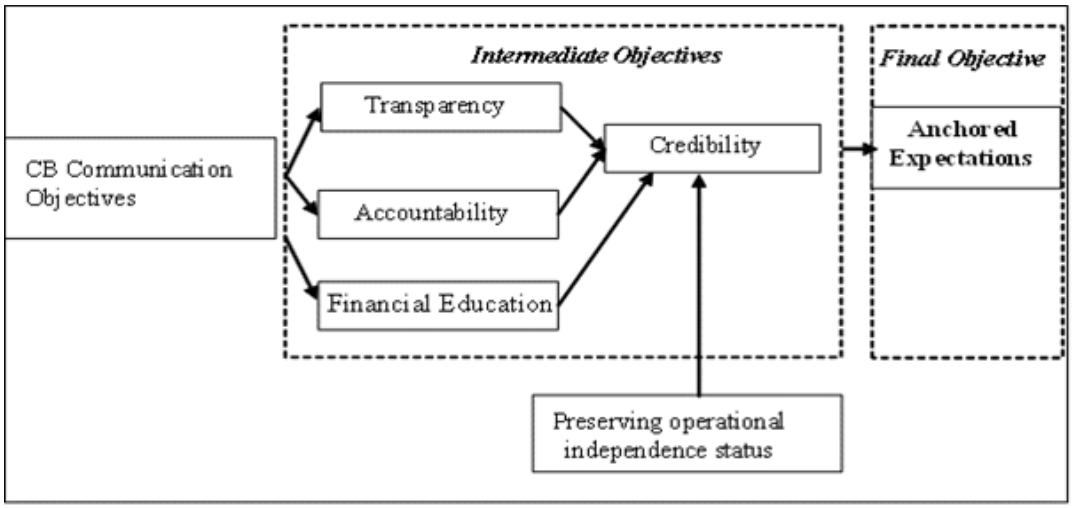

Figure 1: Modified Conceptual Framework of Central Bank Communication

Also, Casiraghi and Perez (2022) argued that there is no "one-jacket-fits-all" prescription for communications in central banks. They, however, proposed that best practices and the idiosyncrasies of the jurisdiction should underpin the choice of CB communication strategies coupled with key elements such as clarity, candidness (truthfulness), and transparency, comprehensiveness of communication, regular schedule of communication, symmetry of communication, and institutional-driven communication (Casiraghi & Perez, 2022; Haung & Simon, 2021). Segawa (2021) and Tumala and Omotosho (2019) examined the readability of the South African Reserve Bank and the Central Bank of Nigeria's MPC press statements/communiques, respectively. This study therefore extended the earlier empirical work by constructing a longer time series of the Monetary Policy Readability Index (MPRI), the Monetary Policy Sentiment Index (MPSI), and the Monetary Policy Uncertainty Index (MPUI), and further estimated their bivariate correlations and causal relationships with both domestic and external macroeconomic variables.

Big Data and Artificial Intelligence (AI) in Central Banks' Communication

AI-powered text-mining techniques, also known as natural language processing (NLP), have become a powerful big data tool for extracting useful information and insights from voluminous text-based reports. Historically, text-mining is said to have been first introduced in linguistics and has continued to gain massive attention in other domains, including central banking (Bholat et al., 2015). Presently, only a few empirical studies have employed text-mining techniques to analyse central bank press statements, financial stability reports, banking sector reports, annual reports and social media to assess their readability, effectiveness of communication strategies, as well as sentiments expressed in these reports (Barbaglia et al., 2022; Bholat et al., 2015; Pejic´-Bach et al., 2019). Naghdaliyev (2011) asserted

that central bank transparency and credibility are influenced by the effectiveness of their communication to the financial market, investors, and the general public.

Tobback et al. (2018) constructed the Economic Policy Uncertainty Index (EPUI) in Belgium using the text-mining approach. The researchers identified pre-defined keywords relating to economic and policy uncertainties in tumultuous periods. Using the support vector machine (SVM) classification method, they forecast ten macroeconomic indicators, including sovereign bond yields and consumer sentiments on a monthly basis. Similarly, Baker et al. (2022) relied on the U.S. and European newspapers to construct the economic uncertainty index to serve as an early warning signal for economic policymakers. Tumala and Omotosho (2019) also analysed the MPC communiqués published by the Central Bank of Nigeria from 2004 to 2019 and found that the communiqués were increasingly complex with low readability.

As revealed by the above review, this study was motivated to extend the literature by constructing three main indices for policy analysis and macroeconomic forecasting purposes. In particular, even though interest in the application of text-mining with respect to central bank (monetary policy) communication is growing, the review thus far has revealed the unavailability of high-frequency indicators (HFIs) and longer time series text-based indices developed from central bank's monetary policy committee (MPC) press releases. This underscored the relevance of developing the monetary policy readability index (MPRI), the monetary policy sentiment index (MPSI), as well as the monetary policy uncertainty index (MPUI). These indicators are novel in the context of central banking and economic analysis, especially with respect to inflation targeting (IT) central banks in Africa, where HFIs are few. Meanwhile, Mishkin (2008), Piechocki (2016) and Blinder et al. (2022) revealed that among the cardinal challenges facing IT in central banks in emerging markets and developing economies are untimely and poorly designed communication strategies, the unavailability of real-time data, and substantial macroeconomic uncertainty. This article is therefore relevant in addressing some of the preceding challenges.

METHODOLOGY

This section presents the research methodology employed in the study. Specifically, it describes the data sources and the analytical flowchart employed to address the research objectives. The data (MPC press releases) were scraped from the Bank's website for pre-processing and text analytics (see Figure 2).

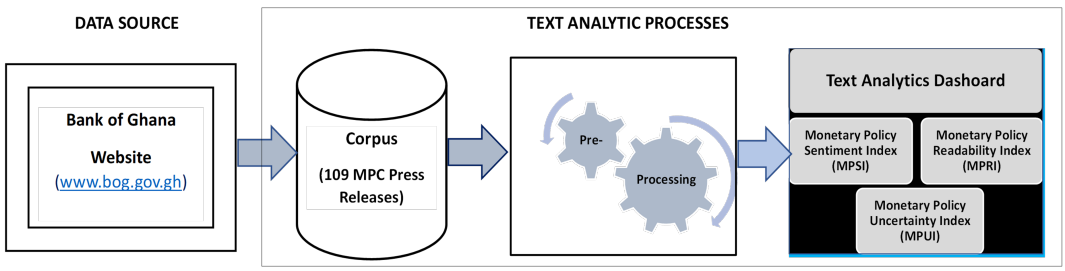

Figure 2: Text-Mining Flowchart

Data and Data Sources

The corpus for the study comprised 109 Monetary Policy Committee (MPC) press releases issued by the BoG between January 2003 and December 2022. The press releases were extracted from the Bank's website (https//www.bog.gov.gh) using a Python library called Beautiful Soup. Detailed description of the corpus is summarised in Appendix A. Presently, MPC meetings are held six times a year and, on each occasion, the Committee publishes several reports, including the MPC press release, the transcript of the MPC press briefings and flash reports aimed at achieving greater transparency and accountability, as key tenets of an Inflation Targeting monetary policy framework.

Theoretically and intuitively, central bank communication is expected to influence macroeconomic indicators and anchor expectations among economic agents (Ahir et al., 2022; Blinder et al., 2022; Gardner et al., 2022; Granziera et al., 2023). We therefore tested the above theory by estimating the

(casual) relationships between the new indices and some selected domestic and external macroeconomic indicators. The domestic variables including inflation, real GDP growth rate, monetary policy rate (MPR), exchange rate, interbank lending rate, consumer confidence index, and business confidence index and inflation expectation rates were obtained from the Bank of Ghana. Similarly, the external variables such as the US inflation, the Fed rate, and the JB Morgan Ghana Sovereign Bond Spread (GSBS) were sourced from the Federal Reserve Economic Data (FRED) among others.

DATA ANALYTICS AND MODELLING

Data Cleaning and Pre-Processing

The MPC press releases downloaded from the Bank's website were Portable Document File (PDF) documents. For easy text-mining analysis, we converted the PDF documents to text files. Using standard data cleaning and pre-processing procedures in text-mining, the corpus was read into R software to remove numbers, punctuation marks, whitespaces, stop words and special characters, as suggested by Benchimol et al. (2022) and Huang and Simon (2021). Furthermore, the corpus was stemmed to reduce words into their root words (lemma) for easy matching with the standard Loughran and McDonald master financial dictionary. Although there are other dictionaries, such as the General Inquirer, the MPQA Subjectivity Lexicon, the Bing, and the NRC for sentiment analysis, the Loughran and McDonald dictionary is the only economic- and finance-based dictionary, making it the most suitable for this study. Also, it has more words (86,533) classified into six 'feelings' categories – namely constraining, contentious, negative, positive, superfluous, and uncertain – compared to the others.

Monetary Policy Readability Index

In this context, readability means the ability of economic agents to easily read and understand MPC press releases in order to form the desired expectations about monetary policy actions and comply with a key requirement of increased transparency and accountability. Coleman and Liau (1975) proposed and developed the Coleman-Liau Index (CLI), with parameters such as the number of characters, words and sentences, while the constants are pre-determined. The CLI is specified as follows:

$$CLI = 141.8401 - 0.21459\left(\frac{N_{char} * 100}{N_{words}}\right) + 1.079812\left(\frac{N_{sent} * 100}{N_{words}}\right) \quad (1)$$

Where *CLI* represents the Coleman-Liau Index; N_{char} denotes the number of characters in a given document; N_{words} represents the number of words per document; and N_{sent} denotes the number of sentences in a document. Comparatively, Flesch (1948) also developed a readability index called the Flesch Readability Ease Index (FREI), which appears to be more robust and comprehensive than the CLI as it incorporates syllables (the length of words). The FREI reflects the extent of readability and comprehensibility a piece of content. It is the most widely used readability analysis technique compared to the Flesch-Kincaid Grade Level, the Gunning-Fog Index, the Simple Measure of Gobbledygook Index, the Coleman-Liau Index, and the Automated Readability Index (Liguori, 1978; Segawa, 2021; Spadaro et al., 1980). As argued by Segawa (2021), the FREI performs better when the number of words exceeds 200. This, therefore, affirms the appropriateness of the FREI in this context, given that the minimum number of words contained in the BoG's MPC press releases is 576. The index is specified as follows:

$$FREI = 206.835 - 1.015\left(\frac{N_{words}}{N_{sentenses}}\right) - 84.6\left(\frac{N_{syllables}}{N_{words}}\right) \quad (2)$$

Where N_{words} represents the number of words per document; N_{sent} denotes the number of sentences in a document; and $N_{syllables}$ represents the number of syllables in a document. The interpretations of the Flesch Readability Ease scores are contained in Table 1 below.

Table 1: Interpretation of Flesch Readability Ease Scores

Score	US School Level	Ghanaian school equivalence	Interpretation
90 – 100	5th Grade	Primary 5	Very easy to read. Easily understood by an average 11-year-old student.
80 – 89	6th Grade	Primary 6	Easy to read and understand. Conversational English for readers.
70 – 79	7th Grade	Junior High School (JHS) 1	Fairly easy to read and understand.
60 – 70	8th & 9th Grades	Junior High School (JHS) 2 & 3	Standard/Plain English. Easily understood by 13- to 15- year-old students.
50 – 60	10th to 12th Grade	Senior High School (SHS)	Faily difficult to read and understand.
30 – 50	College	Undergraduate	Difficult to read and understand.
10 – 40	College Graduate	University graduate	Very difficult to read. Best understood by university graduates.
0 – 10	Professional	Professional	Extremely difficult to read. Best understood by university graduates.

Source: Adapted from Liguori (1978) and Spadaro et al. (1980).

Monetary Policy Sentiment Index

Sentiment analysis from economic and financial reports and news relies on using the Loughran-McDonald (2021) master dictionary with 354 positive lexicons and 2,346 negative lexicons. As seen in Equation 3, the sentiment index is based on the number of positive terms (including favourable, profit, outperform, adequate, achieve, and improve among others) and negative terms (e.g., depreciation, volatility, instability, losses, non-performing, default, and deplete among others) in a given press release. Drawing from Benchimol et al. (2022), the Monetary Policy Sentiment Index (MPSI) is specified as follows:

$$MPSI = \left(\frac{P_i - N_i}{P_i + N_i}\right) * 100 \qquad (3)$$

Where P_i represents the number of positive words in a given document; and N_i denotes the number of negative words in a given document. This implies that a document is classified as having positive sentiment if $P_i > N_i$ and negative if $P_i > N_i$. Positive sentiments are desirable as they signal hope about the economy.

Monetary Policy Uncertainty Index

According to Calvo-González et al. (2018), uncertainty in monetary policy communication is likely to result in capital flight and reduced investment and economic growth in the long run. Based on this, we applied the Loughran-McDonald's (2021) dictionary, which contains 294 uncertainty-related words such as volatility, uncertainty, risk, depreciation, unlikely, and unpredictability, among others, to estimate the level of uncertainty contained in the Bank's monetary policy communication. The Monetary Policy Uncertainty Index (MPUI) is constructed using the formula in Equation 4.

$$MPUI_i = \frac{UN_{words(i)}}{ATW_{words}} * 10{,}000 \qquad (4)$$

Where $UN_{words(i)}$ represents the total number of uncertainty and uncertainty-related words in a given document; ATW_{words} represents the average value of the total numbers of words contained in MPC documents between 2003 and 2005. A higher MPUI suggests heightened uncertainty, which is undesirable in an economy.

EMPIRICAL RESULTS

Descriptive Statistics

Table 2 presents descriptive statistics on the tenure of the governors, the number of MPC meetings they presided over, the number of characters, the words and the sentences contained in their respective press releases. With respect to the tenure of the governors, Governor A's tenure was between January 2001 to September 2009. Governor B was appointed in October 2009 and superintended MPC meetings between October 2009 and August 2012. Similarly, Governor C presided over MPC meetings from August 2012 to March 2016, while Governor D was the chairman of the MPC between April 2016 and March 2017. Governor E has been the chairman of the MPC since April 2017. Over the sample period, the results show that the corpus had a total of 1,148,016 characters, 215,458 words, 21,716 sentences and 38,058 syllables. Also, Governor A presided over/issued 35 (32.11%) of the 109 MPC press releases, while Governor E issued 34 (31.19%) press releases as at December 2022. Governor C issued 19 (17.43%) press releases, while Governor B and Governor D issued 15 (13.76%) and 6 (5.50%) MPC press releases, respectively. This suggests that the governors did not have an equal number of MPC meetings, largely due to changes in government. In Ghana, although the central bank is financially and operationally independent, the President of the Republic appoints the Governor (Chairman), two Deputy Governors and Non-Executive Directors for a four-year tenure. Hence, computing the average scores of the parameters provides a better basis of comparison.

On average, press releases issued under the Governor A-led MPC contained 10,734.49 characters, 2,044.23 words and 212.17 sentences for the 35 meetings he presided over. Similarly, Governor B presented 10,712.13 characters, 2,042.07 words and 223.40 sentences, respectively over 15 meetings, while Governor C's 19 press releases contained 8,826.26 characters, 1,668.84 words and 180.37 sentences, on average. Governor D issued 4,199.00, 746.67 and 59.17 characters, words and sentences, respectively for six MPC meeting, while Governor E's 34 press releases contained, on average, 12,315.71 characters, 2,267.38 words, 210.50 sentences and 438.21 syllables.

We also computed the proportion of characters, words and sentences communicated by each Governor over the sample period, as shown in Figure 3. In terms of characters, the Governor E-led MPC accounted for the highest proportion of characters (26.3%) compared to 22.9 percent each for Governors A and B, followed by Governor C with 18.9 percent and Governor D with 9.0 percent. Similarly, Governor E was found to have communicated more words on average, representing 25.9 percent as compared to 23.3 percent each for Governors A and B, and 19.0 percent and 8.5 percent for Governors C and D, respectively. In terms of sentences, Governors B and A-led MPCs produced 25.2 percent and 24.0 percent of the number of sentences respectively, while Governors E, C and E accounted for 23.8 percent, 20.3 percent and 6.7 percent, respectively. With regard to the use of complex words (syllables), Governor E-led MPC had generated 27.7 percent, followed by Governor B (23.3%), Governor A (20.1%), Governor C (18.7%) and Governor D (12.2%).

Overall, it is observed that Governor E provided more information to stakeholders and the general public than all other governors. This is evidenced by the average number of characters and words contained in the press releases issued during his tenure, suggesting a high level of transparency and accountability. Governors A and B followed in the second and third positions, respectively, while Governor C took the fourth position and Governor D came fifth. A further investigation into the significantly low number of characters, words, sentences and syllables recorded under Governor D revealed that the number of pages of MPC press releases issued under him dropped substantially to an average of 4.17 pages, compared to the 8.71 pages under Governor A, 8.47 pages under Governor B, 8.24 pages under Governor E, and 7.05 pages under Governor C. IMF (2020), highlighting the argument of Ehrmann et al. (2010) that transparency guides economic agents' decision-making processes and helps to anchor their market expectations and conduct leading to effective monetary and financial policy implementation.

Table 2: Descriptive Statistics

Governors	Tenure/ MPC Periods	Number of MPC Meetings	Total Number of				Average Number of			
			Characters	Words	Sentences	Syllables	Characters	Words	Sentences	Syllables
Governor A	Jan 2001 – Sept 2009	35	375,707	71,548	7,426	11,176	10,734.49	2,044.23	212.17	319.31
Governor B	Oct 2009 – Aug 2012	15	160,682	30,631	3,351	5,289	10,712.13	2,042.07	223.40	353.60
Governor C	Aug 2012 – Mar 2016	19	167,699	31,708	3,427	5,633	8,826.26	1,668.84	180.37	296.47
Governor D	Apr 2016 – Mar 2017	6	25,194	4,480	355	1,061	4,199.00	746.67	59.17	176.83
Governor E	Apr 2017 – Dec 2022 (to date)	34	418,734	77,091	7,157	14,899	12,315.71	2,267.38	210.50	438.21
Total/Average		**109**	**1,148,016**	**215,458**	**21,716**	**38,058**	**9,357.52**	**1,753.84**	**177.12**	**316.88**

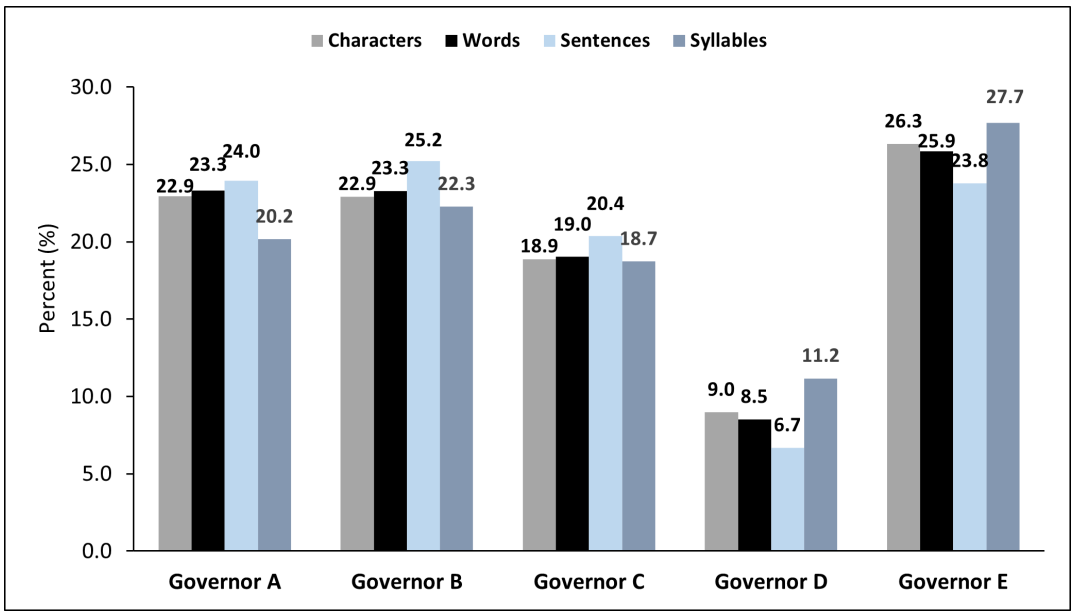

Figure 3: Distribution of Characters, Sentences, Words and Syllables by Governors

Monetary Policy Readability Index (MPRI)

Results from Appendix B show trends in the key variables useful in constructing a readability index. From Figure B1a, we see a general increase from 4,676 characters in year 2003 to the high levels of 18,134 characters around year 2009, then a decline to a record low of 3,343 in 2015. The trend, however, recovered gradually from 2016 through to 2022. The other variables (see Figure B2-4) also followed similar trends. We then applied Equation 2 to compute the Monetary Policy Readability Index (MPRI) spanning January 2003 to November 2022, with the results presented in Figure 4. The Monetary Policy Readability Index (MPRI) generally trended downwards over the sample period, largely on account of the increasing number of complex words (syllables). The index dipped significantly between 2015 and 2016 as a result of

a substantial reduction in the number of pages of the MPC press releases from an average of 5.71 pages in 2015 to 4.00 pages in 2016. The index, however, recovered somewhat between 2017 and 2022 by an average value of 53.44, as the average number of page numbers also surged to 8.24. Whilst there could be other important factors accounting for the fluctuations in the readability index, it appears the number of pages of the MPC press release is equally critical.

The average readability score for the entire corpus is 57.1 out of 100.0. This score is lower than the desired readability score of 60.0-70.0 for financial statements in English (Fakhfakh, 2015). This suggests that, generally, MPC press releases are fairly difficult for a senior high school graduate to read and understand, according to the FRE score interpretation in Table 2. This result confirms the finding of Tumala and Omotosho (2019), who conducted a similar study in Nigeria. Thus, the Bank's MPC press releases require one to have some level of sophistication in terms of education to read and understand easily. The implication is that economic agents with basic education might find it difficult to understand the contents of the MPC press releases, although the only requirement for participation in a financial activity in the country is to be at least 18 years of age. Practically, the ease of reading MPC press releases has the potential to contribute to the monetary policy transmission through the expectations channel (Blinder et al., 2022; Segawa, 2021). Hence, the relatively low readability score could suppress confidence in the domestic economy.

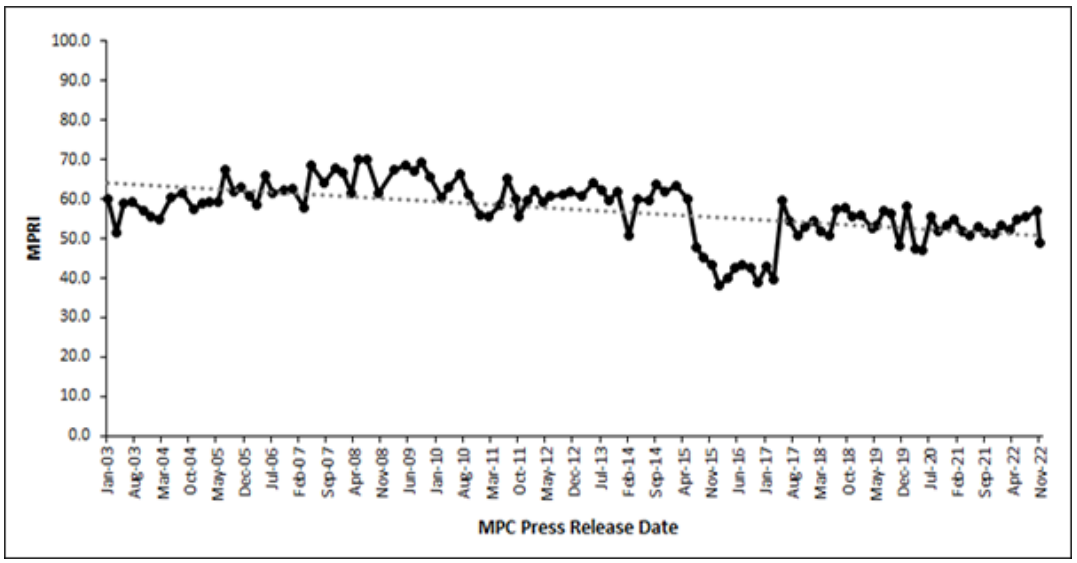

Figure 4: Trends in Monetary Policy Readability Index

Monetary Policy Sentiment Index (MPSI)

It has been theoretically and empirically demonstrated that economic agents' feelings (sentiments) about the prospect of the economy, to a large extent, influence their economic and financial decisions. Nyman and Tuckett (2015) acknowledge the role of sentiment, narrative and news effects in human decision-making. Figure 5 shows the evolution in sentiments expressed in the Bank's MPC press releases and how they predicted key macro-environmental events in the country. In this context, macro-environmental factors include economic, political, socio-cultural, technological, demographic, and ecological factors.

The results reveal that the MPC press releases were dominated mainly by 'negative' words, as the average sentiment score over the entire sample period was -20.7. This is suggestive of a high degree of pessimism about the domestic economy, reflecting the frequent adverse shocks to the economy. In particular, the highest sentiment score of 83.3 percent was contained in the 26th January 2006 press release. This coincided with the announcement of the cancellation of US$4.2 billion of the country's external debt under the HIPC/Multilateral Debt Relief Initiative (MDRI) programme. The MPC press

release was indeed positive at the time when most of the country's macroeconomic indicators, such as inflation, economic growth, trade balance, commodity prices, and external debt stock were trending in the right direction. A paragraph in the MPC Press Release of January 2006 confirmed the above assertion:

> Looking ahead, maintaining a strong monetary/fiscal policy anchor should underpin the transition to reduced annual inflation and accelerated growth, with the private sector crowded in. The removal of the external debt burden under the Multilateral Debt Relief Initiative (MDRI), envisaging the cancellation of $4.2 billion of Ghana's external debt, should reinforce this process and serve to strengthen investor confidence in the economy.
>
> - MPC Press Release, January 2006:5

Additionally, the index accurately captured the effect of the Global Financial Crisis (GFC) between 2007 and 2009. Ghana and many African countries were initially believed to be insulated from the global financial crisis, but this position was later revised by the World Bank. The Bank subsequently classified Ghana as 'highly exposed' to the debilitating impact of the financial crunch, with low GDP and worsening inflation. Similarly, the significant exchange rate depreciation recorded in May 2014, the sluggish economic growth due to erratic power supply ("Dumsor", local parlance for frequent and unplanned power outages to homes, businesses and other facilities), coupled with commodity price shocks and consequent entry into an IMF programme in 2015 suppressed sentiments about the economy. The change in government in 2017 and relatively improved macroeconomic conditions somewhat improved the sentiment score to 7.14 in November 2017. However, the twin impact of COVID-19 and the Russo-Ukranian war contributed to a steep rise in inflation and currency depreciation, compelling the government to seek an extended credit facility from the IMF. These events collectively suppressed sentiments in recent times.

Also, the results show a higher average sentiment score for Governor A (MPSI = -14.28) relative to the others. This could be attributed to the significant external financial supports the government/economy received during the period as a result of the HIPC initiatives. Governor D's average sentiment score was -16.48, reflecting a slow recovery from the nationwide erratic power supply, exchange rate depreciation, and commodity price collapse shocks. Also, Governor E obtained an average sentiment score of -18.65 over periods of COVID-19 and the Russo-Ukranian war. The tenure of Governor B recorded a sentiment score of -25.84, on average, at the time of the GFC, while Governor C obtained an average sentiment score of -33.51 during the period characterised by exchange rate crisis and Dumsor throughout the country.

Sentiment or news effects are considered critical 'soft' data in monetary policy formulation and analysis. This is because the nature of sentiment (negative or positive) conveyed by the press releases invariably impacts public perception and trust in the Bank's monetary policy decisions. Viegi and Demertzis (2016) observed that credibility is the most important asset of any central bank, especially during economic turbulence and high uncertainty.

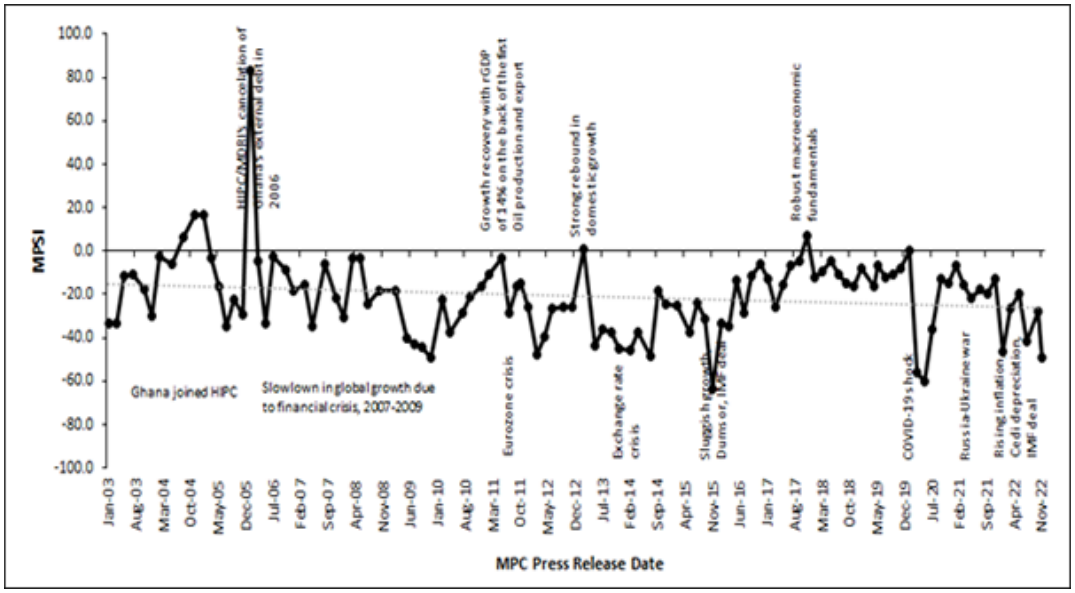

Figure 5: Trends in MPSI and Macro-Environmental Events

Monetary Policy Uncertainty Index

Figure 6 reveals that Ghana's monetary policy uncertainty index (MPUI) has evolved and exhibited pronounced fluctuations over the years, traceable to some major global and domestic macro-environmental dynamics. More importantly, the researchers established that the lowest uncertainty score of 27.12 was recorded in October 2003 on the back of a relatively stable macroeconomic environment. Conversely, the highest uncertainty score of 359.32 was contained in the Bank's July 2009 MPC press release, reflecting the severe impact of the Global Financial Crisis (GFC) on the domestic economy, in line with findings by Tobback et al. (2014). The long-term trend further confirms a sustained uncertainty in the domestic economy.

Empirically, higher values of the index signal heightened uncertainty, and as such constituted an early warning signal for policymakers and vice versa. More specifically, we found that uncertainty was generally low between 2002 and 2006, when the country signed up for the Highly Indebted Poor Countries (HIPC) initiative, culminating in the cancellation of a substantial portion of the country's external debt. Uncertainty, however, heightened during the 2012 Election Petition hearing at the Supreme Court of Ghana. It was believed that many investors and development partners (such as the World Bank, the IMF, and the African Development Bank, among others) held back on their investments and budget support due to the high level of uncertainty surrounding the outcome of the petition.

Furthermore, economic uncertainty increased during the energy crisis coupled with exchange rate volatility in July 2014, and after the announcement of an IMF-supported economic programme around May 2015. There is also evidence of increased uncertainty at the commencement of the banking sector clean-up and re-capitalisation exercises in August 2017. This event was reflected in the September 2017 MPC press release as follows:

> Reforms to strengthen and re-position the financial sector as a major growth driver are ongoing and banks are positively adjusting to the latest developments. Since the last MPC meeting, the Bank has revoked the licenses of two insolvent banks to safeguard the potential spillover threat on the financial sector. The roadmap towards recapitalisation in accordance with the capital restoration plans set out in April has ended satisfactorily. The Bank of Ghana is working towards building a strong and more sophisticated banking sector

> backed by robust capital frameworks due to increasing risk exposures. In particular, the Bank is introducing risk-based capital requirements under the Basel II and III framework as well as enhancing prudential regulations, governance structures of banks, and macro prudential oversight to support a stronger and more sophisticated financial system.
>
> - MPC Press Release, September 2017:2

Figure 6 also reveals how global economic developments, particularly the COVID-19 pandemic in March-July 2020, the outbreak of the Delta variant of COVID-19 in July 2021 and the Russo-Ukranian war in February 2022 collectively contributed to heightened uncertainty in the MPC press releases during the period. Also, uncertainty increased in the July 2022 MPC press release because of the announcement of a possible economic recovery programme with the IMF. Similarly, the spontaneous rise in both global and local inflation rates particularly from March 2022 to November 2022 further worsened the level of uncertainty expressed in the MPC press releases. For example, part of the MPC Press Release of November 2022 says:

> Global headline inflation remains elevated and has broadened beyond food and energy prices, with several other factors adding to inflationary pressures. On the domestic front, inflation has remained elevated, with strong underlying inflationary pressures. Price developments suggest that the upturn of headline inflation in October 2022 was driven largely by food price pressures and to some extent additional pressures from the currency depreciation. Since the last MPC meeting, headline inflation has increased further to 40.4 percent in October 2022, from 37.5 percent in September. Food inflation increased by 4.9 percentage points to 43.7 percent in October 2022 from 38.8 percent in September, while non-food inflation increased by 1.3 percentage points to 37.8 percent from 36.5 percent underlying inflationary pressures have also heightened further. The Bank's measure of core inflation, defined to exclude energy and utility prices, increased from 36.2 percent in September 2022 to 39.7 percent in October 2022, an indication of broad-based inflationary pressures. At the same time, consumer, business, and financial sector inflation expectations went up.
>
> -MPC Press Release, November 2022:1

Headline inflation jumped to 40.4 percent in October 2022 from 38.8 percent in September 2022. This further worsened in November and December 2022 when it increased from 50.3 percent to 54.1 percent against the Bank's medium-term target of 8.0±2 percent. For the entire period, the average uncertainty score was 128.00, suggesting a relatively heightened unpredictability in the country's economy. The fluctuations in the index clearly represent instability in the country's macroeconomic environment over the sample period. The combined effects of structural deficiencies, a weak domestic currency, fiscal vulnerabilities, and external shocks have continued to derail the economic trajectory of the country. These developments appear to be well captured in the MPC press releases of the central bank as a key policymaker in the country.

In terms of governors' performance, Governor D's tenure between May 2016 and March 2017 witnessed the lowest average uncertainty score of 82.49. This coincided with the government securing a 3-year IMF programme aimed to "restore debt sustainability and macroeconomic stability to foster a return to high growth and job creation, while protecting social spending" (IMF, 2015:1). The relatively low uncertainty score suggests that the IMF programme truly brought stability and reduced uncertainty in the economy. Also, uncertainty was relatively under control under Governor A from January 2003 to September 2009, with an average score of 92.59 reflecting the huge fiscal space created by the HIPC initiative. The MPC press releases issued by Governors B and C contained averaged uncertainty scores of 130.62 and 139.88,

respectively, while Governor E's tenure between May 2017 and November 2022 recorded an average score of 164.71. This period witnessed the global economic downturn caused by COVID-19 and the Russo-Ukranian war, leading to seeking another IMF-supported programme in July 2022.

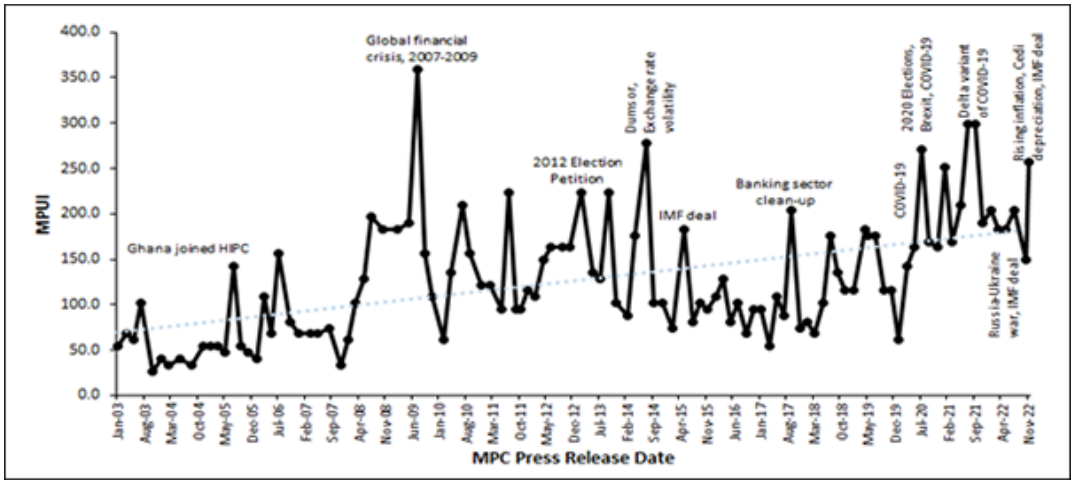

Figure 6: Trends in MPUI and Key Macro-Environmental Events

Validation Test Results

As stated earlier, central bank communication-based indices, such as MPRI, MPSI, and MPUI are expected to correlate with domestic and external macroeconomic indicators to affirm their accuracy, reliability, consistency, and robustness. We computed the correlation test between the variables, and the results are summarised in Table 3. The results showed that MPRI has a significant negative relationship with MPR, the exchange rate, interbank lending rate, financial sector inflation expectations index, and the JP Morgan GSBS. This suggests that the ease of reading and understanding BoG's MPC press releases could contemporaneously result in lower exchange rate depreciation, lower interbank lending rate, lower MPR, and a reduced risk premium on the country's sovereign bonds, and vice versa. Also, a higher clarity of press releases could lead to an improvement in GDP, and business confidence, and vice versa. Similarly, we found that there is an inverse correlation between MPSI and inflation, the interbank lending rate, the T-bill rate, business confidence inflation expectations, financial sector inflation expectations, and the JP Morgan GSBS. The implication is that improved sentiments in the Bank's MPC press release will likely result in greater interest in government's securities, bonds and the other way round.

Conversely, we find a significant positive correlation between MPSI and GDP, consumer confidence, and business confidence, suggesting that positive sentiments could lead to improvement in GDP, consumer confidence and business confidence, and vice versa. In addition, the results showed that the MPUI was negatively (albeit insignificantly) related to MPR, consumer confidence, business confidence, and the Fed rate, while it was positively related with the exchange rate. This suggests that high uncertainty usually leads to lower MPR, lower consumer and business confidence.

Table 3: Pearson's Correlation between Monetary Policy Communication and Macroeconomic Indicators

	MPRI	MPSI	MPUI	Inflation	Real GDP growth rate	MPR	Exchange rate	Interbank lending rate	T-Bill rate	Business Confidence Index (BCI)	Business Confidence Inflation Expectations rate	Consumer Confidence Index (CCI)	Consumer Confidence Inflation Expectations rate	Financial Sector Inflation Expectations rate	US Inflation	Fed funds rate	JP Morgan Ghana Sovereign Bond Spread (GSBS)
MPRI	1.000																
MPSI	0.004	1.000															
MPUI	0.030	-0.311**	1.000														
Inflation	-0.064	-0.143	-0.074	1.000													
Real GDP growth rate	0.308**	0.183*	-0.083	-0.230*	1.000												
MPR	-0.475**	-0.149	-0.142	0.669**	-0.315**	1.000											
Exchange rate	-0.526**	-0.141	0.422**	0.159	-0.255**	0.275**	1.000										
Interbank lending rate	-0.384**	-0.205*	-0.031	0.576**	-0.282**	0.890**	0.240*	1.000									
T-Bill rate	-0.088	-0.322**	0.093	0.717**	-0.278**	0.750**	0.137	0.823**	1.000								
Business Confidence Index (BCI)	0.289**	0.444**	-0.444**	-0.359**	0.376**	-0.479**	-0.638**	-0.518**	-0.600**	1.000							
Business Confidence Inflation Expectations rate	-0.014	-0.217*	-0.011	0.838**	-0.207*	0.658**	0.195	0.585**	0.733**	-0.477**	1.000						
Consumer Confidence Index (CCI)	0.060	0.465**	-0.270**	-0.557**	0.354**	-0.332**	-0.379**	-0.212*	-0.462**	0.607**	-0.520**	1.000					
Consumer Confidence Inflation Expectations rate	0.441**	-0.060	-0.048	0.248*	0.128	-0.261**	-0.310**	-0.409**	-0.043	0.213*	0.242*	-0.318**	1.000				
Financial Sector Inflation Expectations rate	-0.197	-0.376**	0.047	0.938**	-0.315**	0.770**	0.486**	0.682**	0.860**	-0.684**	0.926**	-0.576**	0.163	1.000			
US Inflation	0.011	0.127	0.096	0.215*	0.155	-0.087	0.345**	-0.301**	-0.205*	-0.016	0.139	-0.262**	0.255*	0.256*	1.000		
Fed funds rate	0.278**	0.309**	-0.346**	0.043	0.015	-0.194*	-0.149	-0.314**	-0.327**	0.421**	-0.066	0.059	0.231*	0.251*	0.293**	1.000	
JP Morgan Ghana Sovereign Bond Spread (GSBS)	-0.264**	-0.224*	0.041	0.458**	-0.232*	0.546**	0.145	0.478**	0.571**	-0.365**	0.365**	-0.206*	-0.034	0.365**	-0.124	-0.435**	-0.397**

***p<0.01; *p<0.05*

Granger Causality Test Results

Given that correlation does not necessarily imply causality, we examined the Granger causal (with lag of 2) relationships between the new indices and some indicators (see Table 4). The results showed that there is a significant unidirectional casual effect from exchange rate to Monetary Policy Readability Index (MPRI) (F=5.1054, p<0.01). This suggests that exchange rate crisis could suppress readability of the Bank's press release. Furthermore, the study found a bi-directional causality between MPSI and business confidence, confirming that the MPC was concerned with the survival/growth of businesses, while business executives also value the communication of the MPC. This also means that these variables can accurately predict each other in case there is a lag in the release of any of them. There is a unidirectional Granger causal effect from business confidence inflation expectations to monetary policy sentiment index (MPSI), while MPSI is found to Granger cause economic growth (F=3.0962, p<0.05). Similarly, the Granger causality test revealed a unidirectional impact from monetary policy sentiment index to financial sector inflation expectations (F=4.1211, p<0.05). This suggests that sentiments expressed in the Bank's press release can influence inflation expectations. This confirms the finding of Segawa (2021) that the tone of MPC statements are important in inflation expectations formation in South Africa.

Concerning causality between the Monetary Policy Uncertainty Index (MPUI) and the macroeconomic variables, the test shows a unidirectional causality between MPUI and business confidence (F=5.1054, p<0.01). Conversely, we established that financial sector inflation expectations Granger causes monetary policy uncertainty index, albeit unidirectionally. Also, the exchange rate has a causal effect on monetary policy uncertainty index, suggesting that exchange rate volatility (particularly depreciation) results in high level of uncertainty in the MPC's press release of the Bank. An example of a statement on exchange rate which induced high uncertainty is as follows:

> In the year to September 2022, the Ghana Cedi has depreciated by 37.5 percent, 24.1 percent, and 27.5 percent against the US dollar, the pound, and Euro, respectively. In comparison with the same period of last year, the Ghana Cedi fared better, depreciating by 1.8 percent and 0.5 percent against the US dollar and the pound, respectively, and appreciated by 4.0 percent against Euro. The depreciation of 7 percent of the currency was driven by higher crude oil product import bill on the back of rising prices, non-roll over of maturing bonds by non-resident investors, portfolio reversals and sudden exit of non-resident investors in the bond market, as well as loss of market access to Eurobond resources. The effect of these factors has been exacerbated by the strength of the US dollar, resulting in depreciation of the local currency from the beginning of the year-to-date.
>
> -MPC Press Release, October 2022:6-7

Table 4: Results from Granger Causality Test

No.	Null Hypothesis	*F*-value	Conclusion
Monetary Policy Readability Index (MPRI)			
1	MPRI does not Granger cause exchange rate	1.3670	Unidirectional
	Exchange rate does not Granger cause MPRI	3.7081*	
Monetary Policy Sentiment Index (MPSI)			
2	MPSI does not Granger cause business confidence	8.0266**	Bi-directional
	Business confidence does not Granger cause MPSI	3.0282*	
3	MPSI does not Granger cause business inflation expectations	2.9517	Unidirectional
	Business confidence inflation expectations do not Granger cause MPSI	4.1349*	
4	MPSI does not Granger cause real GDP Growth rate	3.0962*	Unidirectional
	Real GDP Growth rate does not Granger cause MPSI	0.5308	
5	MPSI does not Granger cause financial sector inflation expectations	4.1211*	Unidirectional
	Financial sector inflation expectations do not Granger cause MPSI	2.0900	
Monetary Policy Uncertainty Index (MPUI)			
6	MPUI does not Granger cause business confidence	5.1054**	Unidirectional
	Business confidence does not Granger cause MPUI	0.6924	
7	MPUI does not Granger cause exchange rate	0.0453	Unidirectional
	Exchange rate does not Granger cause MPUI	3.6558*	
8	MPUI does not Granger cause financial sector inflation expectations	2.3052	Unidirectional
	Financial sector inflation expectations do not Granger cause MPUI	3.5284*	

***p < 0.01; *p < 0.05*

CONCLUSION AND POLICY RECOMMENDATIONS

Monetary policy communication via MPC press releases contains useful information for economic research and investigation. However, these press releases are usually qualitative in nature and difficult to quantify, as well as to construct indicators from to serve as "snapshots" of the macroeconomy. This study employed AI-powered text-mining techniques to construct monetary policy communication-based indicators, namely, the Monetary Policy Readability Index (MPRI), the Monetary Policy Sentiment Index (MPSI), and the Monetary Policy Uncertainty Index (MPUI), which are useful in monitoring macroeconomic developments in an economy. The study involved the analysis of 109 MPC press releases issued by the Bank of Ghana between January 2003 to December 2022.

The results showed that readability of the MPC press releases witnessed a gradual downward trend over the years with an average score of 57.1 out of 100.0, which falls below the recommended range of 60.0-70.00 for economic and financial statements (see Fakhfakh, 2015). This suggests that the Bank's MPC press releases were quite difficult for less-educated readers (senior high school graduates) to understand. This trend might confirm the proposition that central banks generally find it difficult to communicate clear convincing messages during acute crises, thereby adopting the use of complex terminologies or technical jargon to explain the happenings (Vayid, 2013). Also, we obtained an average sentiment score of -20.70 for the press releases analysed, while the upward trend seen in the uncertainty index suggests highly volatile macroeconomic environment during the period, in line with the macroeconomic fundamentals.

Furthermore, to establish the accuracy, reliability and robustness of the newly-constructed monetary policy communication-based indicators (i.e. MPRI, MPSI, and MPUI), we computed correlations between them and a number of macroeconomic indicators, such as inflation, real GDP growth rate, monetary policy rate (MPR), exchange rate, interbank lending rate, treasury bill (T-bill) rate, consumer confidence, consumer inflation expectations indices, business confidence, business inflation expectations indices, financial sector inflation expectations index, US inflation, Fed rate, and the JP Morgan Ghana Sovereign

Bond Spread (GSBS). The indicators developed appear to have significant relationships with the domestic and external macroeconomics mentioned earlier. Thus, the indicators generally predict the macroeconomic environments such that when they worsen, the general economy also witnesses a downturn and vice versa. This is consistent with the findings of Baker et al. (2022), Ahir et al. (2020) and Kelley (2019). The implication is that these indicators can be alternative measures of certain important macroeconomic indicators (e.g. inflation and real GDP growth rate) with significant publication lags.

Inferentially, the Granger causality results showed that there is a bi-directional Granger casual effect from Monetary Policy Sentiment Index (MPSI) to business confidence index. Also, there is unidirectional causality from MPSI to economic growth, and financial sector inflation expectations. Similarly, the study found that the Monetary Policy Uncertainty Index (MPUI) Granger causes business confidence index, while exchange rate, and financial sector inflation expectations Granger cause MPUI. We also found a unidirectional causality from exchange rate to Monetary Policy Readability Index (MPRI).

The Bank of Ghana, researchers and investors can use these time series-based indicators as an early warning system (EWS) (see Table B1 in Appendix B) to monitor and predict the country's macroeconomic shocks, forecast the economic growth trajectory and address a number of policy inquiries. The Bank's Monetary Policy Committee (MPC) should use these indicators as a benchmark to measure the effectiveness of its monetary policy communication and fine-tune its press releases, if necessary, for the desired impact. In particular, efforts should be made by the Bank/MPC to improve the readability, sentiments and uncertainty expressed in the press releases for better inflation expectations anchoring. The Bank should also develop a communication policy document which defines the audiences, content and structure of the Bank's press releases.

Future studies may employ wavelet-techniques or Time-Varying Parameter Vector Autoregressions (TVP-VARs) to assess the behaviour and impact of the new indices on macroeconomic variables. Also, researchers may consider using the variables to nowcast/forecast slower-to-publish indicators such as inflation and real GDP growth rate. The study could be extended to other central banks in advanced, emerging market and developing economies for a comprehensive comparison and benchmarking of these indicators.

COMPETING INTERESTS

The authors have declared that no competing interest exists.

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DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, upon request.

DISCLAIMER

The views expressed in this article are those of the authors and do not necessarily represent the views of the Bank of Ghana or affiliated institutions.

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Appendix A: Details of the Corpus

MPC round	Year	Press release date	MPC round	Year	Press release date	MPC round	Year	Press release date
1	2003	Jan-03	41	2010	Dec-10	81	2018	Mar-18
2	2003	Mar-03	42	2011	Feb-11	82	2018	May-18
3	2003	May-03	43	2011	May-11	83	2018	Jul-18
4	2003	Jul-03	44	2011	Jul-11	84	2018	Sep-18
5	2003	Oct-03	45	2011	Sep-11	85	2018	Nov-18
6	2003	Dec-03	46	2011	Oct-11	86	2019	Jan-19
7	2004	Feb-04	47	2011	Dec-11	87	2019	Apr-19
8	2004	May-04	48	2012	Feb-12	88	2019	May-19
9	2004	Aug-04	49	2012	Apr-12	89	2019	Jul-19
10	2004	Nov-04	50	2012	Jun-12	90	2019	Sep-19
11	2005	Jan-05	51	2012	Sep-12	91	2019	Nov-19
12	2005	Mar-05	52	2012	Nov-12	92	2020	Jan-20
13	2005	May-05	53	2013	Feb-13	93	2020	Mar-20
14	2005	Jul-05	54	2013	May-13	94	2020	May-20
15	2005	Sep-05	55	2013	Jul-13	95	2020	Jul-20
16	2005	Nov-05	56	2013	Sep-13	96	2020	Sep-20
17	2006	Jan-06	57	2013	Nov-13	97	2020	Nov-20
18	2006	Mar-06	58	2014	Feb-14	98	2021	Feb-21
19	2006	May-06	59	2014	Apr-14	99	2021	Mar-21
20	2006	Jul-06	60	2014	Jul-14	100	2021	May-21
21	2006	Oct-06	61	2014	Sep-14	101	2021	Jul-21
22	2006	Dec-06	62	2014	Nov-14	102	2021	Sep-21
23	2007	Mar-07	63	2015	Feb-15	103	2021	Nov-21
24	2007	May-07	64	2015	May-15	104	2022	Jan-22
25	2007	Aug-07	65	2015	Jul-15	105	2022	Mar-22
26	2007	Nov-07	66	2015	Sep-15	106	2022	May-22
27	2008	Jan-08	67	2015	Nov-15	107	2022	Jul-22
28	2008	Mar-08	68	2016	Jan-16	108	2022	Oct-22
29	2008	May-08	69	2016	Mar-16	109	2022	Nov-22
30	2008	Jul-08	70	2016	May-16			
31	2008	Oct-08	71	2016	Jul-16			
32	2009	Feb-09	72	2016	Sep-16			
33	2009	May-09	73	2016	Nov-16			
34	2009	Jul-09	74	2017	Jan-17			
35	2009	Sep-09	75	2017	Mar-17			
36	2009	Nov-09	76	2017	May-17			
37	2010	Feb-10	77	2017	Jul-17			
38	2010	Apr-10	78	2017	Sep-17			
39	2010	Jul-10	79	2017	Nov-17			
40	2010	Sep-10	80	2018	Jan-18			

Source: BoG Website (www.bog.gov.gh)

Appendix B

Figure B1: Number of Characters

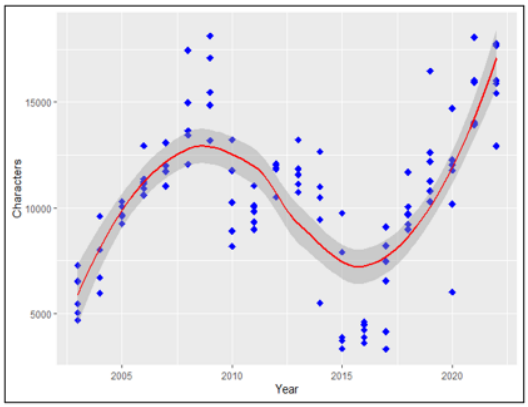

Figure B2: Number of Words

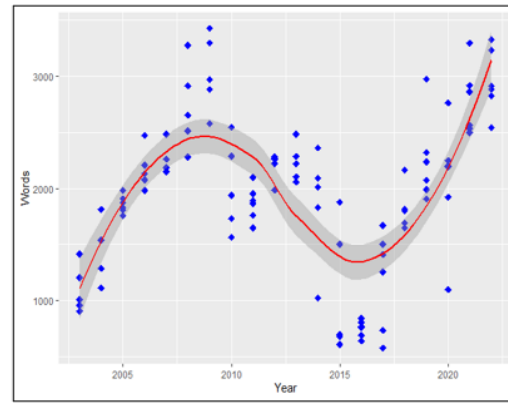

Figure B3: Number of Sentences

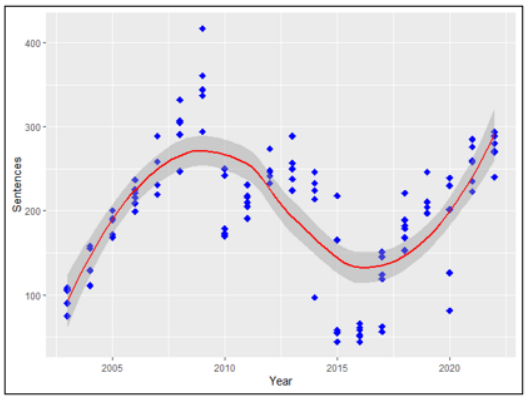

Figure B4: Number of Syllables

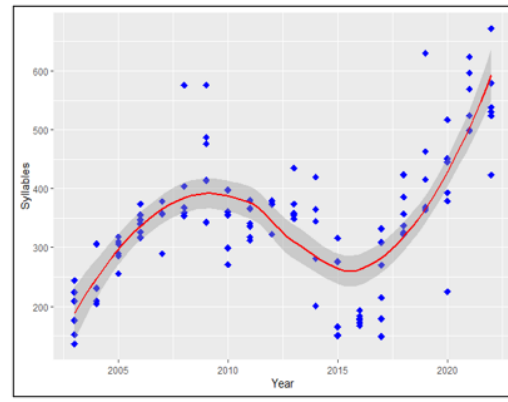

Figure B: Trends in Number of Characters, Words, Sentences, and Syllables

Artificial Intelligence's (AI's) implications for strategic communication

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Abstract

Organisations in Africa have integrated Artificial Intelligence's (AI) innovations, such as data driven technologies and automation, into their operations. This is being done, among others, to enhance customer relationships, strategic communication and to deliver services. However, there are suggestions that these data-driven technologies are not transparent enough, which is contrary to what strategic communication is about. A survey in South Africa, for example, shows that only thirty-nine percent of the people have heard of AI. This despite South Africa being in the top five of African countries in the 2020 Global Government Artificial Intelligence Readiness Index.

Several academic papers evaluating the AI topic from different standpoints have been published in recent years. However, little academic work has been done regarding AI's impact on strategic communication in the African continent. Although AI automations and applications seek to address most of society's pressing problems, there are also challenges such as the technicality of AI, ethical issues, and overselling of AI. This conceptual article, analyses documents published on AI, journal articles and books content, identifies and discusses AI challenges, reviews different approaches to AI, examines AI's impact on the strategic communication field and makes recommendations, with an intention to contribute to the AI and strategic communication disciplines. The research established that AI will continue to preoccupy academics and the public because of the increasing intermingling of smart technologies with different areas of human life.

Keywords

Artificial intelligence, South Africa, strategic communication

INTRODUCTION

Strategic communication is a form of communication that helps an organisation achieve its intended goals through interaction at various levels, reputation management, co-creation, collaboration, intentional and persuasive engagement, mitigation of stakeholder conflict, trust building among stakeholders and stakeholder empowerment (Falkheimer & Heide, 2018:71; Hallahan et al., 2007:3; Holtzhausen & Zerfass, 2013:74; Overton-de Klerk & Verwey, 2013:370; Shabangu, 2021:86; Zerfass & Huck, 2007:108; Zerfass et al., 2018:487). Artificial Intelligence's (AI) innovations have greatly impacted strategic communication practice, hence the importance of interdisciplinarity in researching AI (Chetty et al., 2023; Nobre, 2020:4). AI is a branch of science that studies and develops intelligent machines and is a significant component of the fourth industrial revolution that promises to change the way people and organisations communicate, work, and relate to one another (Jaldi, 2023:5). Therefore, strategic communication practitioners and researchers need to pay close attention to the changes brought by AI to remain relevant.

This conceptual article outlines some key developments in AI that have impacted the practice of strategic communication in the South African context (SA), defines the AI concept, discusses approaches to AI, identifies and discusses AI challenges, discusses AI implications for strategic communication and suggests some recommendations for strategic communication practitioners and researchers to consider.

This article is essential, because the impact of AI, particularly on task automation, dialogue, stakeholder engagement and communication campaigns has influenced the field of strategic communication in both negative and positive ways.

In developing this paper, the researcher adopted the documents analysis approach, which included the analysis of documents, journal articles and books published on AI. The sampling of documents was determined by the role each document stood to fulfil in the paper. Analysed documents were sourced from various online platforms, and they contained textual messages and images that have been recorded without any intervention by the researcher. Document analysis is a qualitative research method for rigorously and systematically analysing institutions or organisational documents (Wach, 2013:1). Similarly, Bowen (2009:27) argues that documents analysis can be viewed as a systematic procedure for reviewing the printed and electronic documents of an institution.

DEFINING ARTIFICIAL INTELLIGENCE (AI)

AI is a multifaceted concept used relatively loosely in the media, policymaking environment, and even in academia. AI is a broad concept indicating the general space the world is now working in. From the 1956 Dartmouth conference, AI has been thought of as the artificial reproduction of *human intelligence* (Archer, 2020:190). To examine AI's implication for strategic communication, it is better to begin by giving a definition of the AI concept. Rapid developments in the AI field have precipitated some changes in the definitions over time. More recent definitions integrate phrases such as "imitating intelligent human behaviour". Several AI definitions have come forth, of which most can be classified into four categories (Ertel, 2017:175; Kok et al., 2002:2):

- systems that think like humans
- systems that act like humans
- systems that think rationally, and
- systems that act rationally.

APPROACHES TO ARTIFICIAL INTELLIGENCE (AI)

AI encompasses approaches that are machine learning and deep learning. Machine learning is a sub-field of AI, while deep learning is understood as a specific type of machine learning (Hu et al, 2019:2; Ertel, 2017:175). Most machine learning approaches use probability to represent the uncertainty that occurs widely in real world problems. Machine learning can be categorised into three types; one is the supervised type, which requires labelled data to train a computational model. Second is the unsupervised machine learning type, which examines unlabelled data to ascertain patterns. Thirdly, is the reinforcement learning type, which requires feedback such as rewards or punishment to assist a computational model to learn (Hu et al, 2019:3). Through machine learning, communicators and advertisers can collect and analyse relevant data from various sources to gain insight into clients' thinking and spending habits (Ferreira, 2021:21). Deep learning, on the other hand, uses a special type of artificial neural network called Deep Neural Networks (DNN) for machine learning tasks (Hu et al, 2019:4).

From the 1950s, AI researchers have been mostly concerned with two parallel approaches. The first is the symbolic approach, which is more about encoding principles of human reasoning and knowledge development which led to expert systems. The second is the Artificial Neural Network approach (ANN), inspired by how the human brain is structured, specifically its neurons (Holmes et al., 2022:17). In describing the ANN, Bakhshi and van Duin (2018:13) state that it can be viewed as processing devices that are loosely modelled after the neural structure of a brain. The ANN approach is one of several data-based approaches, which includes, among others, support vector machines (SVM), Bayesian networks and decision trees (collectively known as Machine Learning) (Holmes et al, 2022:17). Machine learning is at the basis of most AI systems. It is deployed to solve problems that cannot be easily solved by humans, for example, transforming input into output by formulating algorithms. A practical example of this would be separating spam from legitimate emails (Bakhshi & van Duin, 2018:7).

Moreover, Pietikäinen and Silvén (2021:17), also Russel and Norvig (2010:12), suggest that there are

four approaches to AI; namely: the Turing Test, Cognitive Modelling, Laws of Thought and the Rational Agent. The Turing Test approach, which is also known as Acting Humanly, was proposed by Alan Turing in 1950. The approach was designed to provide a satisfactory operational definition of intelligence. According to the Turing Test approach, AI is a study of how to make computers perform tasks that are normally done by human beings (Russel & Norvig, 2010:2).

In the same vein, Boucher (2020:1) suggests that different forms of the Turing test rate machines as intelligent when their actions cannot be differentiated from those of human beings. For computers to be able to perform at a human level, they need to have the following capabilities: Natural Language Processing (NLP) to help it communicate successfully in English; knowledge representation to store what it hears; further, to utilise the stored information to respond to questions and reach conclusions it needs automated reasoning and machine learning to detect patterns and apply them in new contexts (Davenport et al., 2019:3; Pietikäinen & Silvén, 2021:18; Russel & Norvig, 2010:2).

The Cognitive Modelling approach is about automation of activities that would normally be associated with human reasoning – activities like problem solving, learning and decision making (Russel & Norvig, 2010:3). The Laws of Thought approach, also known as Thinking Rationally, refers to the use of computerised models to study mental faculties (Russel & Norvig, 2010:4). Lastly, there is the Rational Agent approach (Acting rationally), where an agent refers to something that acts. The expectation in this approach is that computers, as agents, should be able to operate autonomously, persist over a longer period, adapt to a changing environment, create and pursue goals. A rational agent is therefore the one that acts to achieve the best results, or the best expected result. According to the Rational Agent's approach, AI is concerned with the intelligent conduct of agents (Russel & Norvig, 2010:2). All computer capabilities listed under the Turing Test approach would allow an agent to become rational (Russel & Norvig, 2010:4).

According to Saghiri et al. (2022:1), the evolution of AI-based systems starts with Artificial Narrow Intelligence (ANI), then continues to Artificial General Intelligence (AGI), and lastly the Artificial Super Intelligence (ASI), which will surpass human capabilities in all dimensions. The ANI type of intelligence refers to intelligent systems that do specific tasks, for example, an agent with capabilities such as face recognition, games playing and fingerprint detection. These agents are programmed to do tasks and cannot detect and formulate tasks that are unknown to them. Meanwhile, most researchers use AGI for those agents whose intelligence is equivalent to human agents. Three types of ASI have been identified, namely: Speed ASI, collective ASI, and quality ASI. Speed ASI refers to an agent faster than a human, collective ASI refers to decision-making capabilities similar to a group of humans, and quality ASI refers to an agent that can do work that humans cannot (Saghiri et al., 2022:2).

ARTIFICIAL INTELLIGENCE (AI) IN SOUTH AFRICA

Most scientific publications on AI are mainly coming from Canada, China, Europe, Japan and the United States of America; Africa is still far behind and this limits innovation opportunities in the field (Sedola et al., 2021:22). Hassan (2023:1429) agrees that most of the AI literature is biased toward Euro-American perspectives and lack the understanding of how AI development is apprehended in the Global South, particularly in Africa. Notwithstanding, a variety of AI systems are being developed and deployed in a creative and transformative way around the African continent. Through machine learning innovations, for instance, African innovators are continuously improving in ways of knowledge production and solving societal challenges (Massiceti & Mohamed, 2018:4). South Africa is well ahead in the continent in AI adoption with a vigorous ecosystem. It is estimated that more than one hundred (100) companies in South Africa are either integrating AI solutions into their operations or are developing new AI-based solutions (Jaldi, 2023:6). Universities and research institutions remain a springboard for AI ecosystems around the world. Researchers, academic writers, and engineers mostly get their head start from universities and research institutions and develop more innovative ideas (Schoeman et al., 2021:13). South Africa is not different from the rest of the world in this regard.

In SA, this trend has been followed by the establishment of AI research-based institutions such as Lelapa, the Deep Learning Indaba, the Artificial Intelligence Institute of Southern Africa, the Centre for

Artificial Intelligence Research, and the Centre for the Fourth Industrial Revolution-South Africa.

Lelapa.AI is a socially embedded Africa-centric AI research and product lab. It is grounded in the African philosophy of Ubuntu, with its mission to use AI to address social and economic challenges in Africa. It accomplishes that by providing artificial intelligence solutions for businesses and organisations in the continent (lelapa.AI).

The Deep Learning Indaba is a grassroots AI organisation founded in South Africa in 2016 (Van Tilburg, 2023:2). The Deep Learning Indaba convenes annual meetings of the African machine learning and AI community. The Deep Learning Indaba is intended to strengthen artificial intelligence in Africa. The Indaba seeks to achieve its goal of creating leadership through the IndabaX programme; Kambule and Maathai awards to demonstrate recognition of excellence in AI research and innovation and use the actual Deep Learning Indaba for community building (Mohamed et al., 2019:4). In 2018 the Deep Learning Indaba hosted Africa's AI researchers and innovators from 35 countries across the continent. This demonstrates that a community of AI researchers and innovators already exists on the continent (Mohamed et al., 2019:4).

Moreover, the President of South Africa has established a commission on the Fourth Industrial Revolution (4IR). The commission's main responsibility includes proposing the country's super strategy for the Fourth Industrial Revolution (Government Gazette, 2020:10). Following the commission's establishment, the Department of Communications and Digital Technologies, the University of Johannesburg and the Tshwane University of Technology collaborated to create the Artificial Intelligence Institute of South Africa. The Institute has been launched to position SA as a competitive player in the field of Artificial Intelligence (AII-SA). According to the OECD/CAF (2022:3), AI can be used by governments to design progressive policies, enhance communication and engagement with citizens, take better and more targeted decisions, and improve the speed and quality of public services (OECD/CAF, 2022:3).

In addition to the President's commission, in 2011 the Centre for Artificial Intelligence Research (CAIR) which is a distributed South African research network was established. It is virtually hosted and coordinated by the Council for Scientific and Industrial Research (CSIR). The main aim of its establishment is to build world class Artificial Intelligence research capacity in South Africa. The CAIR comprises nine established research groups across eight universities. The groups are AI for Development, Foundations of Machine Learning, Applications of Machine Learning, AI and Cybersecurity, Computational Logic, Adaptive and Cognitive Systems, Ethics of AI, Knowledge Representation and Reasoning, and Probabilistic Modelling. The CAIR conducts foundational, directed, and applied research into various aspects of AI through these groups. The centre is funded primarily by the Department of Science and Innovation (https://www.cair.org.za/about).

Lastly, the Minister of Science and Innovation announced the new Centre for the Fourth Industrial Revolution South Africa in 2019. The centre is aimed at driving the adoption and responsible deployment of emerging technologies in South Africa. The centre is an affiliate of the World Economic Forum's global network of centres for the Fourth Industrial Revolution, which are aimed at fostering collaboration and dialogue on the ethical and responsible deployment of emerging technologies (Gwagwa et al., 2020:13; https://c4ir.co.za/about-c4ir-sa/).

AI IMPLICATIONS FOR STRATEGIC COMMUNICATION

Reflecting on the latest strategic communication developments, Overton-de Klerk (2023:7) highlighted some key shifts in the field. One is that a postmodern paradigm has replaced hierarchies and facilitates the development of new structures informed by dialogue-based communication. Consequently, communication has moved from top-down to multidirectional, dialectical to diagonal and from predictable to ambiguous. Secondly, the responsibilities of a manager have changed to that of a facilitator who creates organisation-stakeholders participation and discourse platforms (Overton-de Klerk, 2023:6). Moreover, Benecke and Phumo (2021) postulate that metamodernism offers an alternative paradigmatic lens through which to understand and examine strategic communication practices. In this case metamodernism is viewed as the 'both-and' approach or ontological fluctuation between modernism and postmodernism,

based on the contextual demands of the communicative action, the metamodern approach negotiates appropriate practices.

Benecke & Phumo (2021) further argue that strategic communication has been thrown into a new reality that it is ill-prepared for, namely the influence of technology. Similarly, the 2019 Global Communications Report revealed that about 40% of public relations or strategic communication practitioners are not knowledgeable about the potential of AI in communications, while another 46% are only somewhat aware of the impact of AI on communication (Global Communications Report, 2019:29). AI has a direct influence in not only the strategic communication field, but also on the way society lives, conducts business, and arranges social dynamics. Technology influence is also seen in the way society uses mobile devices for communication and participating on social media (Kushchu & Demirel, 2020:6). Similarly, Bakhshi and van Duin (2018:17) observe that most industries are witnessing a significant change in functioning because of the adoption of AI in work processes and systems. The increased accuracy, availability, and ease of implementation of AI systems creates opportunities for organisations to integrate AI into their operations. This integration is embarked upon to minimise costs, enhance customer experiences, better operational processes, improve stakeholder collaboration, and to help achieve set goals (Mingotto et al., 2020:493). All these innovative operations supported by the AI impacts directly on strategic communication practice and research approaches.

This has been observed in both public and private sector organisations in South Africa, as discussed under the subheadings to follow. According to Kaczmarek-Śliwińska, 2019:66; Liew, 2021:26 and Panda et al., 2019:2, some AI-based innovations that impact the strategic communication field include the following: The creation of typical information of a repetitive nature, which can be defined as predictable (e.g. activities of spokespeople); delivering standard information packages in a short period of time (e.g. communication with customers/stakeholders). Further, AI makes it possible to verify perceptions (stakeholder/customer surveys); AI helps to customise messages to meet the needs of a specific stakeholder group. AI can also perform basic media relations functions such as press releases, and allows strategic communicators to save time in order to spend it on advancing relations with journalists. AI can manage internal communication within an organisation. AI can further provide a real-time synthesis of data from multiple sources (such as traditional media, news websites, social media) and determine potential crises as well as attitudes from these media; AI is able to maintain stakeholder relations and increase brand loyalty through lead nurturing, and fulfil a basic conversational role through chatbots. Chetty et al. (2023) concur that AI-driven innovations, such as ChatGPT, are becoming increasingly adept at performing tasks that have traditionally been reserved for human workers.

Strategic communication practitioners have now embraced some elements of AI and this is having a significant impact on the field. The re-emergence of AI is demonstrating that computers and machines can perform duties that were known to require human intelligence. Strategic communication is one of the fields that is on the threshold of the AI revolution; through strategic communication, organisations segment messages for different stakeholders at the appropriate time (Kaczmarek-Śliwińska, 2019:67). With the application of AI technologies, organisations can measure strategic communication efforts and work towards alignment of organisational goals. AI has the potential to automate and perform various strategic communication activities in an organisation. These activities include, among others, developing data-driven content, aiding in crisis management, engaging in stakeholder dialogue, customer service, organising and updating media lists, converting, and transcribing audio into text, and monitoring and managing social media (Panda et al., 2019:1).

Although the adoption of AI in the field of strategic communication has not become a standard yet in South Africa, the interest in embracing AI is, however, growing. The following subsections focus on some key strategic communication functions that have been impacted by the emergence and application of AI innovations.

AI in communication campaigns

Global amelioration of computer usage and access to big data have contributed to the progress made in AI since 2010. This has led to the convergence of AI and strategic communication, leading to new ways to optimise communication campaigns (Nobre, 2020:5; Samek et al., 2018:56). The routine work of strategic communication practitioners would normally include, among others, the drafting of communication campaign strategies and campaign plans, writing and distributing press releases and handling public relations crises. Working with multiple stakeholders' data regularly takes a lot of time of these practitioners. AI has altered aspects of these practitioners' work and relations between stakeholders within the public relations industry (Nobre, 2020:4; Panda et al., 2019:2). AI is bringing changes to the routine tasks, systems, management, and workflow in the strategic communication practitioners' space. Moreover, AI's ability to process human language (also known as *natural language processing*) has allowed organisations to understand individual behaviours, preferences, beliefs, and interests, enabling them to deliver more efficient communication campaigns (Ardila, 2020:16).

Strategic communication practitioners planning a campaign can now take decisions informed by scientific data and insights originating from AI-powered computer algorithms (Samek et al., 2018:51). In a short space of time, by means of algorithms, communication practitioners can scan social media and other data sources they would need to effectuate a campaign. Algorithms can provide useful data in making decisions relating to starting a communication campaign, relevant content, channels, and audience targeting (Panda et al., 2019:6).

The OMO Mobile Loyalty Program campaign is one typical case study of an AI-powered communication campaign. The OMO digital campaign involved engaging mothers and driving customer loyalty in an environment where price determines the traffic. To maximise its client reach, OMO turned to the mobile phone to deliver custom messages from their brand ambassador. This was done through easy-to-use voicemail technology. While only sixteen percent (16%) of consumers in South Africa own a smartphone, seventy-five (75%) percent use Short Message Service (SMS) and Unstructured Supplementary Service Data regularly. OMO increased brand engagement by going beyond a simple text to sending out a mobile campaign to reach mothers. The SMS opt-in consumers received automated special messages, offers, surveys and other news via SMS. In this way consumers and potential consumers were identified, hence an ongoing communication with the brand. The Mobile Loyalty Program campaign is now an ongoing priority for the OMO brand. Data reveals a significant increase in the volume of loyal OMO-household spending (OMO Mobile Loyalty Program: 2012).

AI-powered communication campaigns are not only employed in corporate communication campaigns, but have become increasingly significant in political communication campaigns. A variety of AI methods are used to track online activities, including the monitoring of political candidates and political parties' websites during elections and the thematic analysis of press, blogger and academic accounts of digital campaigns (Williamson et al., 2010:2). The Democratic Alliance, for instance, earned praise for its use of social media in the local government elections (Britten, 2011). AI communication campaigns are being used by political parties, candidates, and citizens to raise awareness and garner support (Williamson et al., 2010:iii). AI adoption in social media amplifies political campaigns and the messages of political candidates. Through AI-powered algorithms, social media platforms enable four digital communication campaign techniques. One is electorate micro-targeting, personalisation, direct interaction, and sustained engagements (Uwem, 2022:41).

AI in stakeholder engagement

Strategic communication practitioners' role, among other tasks, is to engage stakeholders on behalf of an organisation. AI systems have demonstrated that machines are slowly taking charge of this function. This is done through several AI applications; to date thirty-seven (37) chatbot start-ups have been established in South Africa. These start-ups are providing not only strategic communication functions, but different services to both private and public sector organisations (https://tracxn.com/explore/Chatbots-Startups-in-South-Africa). The Botlhale AI Solutions, for example, is a research and innovation start-up that

specialises in conversational AI. Conversational AI refers to the use of messaging applications, speech-based assistants and chatbots to automate communication and generate a personalised citizen's experience of services (Microsoft, 2022:23).

As there is normally a huge number of queries in big organisations, the use of conversational AI becomes useful in reducing query resolution time and queries can be solved effectively (Microsoft, 2022:23). Therefore, Botlhale provides AI services that help big organisations such as government entities to engage with communities and service the public effectively, using nine African languages spoken in South Africa (https://botlhale.ai/about-us/). Such a start-up is essential because, according to the Access Partnership (2018:11), citizens' experience of public services can often be a challenging exercise in many African countries. Provision of services is mostly characterised by lack of accuracy, slow response time, and generally poor quality, resulting in low satisfaction levels in the communities.

In addition to the Botlhale AI Solutions, is the GotBot AI. The GotBot AI uses artificial intelligence to help enterprises manage their customer interactions, this by automating day-to-day tasks (https://www.gotbot.co.za/case-studies). Interaction such as giving feedback to clients' enquiries is now automated, a machine handles such a task. Similarly, the Hi.Guru is an AI company that creates a business conversation hub, connecting clients' business to their customers, employees, and processes through smart instant messaging (https://www.hi.guru/about/).

One interesting Conversational AI case study was the bringing of AI-supported change in a financial services environment, the case of BDO. The company Binder Dijker Otte (BDO) faced the challenge of transforming the way audits are run and improving the collaboration and exchange of data between clients and auditors in a way that provides a competitive edge in the market. In response, the Conversational AI solution introduced a personalised conversational interface that integrates webchat within the organisation's auditing tool. The solution facilitated the roll-out of Multi-lingual National Language Processing and Machine learning to support questions within the Microsoft Question & Answer page. Lastly, it introduced automatic AI Data Classification to highlight anomalies and recommend outcomes. Now a Conversational AI solution enables BDO to provide innovative and automated support for its clients in a highly regulated environment (OpenDialog, 2022:9; https://www.bdo.mu/en-gb/about/bdo-in-mauritius/bdo-history).

AI automating processes

Digitisation and automation of the communication function is indeed unavoidable in the 21st century; the disruptive nature of AI technologies have impacted stakeholders' experience of organisational communication. Organisational process automation involves AI's applications that are standardised in such a way that they require imposition of logic and consistency (Davenport et al., 2019:4). The Gauteng Department of Education in South Africa, for example, developed the Online Admissions Application system which applies standardised rules and algorithms to advance what officials would do over a longer period (OECD, 2022). Prior to the development of the Online Admissions Application system, learners' parents were required to apply for their children's admission to schools by physically moving from one school to the other, seeking placement. This practice sometimes included parents having to wait in long queues before they could be assisted (OECD, 2022). This innovation has not only impacted the department's leaner enrolment process but has also enhanced the way the department interacts with parents as key stakeholders.

Another AI case study is that of the Rethabile Clinic in Polokwane. The pilot AI project was rolled out by the Mint Group and the Limpopo Department of Health (DoH). The purpose of the project was to establish the viability of healthcare, with AI enabling improved patient care.

It started in November 2018 and concluded in April 2019. It involved monitoring and managing 25 000 patients per month. Upon completion the following, among others, had been achieved: increased efficiency and communication from clinic staff; electronic record-keeping of patient information; attendance and performance tracking of healthcare staff, appointment management and reduced lag times (https://za.mintgroup.net/resources/case-studies/ai-pilot-results-at-limpopo-clinic-case-study/).

The main aim of process automation is to streamline processes and eliminate inefficiencies in an organisation. Process automation is an essential element of business process management (BPM), which is also referred to as business process automation (BPA). An increase in automation preference by organisations equates to increased competitiveness in the job market. Most employees, more than before, would now need to develop an understanding of AI approaches (Ferreira, 2021:31).

AI in dialogue

A postmodern paradigm in strategic communication promotes communication that is based on dialogue. Communication has thus moved from dialectical to dialogical, from fixed to emerging, from top-down to multidirectional, and from predictable to ambiguous within the chaotic contexts in which it operates (Overton-de Klerk, 2023:6). The theory and research on dialogue can be traced to Martin Buber's seminal text *I and Thou* in 1923. According to Buber, human interaction should be guided by human kindness, not by manipulation. Martin Buber regarded presentness and acknowledgement of others as a prerequisite to dialogue (Kent & Lane, 2017:569; Sommerfeldt & Yang, 2018:60). Kaptein and Van Tulder (2003:227) explicate that dialogue is a mechanism for stakeholder involvement in decision-making processes and a collaborative means of resolving organisational conflicts. In the same vein, Uysal (2018:101) emphasises that the concept of dialogue focuses on genuine and meaningful interactions between stakeholders and organisations.

The critical assumptions of dialogue are *mutuality*, which refers to the recognition of organisation stakeholder relationships. Secondly, *propinquity*, which refers to temporality and spontaneity of dialogue with stakeholders. Thirdly, it is *empathy*, which means supportiveness and confirmation of stakeholders' goals and interests. Fourthly is *risks*, referring to the willingness to interact with individuals and stakeholders on their own terms. Lastly is *commitment*, which refers to the extent to which an organisation allows space for dialogue (Uysal, 2018:101).

Part of AI is a computer program called Virtual Agent. Virtual agent is designed to engage with humans in the form of a chatbot that would normally appear on organisations' websites. Chatbots are designed, with the help of machine learning, to give a specific and customised response to stakeholders' questions. Organisational functions that would normally require a human, such as client contact, are now performed by virtual agents (Dutta et al., 2022:5; Microsoft, 2022:21). AI's application, virtual agents for example, may not be a replacement for strategic communication professionals, but its role in interacting with stakeholders directly impacts traditional dialogue as explained here.

The emergence of social media has also augmented organisations' dialogue initiatives with stakeholders. AI-powered tools are aiding in finding, scheduling, managing, and reporting on social media content more feasible for strategic communication professionals. AI with its self-learning capabilities offers strategic communication professionals a tool, not only to harness insights from the massive social media data, but also a system to respond autonomously to tweets, queries, grievances, posts and other messages on the social media. Various social media platforms are using AI to customise and personalise newsfeeds and posts. Moreover, major e-retailers are using AI to send offers to the users, based on their social media and internet browsing behaviours (Panda et al., 2019:6). Social media and other AI innovations have created several opportunities; however, challenges associated with the technology remain.

Despite the successful integration of AI approaches in various strategic communication applications, there are still challenges and questions that need to be addressed (Samek et al., 2018:49). The following section expands on some of these challenges.

AI CHALLENGES

The information age is a complex ecosystem of big data technologies, mediums, private and public actors. The massive digitisation allows access to information and its dissemination to be performed mostly through AI-driven means of communication. As much as AI's potential is vast, so are the consequences of its unintended uses, especially with an uncertain future we are all facing now (Kushchu & Demirel,

2020:58). There are serious expectations from the AI technology, but there are also complex technical challenges and ethical issues that are directly impacting strategic communication and seem to be unsurmountable. Davenport et al. (2019:8) and Pietikäinen & Silvén (2021:14), for example, state that although chatbots can be more effective in engaging customers and stakeholders, research shows that if it is disclosed to customers that they are engaging with chatbots, they tend to be less responsive. Customers assume that AI chatbots are less empathetic and as a result customers participate less in engagements (Davenport et al., 2019:8).

Moreover, lack of transparency and accountability in the AI field can be identified as one key challenge directly impacting strategic communication; this is becoming more visible as AI systems are intensively rolled out (Gwagwa et al., 2020:3; Kushchu & Demirel, 2020:59). T*he Global Disinformation Order 2019: Global Inventory of Organised Social Media Manipulation* report by Bradshaw and Howard, (2019:2), for instance, states that AI is increasingly used for organised manipulation of public opinion. Some countries today groom special cyber-forces that actively utilise social networks to influence public opinion in certain countries. This could mean that there is a danger that AI creates new opportunities for fierce information-wars and emotional infection.

The literature has demonstrated that AI-powered innovations have the potential to address many of humanity's pressing challenges through, for example, instilling the use of conversational AI, facilitating stakeholder engagement, automating services, improving collaboration, and providing better education. However, this comes with risks of entrenched and worsening social inequality, especially in communities such as South Africa, where access to data is still very expensive for ordinary members of the society. (Hagerty & Rubinov, 2019:2). Another challenge with AI is that it is much easier for big corporations that own the online space, to exert their control not only over the technical, but also the substantial side of communications. The movement of information becomes more dependent on how Artificial Neural Networks and big corporations choose content for users, in that they can promote selected content and remove any content they believe to be unfavourable or against their standards (Kushchu & Demirel, 2020:58).

Recently, some AI challenges such as fairness, ethics, and robustness have been reported during the development of intelligent systems. As the usage of intelligent systems increases, the number of new challenges are also bound to increase (Saghiri et al., 2022:1).

Moreover, notwithstanding some remarkable successes and an ever-expanding presence in everyday life, AI frequently suffers from overselling, which leads to multiple issues. The overselling of AI can create unrealistic expectations and the perception that it is a cure-all to everyday societal problems rather than a tool to support positive change (Holmes et al., 2022:17). The Gauteng Department of Education Online Admissions Application System, for example, went live in April 2016 and suffered technical failure because of the high volume of applications. The enrolment process had to be suspended for 48 hours (OECD, 2023).

RECOMMENDATIONS

Several international scholars have argued for a multidisciplinary approach to strategic communication, with some references made to the need for a transdisciplinary focus to address both the diverse contexts involved, and the demands of an interconnected society (Benecke et al., 2021). There is a growing number of big multinational organisations planning to roll out AI solutions by 2025 (Kaczmarek-Śliwińska, 2019:65). This directly impacts on the multidisciplinary scope of strategic communication studies in organisations. The multidisciplinary approach in strategic communication has long been about revealing commonalities in various disciplines to understand how research in these different disciplines inform academic and professionals alike on communicating deliberately (Holtzhausen & Zerfass, 2013:74). In line with the multidisciplinary approach, this article proposes that future research be undertaken on *examining how organisations can leverage on AI tools to collect and analyse data and respond to stakeholders' concerns in real time*.

Commonly, the multidisciplinary approach in strategic communication research has mostly been

about the fields of Public Relations, Marketing Communication and Organisational Communication. The recommendation of this paper is that multidisciplinarity in strategic communication should consider the effect of AI on the field, hence the proposition of a future research topic on *the evaluation of the role of AI-powered chatbots in improving stakeholder engagement*. Considering the discussion on the AI implications for strategic communication, the integration of AI in strategic communication research becomes important for holistic organisational research in strategic communication.

Moreover, the easy creation and circulation of content in this digital age necessitates that the role of strategic communication practitioners evolve. They need to anticipate, work towards collaboration and co-creation with stakeholders. Strategic communication practitioners used to spend time preparing messages that are favouring their organisation's mission and deciding on which communication channels to distribute these carefully developed messages. The above discussion of the implications of AI for strategic communication demonstrated that AI technologies have compelled the role of a strategic communication practitioner to transform as well.

In this digital age, any person with access to a communication platform, such as social media, can be seen as a strategic communication practitioner, because the person can create their own content informed by their experience or interpretation of any information. Moreover, the more sensational the type of content, the easier it circulates and attracts the attention of audiences (Nayager, 2021). Strategic communication practitioners should be equipped with deep knowledge of technology gadgets and the constantly changing social media platforms and familiarise themselves with technology-driven emerging roles in organisations. As Benecke et al., (2021) put it, technology is often seen as a panacea for communication and is mooted as a driver of innovative communication solutions. It is therefore important for future research to examine the effectiveness of AI-driven communication strategies during crisis situations. The proposed potential future research areas suggest a starting point for exploring the complex relationship between AI and strategic communication. Multidisciplinary researchers can then search deeper into these areas to address the challenges and opportunities presented by AI technologies and the emerging strategic communication field.

CONCLUSION

The flood of new technologies in the strategic communication field comes with new realities and complexities which necessitates a change of mind and broadening of the scope of the field. AI offers another paradigmatic lens through which to understand and examine strategic communication practice. The discussion on AI's implication for strategic communication explored several variations that strategic communication scholars need to consider when they think and how they think about strategic communication.

This article has identified AI's role in stakeholder engagement, communication campaigns, dialogue and the automation of services. AI approaches have demonstrated that the field is multidimensional and cuts across different fields of study.

AI comprises a set of technologies that have completely transformed the nature of organisational leadership. Several strategic communication-related tasks have been automated. AI systems have improved the way dialogue, communication campaining, stakeholder engagement, citizens' participation and customer liaison in most organisations are conducted. The systems are providing new platforms for stakeholders and citizens to assess the quality, adequacy, and effectiveness of services organisations provide.

Most significantly, the article has highlighted that AI carries the necessary technology to enhance strategic communication and the broader field of public relations, automation of tasks being a leading AI tool in this field. AI challenges have also been identified and discussed.

AI is relevant not only to the field of strategic communication, but to any intellectual task; in this sense, AI positions itself as a truly universal field.

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The influence of artificial intelligence on the strategic communication industry

Abstract

Artificial intelligence (AI) and the continuous advancements in technology have changed how individuals live and how organisations function. The move to automation questions the need for and value of manual labour, particularly in the field of strategic communication. It has raised concerns about the future of jobs in the communication field and the role of humans in these advancements. The principles of the theory of disruptive innovation are applicable to the study. This study aims to explore the role of AI in the strategic communication industry. Semi-structured interviews with communication professionals in the South African strategic communication industry were conducted to explore their knowledge of AI and its role in the industry. Participants indicated a basic knowledge of the role of AI in the industry, agreeing that AI offers the benefits of convenience and efficiency. However, human input should remain valuable and training in AI technologies should be prioritised. This study contributes to the limited research on the role of AI in the strategic communication industry in South Africa.

Keywords

AI; convenience; human skills; strategic communication industry; training and development

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INTRODUCTION

A survey by the World Economic Forum (WEF) (2023) predicted that by 2027 approximately 14 million jobs would be obsolete globally. The African Development Bank equally predicted that by 2030, 100 million youth on the African continent will not find new employment (Okoth, 2023). Accelerated by the COVID-19 pandemic, there has been faster adoption of AI technology (McKinsey & Company, 2023), which is evident through the surge of e-commerce, the shift to remote work, and the rise of chatbots. AI has demonstrated that it can ensure efficiency and convenience for organisations and consumers alike through reduced costs and rapid problem-solving (Huang & Rust, 2021). In the strategic communication industry, agencies use collaborative applications such as Microsoft Teams and Zoom for remote work, which have introduced AI tools such as increased cross-collaboration and personalisation (Wiggers, 2023, 2022). Moreover, the implementation and use of internal and consumer-facing chatbots with personalised features have made communication convenient (Sae, 2020). However, concerns have been raised in the industry about the perceived negative consequences of technological developments such as AI including job loss, the erosion or obsolescence of skills, the subsequent stagnation of median income, and the

growth of inequality (le Roux, 2018; Burgess & Connell, 2020), more especially in developing countries such as South Africa (SA) (le Roux, 2018). A report by In On Africa (IOA) (2023), an Africa-focused research and business consultancy group, stated that despite the growing use of ChatGPT, South Africans have expressed concern about job losses because of AI. The biggest fear about the future potential effect of AI is over-reliance on AI, undermining human intelligence and creativity. A cross-national study among 2,689 European communication practitioners by Zerfass et al. (2020) revealed that creativity, critical thinking, and relationship-building skills are key competencies that AI cannot replace. In a study about AI and communication by Sandpiper (2023) conducted on 406 communication professionals, it was revealed that "soft skills such as leadership abilities, strategic advisory, creative thinking, and relationship building" will become more important to influence stakeholders' behaviour and achieve organisational goals. The training and development of communication professionals is crucial to ensure that they remain adaptable to these technological advancements (Zirar et al., 2023). However, communication professionals in the IOA (2023) and Sandpiper (2023) reports, disclosed that there is a lack of training on AI tools, often because the industry leaders do not have a comprehensive understanding of AI. These perspectives appear to shape the role of AI in the strategic communication industry, there is thus a need to explore this phenomenon deeply. Such a study will contribute to the limited body of knowledge and provide insight to communication professionals and leaders about how to navigate the continuing technological changes in the industry.

THEORETICAL FRAMEWORK

In the 21st-century communication landscape, innovation is unavoidable and essential for an organisation's long-term success. Innovation can support human ideas by contributing to efficiency and enhancing how organisations connect with their consumers in the communication industry (Dawar & Bendle, 2018). Appropriately, scholars have described AI as a generative, transformative, and reshaping innovation, (Bughin et al., 2018; Haefner et al., 2021; Lu, 2019). This study thus considers AI as a disruptive innovation in the SA strategic communication industry.

Disruptive innovation, a theory developed by Clayton Christensen in 1997, elaborates that technological innovations can cause meaningful disruptions for organisations (Christensen, 2005). The theory explains that an innovative product or service can create convenience and efficiency, challenging previously expensive and time-consuming processes. Christensen (2005) identified five principles of disruptive innovation, these are: "(1) companies depend on customers and investors for resources; (2) small markets don't solve the growth needs of larger companies; (3) markets that don't exist can't be analysed; (4) an organisation's capabilities define its disabilities; and (5) technology supply may not equal market demand".

The principles of the theory of disruptive innovation highlight that even though innovations as a result of developments in technology will continue to affect industries, organisations must assess how these changes affect the industry and how the innovations can best be implemented to achieve organisational goals while acknowledging the role of humans and attempting to protect their livelihoods (Bughin et al., 2018; Haefner, et al., 2021; Lu, 2019). Similarly, applied to this study, innovations of AI should be implemented with the understanding of the needs of the stakeholders because addressing the needs of the stakeholders will likely lead to stakeholder satisfaction subsequently leading to stakeholder motivation and loyalty. Stakeholder satisfaction is identified as a critical success factor for organisations (Maqbool et al., 2020), thus for the introduced innovation to be beneficial to organisations, the technology must satisfy the needs of its stakeholders. This highlights the important role of humans in AI because the value of innovation is dependent on the needs and contributions of humans as stakeholders, more so because technological innovations do not have the human traits of emotional intelligence, contextual understanding, creativity, and adaptability (Montemayor et al., 2022; Hassani et al., 2020), which are qualities that are valued in the strategic communication industry to influence human behaviour and build relationships.

Despite the concerns that AI as a driver of Fourth Industrial Revolution (4IR) technologies threatens jobs because of automation, Phala (2020) states that "the innovation of 4IR technology should enhance

the interaction between humans and machines to improve productivity in the workplace". More especially in the communication industry where human skills are critical for survival. However, an inadequate understanding of strategic communication, 4IR, and AI and its influence on the strategic communication industry may reinforce fears about the role of AI, humans, and the future of work in the industry. It is therefore important to review recent literature on this subject.

REVIEW OF THE LITERATURE

According to Hallahan et al. (2007), strategic communication embodies six communication disciplines including public relations, organisational communication, and business communication. The emergence of the discipline has been largely driven by technological developments, the proliferation of social media especially, has shifted power from organisations to consumers (Hou & Fountaine, 2016). The new consumer or prosumer, has the opportunity to create and engage with content desirable to them, requiring brands to be more strategic in how they engage with them (Archer & Harrigan, 2016). Strategic is a distinct feature of strategic communication, which speaks to developing, implementing, and assessing purposeful communication for internal and external stakeholders with the aim of influencing their knowledge, attitudes, and behaviour (Hallahan et. al., 2007). Strategic communication, according to Overton-de Klerk (2023), values "dialogue, self-organisation, bottom-up, convergence, collaboration, accountability, influence and conflict or dissent". These principles reflect the rapidly changing communication landscape characterised by demanding stakeholders who want immediate and meaningful experiences globally and locally (Falkheimer & Heide, 2018). These consumers prefer interactive visual communication dominantly offered by digital media in the 4IR (Herman, 2019).

Schwab (2016) described 4IR as "a time in which everything is continuously evolving and technologies are blurring the lines between physical, digital and biological spheres" affecting almost every industry globally. The available technology has allowed organisations and humans to do more with less, thereby creating new experiences and opportunities (Shwab, 2016; Oosthuizen, 2022). The COVID-19 pandemic and the imposed national lockdowns accelerated the global adoption of 4IR technologies and AI (Mathe, 2021), resulting in exponential growth for e-commerce services (Tong & Ali, 2022). Globally, this resulted in consumers sourcing, procuring, and delivering goods using e-commerce (Tong & Ali, 2022). Statista (2022) in its e-commerce report of 2021, revealed that "e-commerce increased by 19% globally", led by the United States of America (USA), China, and Europe. In SA, Molewa (2021) stated that in 2021, UberEats reported substantial growth while Takealot, which Browdie (2021) identified as the leading e-commerce business in SA, gained $238 million in n Pay, and Checkers also introduced e-commerce services as a result of the increased demand for online shopping (Browdie, 2021). Due to SA's high smartphone adoption rate, e-commerce services are frequently offered through mobile applications, making the dissemination of and access to products, services, and data convenient (Sardjono et al., 2021). The use of mobile applications is not limited to e-commerce services, they are also used for recruitment.

Recruitment organisations have simplified the recruitment process by developing mobile applications, which job seekers use to search and apply for jobs (Meccawy et al., 2018). Mobile brands Apple, Samsung, and Huawei have introduced smartphones with long-lasting battery life, enhanced camera and voice features, and storage space to make the job search experience effortless (Chiwara et al., 2017) on popular websites such as Careers24, PNet, and JobMail, among others in SA (Smith, 2021). This convenience provides underprivileged individuals and groups with opportunities to join online job searches despite the high cost of data in SA (Madubela, 2019).

The demand is fuelled by the desire of new consumers for more convenience, ease, and instant gratification. Morgan (2022) explains that "modern customers want what they want, and they want it now, thus speed and convenience matter to customers more than ever, and brands that deliver instant gratification have a huge competitive advantage". Moreover, speed and convenience are not limited to shopping and delivery time but also engagement throughout the consumer journey, whereby brands that reward and tailor product information to consumers are most likely to experience repeat purchases (Jeon et al., 2021). Opportunities to directly dialogue with, review, and recommend brands also influence

consumers' repeat purchases (Lee *et al*., 2007).

The effect that innovation and technology have on labour markets should not be limited to the advantages of simplicity, convenience, and reduced costs. Although robots are performing tasks faster and more precisely (Ade-Ibijola & Okonkwo, 2023), human skills cannot be neglected, especially in industries that are centred on relationship building (Zerfass et al., 2020). In the agriculture and construction sectors, it is easier for automation to replace human jobs (Subeesh & Mehta, 2021); however, in the strategic communication industry where human interaction is important, automation would likely prove futile. This is because influencing and engaging stakeholders is fundamental to organisational success (Besley & Dudo, 2022). Meaningful influence and engagement require relationship building that can only be achieved through emotional connections which are natural to humans. Hence, some studies emphasise that technology should cooperate with humans instead of replacing them (Sandpiper, 2023). These studies term this collaboration, human-robot collaboration, the scholars explain that organisations are likely to achieve significant performance improvements when humans work hand-in-hand with machines (De Simone et al., 2022; Semeraro et al., 2023). Humans possess qualities that machines do not possess such as empathy, emotion, creativity, and critical thinking (De Simone et al., 2022).

AI can be simply explained as simulating human intelligence into machines (Jakhar & Kaur, 2019). AI is advancing at a rapid pace, and it has the potential to bring great benefits to the economy by boosting productivity and creating new and better products and services. At the core of AI is convenience, such as managing daily life through personal voice assistant technologies such as Amazon's Alexa and Google's Home Assist (Ameen et al., 2021), as well as grocery assistance AI technologies such as Checkers Sixty60 and Woolies Dash, which are popular in SA (Musakwa, 2021). AI convenience also extends to the healthcare sector with powerful surgical robots performing surgery (Montemayor et al., 2022); and in terms of data privacy whereby AI cooperates with blockchain to provide more personalised and protected data (Gentsch, 2019). Despite this convenience, AI has raised the issue of job losses. Recent research by Future Workplace found that "above 60 percent of people trust robots due to their precision and "lack of bias" (McKinsey & Company, 2023).

Research conducted by CNBC states that "thirty-seven percent of workers between the ages of 18 and 24 are worried about new technology eliminating their jobs" (Douglas, 2019). In Africa, Forkuo Yeboah (2023) reports that some of the population believe that machines will make human jobs redundant in the next few years as machines and computer programs replace many jobs that are currently done by humans. These concerns are exacerbated by the fact that African citizens do not trust their governments to put strategies in place that will ensure that there are no job losses because of technology (Mbandlwa & Dorasamy, 2022), particularly critical digital skills such as data scientists and ICT system analysts (Nkanjeni, 2022). The lack of skills is often attributed to the lack of training and development of staff, Allais (2021) asserts that the COVID-19 pandemic exacerbated this scarcity of skills. The lack of skills implies that disadvantaged groups are excluded from participating in the economy. In the marketing communication industry, professionals have complained that they do not receive frequent training to equip them with skills for the future (Forsey, 2022; Maytom, 2018). Limited organisational capital is often a major hindrance to training staff (Forsey, 2022; Maytom, 2018), particularly in the strategic communication industry.

4IR and AI have placed great pressure on traditional communication, with print-only newspapers and magazines transitioning to digital only. It has also changed how research is conducted. For instance, AI offers smart technology to assist with conducting systematic literature reviews, collecting and analysing data through inexpensive data gathering, and analysis through online data tools such as Teamscope and KoboToolBox (Muthyala, 2021). Research reveals that AI can automate approximately 80% of work (Joshi et al., 2018). These AI tools accurately identify patterns in the data to draw insights, the great advantage is that the data analysis is unbiased, enhancing the credibility of the insights (Joshi et al., 2018). Moreover, the rise of ChatGPT, an AI-powered chatbot platform that enables human users to converse with machines, permits communication specialists to not only conduct secondary research faster but also brainstorm campaign ideas and write copy (Rivas & Zhao, 2023). Advertising has also transformed to include increased personalisation and rich media through the use of software such as Canva and Adobe,

which are used for design to ensure streamlined content creation, consistent visual identity, and easier editing (Weatherbed, 2023; Herman, 2019). Internal and consumer-facing chatbots have also become popular AI tools for instant communication and problem-solving (Sae, 2020), even though consumers report that these technologies are programmed to share limited information, lack transparency and human empathy (Jenneboer et al., 2022). The absence of human input overlooks nonverbal cues which contribute to meaningful insights. Such meaningful insights are important to influence behaviour, a key objective of strategic communication campaigns.

In SA, a country characterised by diversity, cultural nuances can only be understood through human engagement (Andrews & Human, 2018). This reinforces the importance of humanness. Organisations in the strategic communication industry need to make sure that even if they change and adopt new technologies within their operations, humanness should be protected and maintained. Training and development of employees is crucial to ensure that they possess the skills to adapt to the changes. Fleming (2020) states that while it is a certainty that AI will replace some jobs, the value employees add to remaining jobs increases. The training of these workers is important to equip them with understanding of the new technology and the critical thinking skills to function and communicate in the future workplace. More especially, in the SA context where knowledge about AI technology is unfairly distributed, mostly because of social and economic disparities as well as what Tiwari (2023) terms ignorance. However, studies by Sandpiper (2023) and IOA (2023) revealed that even though employees are increasingly using AI technologies such as ChatGPT in the workplace, leaders in the industry are apprehensive about formally introducing AI technologies. This is often because of their lack of understanding about these constant developments and fear of job losses (Sandpiper, 2023, IOA, 2023). Fleming (2020) and Verwey (2022) elaborate that training and development should start in the education sector, preparing learners and students to be future-fit. Murphy and Taylor (2023) refer to the democratisation of AI, which is explained as the participation and inclusion of all populations in AI despite their digital expertise. Thus, training will debunk the perception that understanding of AI is solely for digital specialists.

METHODOLOGY

This study was exploratory in nature, which was a suitable methodological approach to understand the research participants' experiences and knowledge of the phenomena under investigation. It is for this reason that the qualitative research approach was used in this study. Ravitch (2021) elaborates that qualitative research is a commonly used research approach in social sciences, it aims to understand human and social interaction as experienced and perceived by the participants. The main research question was: how does AI affect the industry according to strategic communication professionals? The research population consisted of SA strategic communication professionals who were recruited on LinkedIn. Using LinkedIn to recruit the participants was suitable because it is a social media platform used for business purposes, and it provides profiles about the qualifications, occupations, and skills a user has (Nations, 2020). Purposive sampling in non-probability sampling was used to draw a sample of eight communication professionals ranging in speciality and seniority. These included brand and communication strategists and a social media manager and copywriter. The participants were purposively selected because they possess the expertise needed to provide in-depth insights on AI, the influence of AI on the strategic communication industry, and the role of communication professionals in the changing industry. Semi-structured interviews were conducted using open-ended questions to obtain detailed information about the research question. An information sheet detailing the purpose of the study was used to approach the research participants.

Ethically, the principles of informed consent and voluntary participation were adhered to, to protect the confidentiality of the participants. Consent forms were distributed and signed by each of the research participants. Thematic analysis following the Miles and Huberman (1994) three-step model was used to analyse the data. The model includes "data reduction", "data display", and "drawing conclusions" (Miles & Huberman, 1994). The data was reduced to codes that were translated into themes used to draw conclusions.

FINDINGS

The semi-structured interviews demonstrated that the participants as communication professionals had an understanding of how AI affects the strategic communication industry. Three main themes emerged to answer the research question. These three themes are: AI convenience; the value of human skills; and training and development of communication professionals.

Most of the participants agreed that the key advantage of AI for the strategic communication industry is convenience; convenience regarding the easing of tasks that were previously complex and tedious. *"AI has helped simplify some tasks, allowing users to bypass traditional ways of gathering knowledge/ performing tasks."* – Participant 3. *"Artificial intelligence is a system that allows technology to conveniently perform tasks previously only done by humans. It can range from simpler systems (such as a mobile phone's virtual assistant) to more complex systems that are able to solve problems and run autonomously."* – Participant 4.

Despite this, most of the participants emphasised that human skills remain crucial in the strategic communication industry despite the efficiency of AI. Human skills also referred to as soft skills permit relationship building between stakeholders through empathy and understanding. *"I believe that strategic communication will continue to be increasingly important in the future. While technology is present in the industry, I think that communication roles such as copywriting will still require human copywriters"* – Participant 1. *"Communications is still a very people-centred function, one heavily reliant on behaviours, context, language and nuances that are constantly changing"* – Participant 4.

Finally, to attain the greatest value from these innovations, the participants emphasised that the training and development of communication professionals should be prioritised to enable their adaptability in the changing industry. *"Advocate for the importance of upskilling communication practitioners and the development of 'local' practitioners and practices"* – Participant 6. *"One of the biggest issues companies in general have is being able to keep track of the little things becomes tough or at least some companies find it tough to adapt quickly and move as the market is moving, i.e., digital currencies and banks"* – Participant 2.

DISCUSSION

Considering the three themes that emerged from the research findings, an in-depth discussion of each theme and its implications will be detailed below.

AI convenience

In the strategic communication industry, AI convenience is appreciated for collecting and analysing big data using online data collection tools such as Teamscope and KoboToolBox. Participant 1 stated that *"AI has brought information that would otherwise be far-reaching and has made it easier to operate, i.e., doing primary research virtually instead of travelling to the target audience".* Collecting and analysing big data has been a concern in the strategic communication industry. This is because of the time-consuming and costly nature of collecting data and accurately analysing it. Racist campaigns by Clicks and H&M have indicated the problem of poor research in the industry (Chutel, 2018; Shangase, 2020). The convenience of AI regarding data collection and analysis can strengthen research in the industry, contributing to campaigns that positively influence audiences instead of offending them. This reinforces the theory of disruptive innovation, which asserts that the needs of the stakeholders should guide the need for innovations. Thus, the great need in the industry for more simplified and less costly ways of collecting and assessing data encourages the embracing of AI innovations. Moreover, the research participants also identified the use of AI design software such as Canva and Adobe as convenient. Participant 3 stated: *"Regarding templates, platforms like Canva are great when you have a visual idea but do not know how to put it to your graphics/creative team. You can simply go to Canva, select a template, and show them an example of what you want to create for your newsletter."* Thus, this improved software enables efficiency in terms of visual components of communication (Weatherbed, 2023), to the extent of reducing the costs of outsourcing to graphic designers. ChatGPT was also acknowledged as a convenient AI tool. Participant 3 also stated *"nowadays, if you want to formulate an idea, you do not have to start from scratch, you can*

just go to ChatGPT, tell it to draft you a press release about any topic and then you use that as a template to guide you, or you can just restructure that example". Thus, strategic communication professionals are using ChatGPT because it allows for content creation in a shorter space of time, which is beneficial to completing clients' projects on time. However, despite the research participants agreeing that convenience is the key advantage of AI, there was a lack of extensive explanation on how AI contributes to convenience in the industry in addition to research and design. The perception may be because AI is perceived as an expert skill of digital communication specialists, which are skills that are lacking in SA (Nkanjeni, 2022).

The value of human skills

Despite the accuracy and unbiased features of AI, developing insights that encourage relationship building require human skills which cannot be accurately replicated by AI. Participant 5 stated that *"the strategic communication industry is way more than just technical, it's intrinsically human based too".* Participant 4 further stated that *"being a human helps you understand what other humans want to read. While technological advances can help streamline the process, I believe that this field will require people in it".* Through strategic thinking, creativity and emotions, communication professionals have created communication that positively influenced behaviour and saved lives; for example, health communication campaigns. The human ability to understand and empathise with fellow humans contributed to communication insights that led to these impactful campaigns. Moreover, participant 3 stated that *"current industry gurus are not even touching AI, they still believe in doing things the traditional way, and if I sent content using AI, they would most probably accuse me of laziness".* This shows that despite the time-consuming nature of traditional ways of conducting research and developing campaigns, some communication professionals value the human interaction that goes with manually performing these tasks. This is also supported by the critique in literature that chatbots lack a human touch, these are qualities that are not characteristic of AI technologies. Therefore, it is important to acknowledge the value of human skills in the advent of AI. This aligns with the theory of disruptive innovation, which states that technological innovations do not have the human skills of flexibility and adaptability therefore, even though AI can identify patterns that reveal insights at a point in time, cultural nuances can only be understood through human engagement.

Training and development

Training and development in AI technology should equip communication professionals with the technological expertise to understand and cooperate with these advancements. Participant 6 explained that *"not having enough resources to ensure support is being offered at all points where the need has been identified".* Participant 3 agreed that *"I think organisations need to prompt more of their employees to be practitioners and at the forefront of change, they need to know what's happening and the only way to truly achieve that is by simply doing. This is a practice/action first industry and theory later...that's just how things move in this world".* This reinforces that there is a lack of adequate training and development in the communication industry to prepare communication professionals for the rapid technological and organisational changes. The lack of training means the professionals cannot build their competitive advantage to compete and contribute to the local and global economy. Participant 3 highlighted that *"training and development would be very important, especially for older, senior industry professionals who often have less expertise about the new technology".* This speaks to the knowledge gaps in the industry which are likely to cause low morale and worsen the unemployment rate in SA. This is exacerbated by leaders in the industry who are not aware of the benefits and risks of using AI technologies in the industry (Sandpiper, 2023). Verwey (n.d.) argues that training and development should not be exclusive to the industry and in the workplace but start from the education level. This aligns with the theoretical framework of disruptive innovation because for the innovations to be embraced, the organisation needs to understand the needs of its stakeholders in terms of providing them with the required training. Also, development must be prioritised to ensure that some organisational processes, particularly those that require human input, remain in place . Although limited organisational capital is the main reason for the

lack of training and development, online training and library systems can be used.

CONCLUSION

Although this study cannot be generalised to represent the views of all communication professionals in the SA industry, it does show that AI has influenced how strategic communication professionals are planning for, developing, and disseminating communication to consumers in the 21st century. To answer the research question, the sampled communication professionals who formed part of this study, highlighted that in the strategic communication industry, AI is chiefly embraced for its convenience, in particular, AI data collection and analytic tools have made previously tedious and costly processes convenient and low cost. Yet despite this, human skills remain very valuable in strategic communication and cannot be replaced by AI. Thus, instead of disregarding human skills for AI innovations, strategic communication should draw on the benefits of artificial and human intelligence to create meaningful communication. However, the training and development of communication professionals should be prioritised to survive the technological changes. The recommendation is to conduct a comparative study on strategic communication campaigns that relied on AI-developed insights and human-developed insights to determine where the value lies, and how best strategic communication professionals can be trained to fully embrace AI technologies.

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A Comparative Study of HPV Vaccine Acceptability Across Global North and South Countries: USA and Kenya

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Abstract

This study examined the HPV vaccine landscape in Kenya and the USA with a focus on if differences exist in the perceptions of HPV knowledge, vaccine attitudes, subjective norms, perceived behavioural control, and vaccine intention among students across country and gender. It also provides useful findings that can inform the design of persuasive health messages to promote the uptake of HPV vaccines among college students in Kenya and the USA. The study used surveys to recruit 1,033 participants (511 Kenyan and 522 USA students). The two-way MANOVA analysis revealed that the multivariate main effects showed no significant differences for gender, but the results revealed a significant main effect for the country. However, the interaction between gender and country of the participants was not significant. The univariate analysis revealed that the participants of the two countries had small significant differences in their subjective norms about HPV vaccination, and perceived behavioural control. The correlation analysis showed that HPV knowledge correlates with knowledge about the HPV vaccine and country, but not with gender. The results also revealed that knowledge about the HPV vaccine correlates with both gender and country. These results highlight the most salient predictors of vaccination intentions among college students that health communicators can focus on when designing and implementing HPV vaccination campaigns targeting students in Kenya and the USA.

Keywords

Attitudes, HPV knowledge, HPV vaccine, perceived behavioural control, subjective norms

INTRODUCTION

Across the globe, there has been a growing debate about the efficacy of vaccines. Past studies indicate that vaccines are important in safeguarding the public against preventable diseases (Mihigo et al., 2017; Skinner, 2017). The human papillomavirus (HPV) vaccine, for instance, has been successful in preventing genital warts and various types of cancers such as cervix uteri, penis, vulva, and vaginal cancers (Cipriano et al., 2018; Forman et al., 2012; Kiatpongsan & Kim, 2014). The efficacy of HPV vaccine against cervical cancer is important because cervix uteri cancer has the highest incidence and prevalence compared to other types of cancers (Forman et al., 2012). Presently, Sub-Saharan Africa leads in highest prevalence and incidence of HPV infections in the world (Kiatpongsan & Kim, 2014).

HPV also remains the most common form of sexually transmitted infection among young adults in the USA, and the uptake of the HPV vaccine in the USA remains low compared to other developed nations, such as England and Australia (North & Niccolai, 2016). Countries in the global south, such as Kenya, also lag behind, thus there is a need for multi strategies to improve HPV immunisation (Spayne & Hesketh,

2021). In Kenya in 2019, the government rolled out a national HPV vaccination program targeting girls (World Health Organization, 2019). However, immediately after the national vaccination program was rolled out, doctors affiliated with the Catholic Church expressed their reservations about the vaccine due to the view that it would encourage promiscuity among young adults (Njanja, 2019). However, the HPV vaccine is important because young adults and adolescents aged 15 to 24 years lead in both incidence and prevalence of most sexually transmitted infections (Panatto et al., 2009; Satterwhite et al., 2013).

Unfortunately, the uptake of the HPV vaccine remains low in many low and middle income countries such as Kenya, India, and South Africa, especially among school going populations (Ebrahimi et al., 2023). Among college students, for instance, the low uptake of the HPV vaccine has been linked to poor knowledge about HPV and the HPV vaccine (Khan et al., 2016; Pitts et al., 2009). Thus, this study examined whether differences existed in the perceptions of vaccine attitudes, subjective norms, perceived behavioural control, and vaccine intention among college students in Kenya and the USA. Health campaigns need to also target men because they are less likely than women to be aware of HPV vaccines and also get vaccinated against HPV. For example, Ragin et al. (2009) found that although men were aware of the HPV vaccine, most of them did not intend to be vaccinated. A similar finding was made by Vorpahl and Yang (2018), who noted that women are more likely to be vaccinated compared to men.

A study by Gerend and Shepherd (2012) found that the key predictors of HPV vaccination were subjective norms, self-efficacy, and vaccine costs. Additionally, in research on how students engage in physical activities, Blanchard and colleagues (2007) found that subjective norms were a significant predictor of intention to engage in physical activity in both black and white students.

Past studies indicate that women are more likely to get vaccinated compared to their male counterparts (Ragin et al., 2009; Vorpahl & Yang, 2018). Ragin et al. (2009) argues that although men are aware of the HPV vaccine, most of them do not intend to be vaccinated. Other studies have found that the main predictors for HPV testing are age, gender, and education (Dodd et al., 2014). This indicates that gender is an important consideration in HPV vaccination.

Thus, this study examined the following research questions:

> RQ1: Do college students' perceptions of vaccine attitudes, subjective norms, perceived behavioural control, and vaccine intention differ across countries and genders?
>
> RQ2: Are there any differences in the level of knowledge about HPV and the HPV vaccine among students by country and gender?

LITERATURE REVIEW

HPV and vaccine knowledge between the Global South and North

There has been a huge investment by world governments in the prevention of vaccine-treatable diseases or illnesses (North & Niccolai, 2016). However, the uptake of vaccines across the globe has been hindered by barriers such as suspicion about the safety and efficacy of vaccines and the systemic misinformation about the side effects associated with vaccines (Kahan, 2013). The controversy surrounding vaccines has led to an increase in vaccine preventable diseases in some states because some parents refuse to vaccinate their children (Gostin, 2018). The HPV vaccine is particularly important as it is estimated that 50% of sexually active people will get an HPV infection in their lifetime (Markowitz et al., 2014). College students, who are often in this age range and are sexually active, are at a greater risk of HPV infections. Moreover, compared with other groups, either below or above this age range, most college students are also in the HPV vaccination follow up bracket for those who have already started on the vaccine (Sharma & Nahar, 2017). Kasymova (2020) found that although many students were aware of HPV and the HPV vaccination, there were gaps in their understanding of the route of transmission, symptoms, risk factors, and HPV vaccine mechanism. The most often stated hurdles to acquiring the immunisation were the expense of HPV vaccination and worries about safety and the perceived negative side effects of the

vaccine (Kasymova, 2020). Strengthening health education on HPV vaccination and identifying suitable solutions to the problem of "vaccine hesitancy" will be useful in increasing HPV vaccine coverage and reducing associated illnesses among male college students (Ran et al., 2022).

Global South

Generally, the HPV vaccine is a vital pillar in cancer prevention and there is a need for governments in developing countries to put more effort into incorporating the HPV vaccination into their public health immunisation programs. The problem of HPV is compounded by rising cancer rates, with the least developed countries leading in prevalence and cancer-related deaths (Vermandere et al., 2015). The African region, for instance, missed its millennium development goals and is still lagging behind in the global vaccine action plan (GVAP) that aims to achieve at least 90% national vaccine uptake (Nyaga, 2020; Mihigo et al., 2017). This is exacerbated by the fact that developing countries have poor records management of cancer information, including incidence and mortality. For example, in Kenya, there are very few cancer registries, so information about cancer incidence in Kenya is very scarce, not well managed, and based on incomplete population cancer registries (Korir et al., 2015). In addition, cancer remains a stigmatised illness and this can affect the health-seeking behaviours of the public. According to Knapp et al. 2014), cancer-related stigma is influenced by whether the type of cancer is preventable (e.g., lung, breast, skin) and whether its treatment effects are visible to the public (e.g., limb amputation). Other studies have also found a positive correlation between cancer stigma and HIV stigma (Rosser et al., 2016). Because HPV vaccines can help prevent some cancers, linking cancer prevention to HPV vaccination campaigns might increase its acceptability and adoption by the target population.

The efficacy of the HPV vaccine in preventing various cancers and genital warts makes the implementation of HPV vaccination programs a matter of national priority in Kenya because the vaccine can prevent 70% of cancers caused by HPV 16 and 18 (Vermandere et al., 2015). Considering that cervical cancer is the most common and dangerous form of cancer diagnosed among Kenyan women after breast and oesophagus cancer, it is important for the government to increase HPV vaccine uptake by enhancing accessibility, acceptability, and awareness of the vaccine by the general public (Nayak et al., 2016; Nyaga, 2020; Vermandere et al., 2015). The HPV pilot studies in Kenya identified the main challenges to the uptake of the vaccine as inadequate awareness of the vaccine, inadequate screening services, and limited information about the vaccine among the public (Korir et al., 2015; Vermandere et al., 2015).

The costs associated with immunisation programs is one of the considerations governments have to take into account when creating and rolling out vaccination programs. Therefore, Kenya, being a developing country, can learn from other countries that have implemented successful HPV vaccination programs and replicate such projects to support its national HPV vaccination drives. This can help reduce the costs of formulating new policies and campaigns because policies and campaigns can originate in one country and be replicated in other jurisdictions (Shen, 2014).

Global North

HPV is the most common form of sexually transmitted infection (STI) in the US with 14 million people infected each year (Markowitz et al., 2014). North and Niccolai (2016) observed that the HPV vaccination rates in the US among adolescents are lower compared to other vaccine-preventable diseases such as meningococcal conjugate, tetanus, and diphtheria. This has been attributed to parents' negative perceptions of the significance of the HPV vaccine, lack of provider recommendations, and worries about the perceived side effects associated with the HPV vaccine (Boyce et. al., 2022; North & Niccolai, 2016). Thus, it is necessary to continue educating clinicians and parents about the necessity of teenage vaccines (Boyce et. al., 2022). Also, vaccine coverage in the US is lower compared to other high-income countries, such as England, Australia, Portugal, Scotland, and Denmark, which have achieved more than 70% compliance for the three required doses (North & Niccolai, 2016). North and Niccolai (2016) also noted that the initial attempts to make HPV vaccines mandatory for school enrolment were resisted, because of the view that school-required vaccines should be reserved for diseases that can be transmitted easily at

school and because of moral beliefs associated with the HPV vaccine.

Although HPV awareness in the US is high compared to other countries, it is not clear why the uptake of HPV vaccines remains low. In a study involving 12,259 participants in the US, UK, and Australia, for example, Dodd et al. (2014) found that the USA participants had higher HPV awareness compared to the UK and Australia. However, this did not translate to a high level of knowledge about HPV. In another study involving 2,442 participants from the United Kingdom, Australia, and the US, the results indicated that participants from the US had low knowledge about HPV, how it is transmitted, and its effects (Marlow et al., 2013). Therefore, from these findings, it is imperative for health communication practitioners to consider knowledge and awareness when designing and implementing HPV-related campaigns as a way of enhancing the success of programs aimed at boosting HPV testing and vaccination among young adults in the US.

Communicating about HPV Vaccination

Health communication plays a vital role in the design and implementation of HPV messages. The low uptake of the HPV vaccine indicates that HPV messages need to be enhanced for effectiveness in persuading target audiences. To encourage vaccination among students, this study emphasises an approach that educates college students on the risks associated with sexual behaviours, such as having multiple sex partners. This is informed by the fact that cancers associated with HPV take a long time to develop so young adults may not consider themselves vulnerable to such cancers, but might perceive themselves as susceptible to genital warts (Ragin et al., 2009). Research shows that well-planned social media strategies and the use of content subgroups are useful in promoting HPV vaccination among young people (Pedersen et al., 2020). According to Cartmell et al. (2018), HPV vaccination communications should emphasise cancer prevention rather than sexual transmission, routinise the vaccine, and stress the risks/costs of HPV. Messaging should be targeted at certain audiences, and numerous media outlets should be used to distribute consistent, scientifically correct messaging. Strategies such as appealing to parents' moral obligation to protect their children from cancer, highlighting HPV's ubiquity, and providing emerging information that HPV may be spread without sexual activity were also advocated (Cartmell et al., 2018).

Adolescent-adapted behaviour-change communication might minimise lost chances for HPV prevention, potentially reducing racial and ethnic differences in HPV-related morbidity and death (Xu et al., 2023). There is also a need to come up with health communication tools that educate and showcase the importance of the HPV immunisation, such as factsheets, as these have been proven to increase HPV vaccination acceptance among hesitant parents (Reno et al., 2019). Thus, the effectiveness of HPV messages may be linked to how well the messages appeal to the target audience's sense of personal susceptibility, and the extent to which information about HPV and HPV vaccination is available and discussed in an individual's social circle.

The Moderating Role of Gender

Although the HPV vaccine is recommended for both male and female students, most health communication strategies portray young women as the primary candidates for the HPV vaccine due to its relation to cervical cancer which mostly affects women (Kolek et al., 2022; Marlow et al., 2013). This may explain why women have more knowledge and a better understanding of HPV vaccines compared to their male counterparts. Due to the continued focus on women as the main targets for HPV vaccination, little is known about how gender differences influence HPV intent to receive the vaccine (Richards, 2016). In a study involving African American college students, results showed that compared to females, male students were less likely to get HPV information from healthcare providers and pamphlets, but were more likely to pay attention to HPV information on social media platforms like Facebook and Myspace (Bynum et al., 2011). In the same study, Bynum et al. (2011) found that women preferred to get HPV information from their healthcare providers, and that men are less aware of HPV and have less perceived subjective risk of HPV infections compared to women. These findings highlight the gender differences in information

preference, and the need to address the stigma associated with cervical cancer among women so as to encourage women to take the HPV vaccine (Ginjupalli et al., 2022). In addition, there is a need to link women to actual services after HPV screening (Mungo et al., 2020). Furthermore, in the Rift Valley region in Kenya, Vermandere et al. (2015) found that fathers had scant knowledge about HPV, cervical cancer, and had difficulties differentiating between several types of cancers associated with HPV. Nan et al. (2016) also found that female participants with a high level of education had the highest likelihood of vaccinating their children against HPV.

Theory of Planned Behaviour (TPB)

This study is premised on the theory of planned behaviour (TPB). TPB is a psychological model that argues that the best predictors of behaviour are behavioural intention and perceived behavioural control (Hirth et al., 2018). Although TPB is a psychological model, it applies to communication research because communication can inform behaviour as well as be viewed as behaviour, and how we communicate is based on psychological factors and is personalised to an individual (Brann & Sutton, 2009). TPB assumes that individuals are rational decision makers who actively consider the consequences of their choices (Andrews et al., 2010; Gerend & Shepherd, 2012). According to the TPB, health campaigns can be enhanced by targeting normative and control beliefs that are the core of behavioural attitudes (Zemore & Ajzen, 2013). TPB views behaviour as a product of behavioural, normative, control beliefs, and available information (Ajzen, 1991). Ajzen (1991) argued that behavioural beliefs influence attitudes toward behaviour, while normative beliefs influence subjective norms. On the other hand, control beliefs are the foundation of behavioural control. Here are the definitions of key concepts of TPB: 1) attitude toward the behaviour refers to the degree of favourable or unfavourable appraisal of a given behaviour; 2) subjective norm refers to the individuals' judgement of important others' opinion on a given behaviour; and 3) perceived behavioural control (also known as self-efficacy) refers to the perceived ease or difficulty in performing a given behaviour (Ajzen, 1991). Thus, people form an attitude about a certain behaviour by linking it to a certain expected outcome (Ajzen, 1991).

So far, TPB has been utilised in many health campaigns such as those involving research on cancer, condom usage, addiction to drugs and substances, and eating disorders like obesity and anorexia (Brann & Sutton, 2009; Pickett et al., 2012). Previous studies on the uptake of HPV vaccinations by Hirth et al. (2018) found that the motivators for HPV vaccination were anticipated regret if one is eventually diagnosed with cancer after not getting vaccinated, reminders about when to make appointments, and making the vaccine available on campus.

METHOD

Participants

Participants for this study were students recruited from a U.S. public university and a Kenyan public university. A university student sample was chosen because it is the population at the greatest risk of HPV infections and in the age range recommended for vaccination, that is, 7 to 26 years (Nan et al., 2016). To participate in this study, participants had to be at least 18 years old and currently registered students at one of the universities. The total sample was 1,033 participants (consisting of 511 Kenyan and 522 US students) with an average age of 23.35 years. To enhance the validity of the study, international students were excluded from the final analysis to ensure the results reflected as closely as possible the views of the US students and those of the Kenyan students. However, the participants in the US who identified as permanent residents and undocumented immigrants were included in the analysis, because their experiences were perceived to be similar to those of the US students.

Procedure

A closed-ended survey was used to collect data after receiving approvals from both universities' Institutional Research Boards (IRBs). The questionnaires were administered differently due to technological differences

between the two universities. The survey participants in the USA were recruited through convenience sampling using the online research pool (SONA).

The participants from Kenyan university were recruited using snowball sampling, in which the participants known to the researcher passed on a request to participate in the survey to other students who met the sampling criteria (Lindlof & Taylor, 2011).

The Kenyan students were given a printed questionnaire and asked to return it during the next class session. This provided convenient access to the survey in a country with poor internet connectivity and a lack of an online research participation system particularly in rural areas. Before participants could answer the survey questions, they had to confirm that they had read and agreed to the consent form. They then answered questions measuring their attitudes toward HPV vaccine, subjective norms about HPV vaccine, perceived behaviour control, HPV vaccine intention, HPV knowledge, HPV vaccine knowledge, and some demographics.

Data Analysis

The data from the survey were analysed using SPSS. In particular, SPSS was used to conduct various analyses, such as descriptive analysis, independent samples t-tests, correlation analysis, and multiple linear regressions. The research questions were addressed using a series of two-way Multiple Analysis of Variance (MANOVA) with the independent variables being country and gender. The dependent variables were vaccine attitudes, subjective norms, perceived behavioural control, HPV vaccine intention, HPV knowledge, and HPV vaccine knowledge.

Measures

Attitudes toward HPV vaccine. This variable was measured using five (5) modified items from the effectiveness subscale and harms subscale of The Carolina HPV Immunization Attitudes and Beliefs Scale (CHIAS). The vaccine attitudes scale had items assessing participants' attitudes toward the effectiveness of the HPV vaccine to cure genital warts, safety, and capability of causing harm. Example items included "The HPV vaccine might cause lasting health problems" and "The HPV vaccine is being pushed to make money for drug companies". The five items used to assess the vaccine attitudes were reverse coded for credibility. The subscale had a reliability of (α) .67 to (α).70 across the four subsets (i.e., Kenyan females, Kenyan males, USA females, USA males) under consideration. The response options ranged from strongly disagree (1) to strongly agree (5).

Subjective norms about the HPV vaccine. This reflects the social pressure stemming from the approval or lack of approval for the HPV vaccine from people one considers important. This subscale had three (3) statements asking participants if other students or family members approved of them getting the HPV vaccine. The three items were "Students on my campus approve of me getting the HPV vaccine", "My family approves of me getting the HPV vaccine", and "Other students on my campus are getting the HPV vaccine". The scale had a reliability of (α) .76. The response options ranged from strongly disagree (1) to strongly agree (5).

Perceived behaviour control (PBC). PBC was assessed using three (3) items. The items addressed the perceived barriers that participants might experience when searching for physicians who administer the HPV vaccine and participants' ability to cover the expenses associated with the HPV vaccine. The three items were "It would be very hard to find a physician or clinic where I can get the HPV vaccine with ease", "It would be very hard to find a physician or clinic where I don't have to wait for long for an appointment to get the HPV vaccine", and "I am concerned that the HPV vaccine costs more than I can pay". The scale had a reliability of (α) .74. The response options ranged from strongly disagree (1) to strongly agree (5).

HPV vaccine intention. Intention was measured using four (4) items from the TPB questionnaire developed by Ajzen (1991). The items asked participants about their willingness to get vaccinated and if they would recommend the vaccine to their friends. Specifically, the items testing intention asked participants, "If in the next 12 months, they intended to get vaccinated against HPV", "If in the next 12

months, they would recommend HPV vaccination to other students on their campus", "If in the next 12 months, they would encourage other students to get vaccinated", and "If in the next 12 months they would get vaccinated if they were still in the HPV vaccine age bracket". The scale had a reliability of (α) .84. The response options ranged from strongly disagree to strongly agree (5).

Knowledge about HPV and HPV vaccine. These two concepts were measured using scales developed by Perez et al. (2016). The HPV knowledge scale used in this study had 23 items. Example items included "HPV can be passed on during sexual intercourse" and "Having many sexual partners increases the risk of getting HPV". The HPV vaccine knowledge scale had 11 items. Example items included "You can cure HPV by getting the HPV vaccine" and "The HPV vaccine protects you from every type of HPV". Participants were asked to respond to the statement for each scale item with either a true, false, or I don't know option. During data analysis, the statements that the participants scored correctly were coded as 1 and the rest (including both incorrect and false statements) were coded as 0. The HPV knowledge scale had a reliability (α) of .873, and the knowledge about HPV vaccine scale had a reliability (α) of .745.

Demographics. These were measured using short questions about their age, gender, racial ethnicity, vaccination history, major, and year in school.

RESULTS

The demographic results revealed differences in gender and education level between the Kenyan and the US participants. While the majority of the Kenyan participants were males (61%), the majority of the US participants were females (63.6%). While a good number of the Kenya participants were third year students or juniors (41.8%), a good number of the US participants were first year students or freshmen (29.7%). On the other hand, the results revealed similarities in the sexual orientation and marital status between the Kenyan and the US participants. The majority of both the Kenyan (79.9%) and the US (92.3%) participants were single. Also, the majority of both the Kenyan (39.1%) and the US (85.8%) participants were heterosexuals. See Table 1 for demographic characteristics of the participants.

Table 1: Demographic Characteristics for the Kenyan and USA Samples

	Kenyan Sample		*USA Sample*	
Characteristic	***N***	***%***	*N*	*%*
Gender	**511**		**522**	
Male	312	60.9	187	35.8
Female	186	36.3	332	63.6
Transgender	6	1.2	3	.6
Prefer not to disclose	4	.8		
Sexual orientation			**521**	
Heterosexual	200	39.1	447	85.8
Homosexual	60	11.7	23	4.4
Bisexual	34	6.6	35	6.7
Prefer not to disclose	182	35.5	16	3.1
Education	**508**			
First years	98	19.1	155	29.7
Second years	119	23.2	97	18.6
Third years	214	41.8	142	27.2
Fourth years	67	13.1	127	24.3
Post-graduate	10	2.0	1	.2
Marital status	**505**		**522**	
Married	35	6.8	4	.8
Single	409	79.9	482	92.3
Divorced	38	7.4	1	.2
Domestic partnership	22	4.3	35	6.7
Racial Background			***519***	
American Indian	-	-	2	.4
Asian	-	-	140	27.0
African American	-	-	24	4.6
Hispanic or Latino	-	-	25	4.8
Alaskan Native	-	-	1	.2
Caucasian White	-	-	326	62.8
Native Hawaiian or any other Pacific Islander	-	-	1	.2

The first research question aimed to investigate the differences in the perceptions of vaccine attitudes, subjective norms, perceived behavioural control, and vaccine intention among students across country and gender. A correlation analysis revealed that there were statistically significant correlations among vaccine attitudes, subjective norms, perceived behavioural control, vaccine intention, country, and gender. Table 2 summarises the results of the correlation analysis.

Table 2: Correlation Matrix of Key TPB Variables, Gender, and Country

Variable	1	2	3	4	5	6
1. Intention	-					
2. Vaccine attitude	.273**	-				
3. Subjective norms	.384**	.210**	-			
4. PBC	-0.026	-.258**	-.290**	-		
5. Gender	-0.009	0.003	.170**	-.093**	-	
6. Country	0.064	0.060	.583**	-.380**	.289**	-

. Correlation is significant at the p<.01 level (2-tailed). ***Coding: Gender (1= Male, 2= Female), Country (1= Kenya, 2= USA)*

A two-way MANOVA was conducted to investigate differences with gender and country as the independent variables and the vaccine attitudes, subjective norms, perceived behavioural control, and vaccination intention as the dependent variables. The multivariate main effects showed no significant differences for gender; Wilks Λ= 1.00, $F(3,881) = .110$ $p > .05$, $\eta^2 = .000$, but the results revealed a significant main effect for country Wilks Λ= .616, $F(3,881) = 183.082$, ($p < .01$), $\eta^2 = .384$. However, the interaction between gender and country of the participants was not significant ($p > .05$).

The univariate analysis revealed that the participants of the two countries had small significant differences in their subjective norms about HPV vaccine, $F(1, 883) = 429.86$, $p < .001$ $\eta^2 = .327$, and perceived behavioural control, $F(1, 883) = 140.67$, $p < .001$, $\eta^2 = .137$. Table 3 shows the results from the univariate analysis.

Table 3: Univariate Analysis of Intention to be Vaccinated, Attitudes toward the Vaccine, Subjective Norms, and PBC by Country

Dependent Variable	*df*	*df error*	*Mean Square*	*F*	*p*	η^2
Intention	1	883	3.305	3.831	.051	.004
Vaccine attitude	1	883	2.075	2.696	.101	.003
Subjective norms	1	883	242.102	429.859	.000*	.327
PBC	1	883	88.166	140.666	.000*	.137

**Significant at p<.05*

The second research question explored if there were any differences in the participants' HPV knowledge and HPV vaccine knowledge by country and gender. A correlation analysis revealed that HPV knowledge was correlated with HPV vaccine knowledge and country, but not with gender. The matrix also revealed that HPV vaccine knowledge was correlated with both gender and country. Table 4 summarises the results from the correlation analysis.

Table 4: Correlation Matrix of HPV Knowledge, HPV Vaccine Knowledge, Gender, and Country

	Variable	1	2	3	4
1.	HPV Knowledge	-			
2.	Vaccine Knowledge	0.695**	-		
3.	Gender	0.060	0.140**	-	
4.	Country	0.238**	0.323**	0.289**	-

**Correlation is significant at the p < .01 level (2-tailed)
Coding: Gender (1= Male, 2= Female), Country (1= Kenya, 2= USA)

To investigate if there were any differences by gender and country concerning knowledge about HPV and the HPV vaccine, a two-way MANOVA was conducted with gender and country as the independent variables and the knowledge about HPV and the HPV vaccine as dependent variables. The multivariate analysis revealed minimal differences for gender, Wilks Λ = .992, $F(2, 922) = 3.705$, $p < .05$, $\eta^2 = .008$, and the country of the participant, Wilks lambda = .915, $F(2, 922) = 42.88$, $p < .001$, $\eta^2 = .085$. The interaction term for the main effect between gender and country of the participants was also significant, Wilks Λ = .978, F (2, 922) = 10.27, ($p < .001$), $\eta^2 = .022$. The results revealed that male (M = .4429, SD = .2591) and female participants in the US (M = .4829, SD = .2234) had a slightly greater knowledge about HPV compared to male (M = .3742, SD = .2312) and female participants in Kenya (M = .4829, SD = .2234). As a whole, women in both Kenya and the US had greater knowledge about HPV compared to men in their respective countries.

Regarding the HPV vaccine, the results revealed that males ($M = .35457$, $SD = .25485$) and females ($M = .45496$, $SD = .2383$) in the US had slightly greater knowledge about the HPV vaccine compared to males ($M = .27695$, $SD = .2213$) and females ($M = .2301$, $SD = .23278$) in Kenya. Overall, females in both Kenya and the US had greater knowledge about the HPV vaccine compared to males in their respective countries.

The univariate analysis between subjects revealed no significant gender differences in the HPV knowledge of the participants, $F(1, 923) = .000$, $p = .993$, $\eta^2 = .000$. However, there were small significant differences in the vaccine knowledge of the participants by gender $F(1, 923) = 4.055$, $p < .05$, $\eta^2 = .004$. There were also significant differences in the HPV knowledge by country of the participants, $F(1, 923) = 46.136$, $p < .001$, $\eta^2 = .048$, and significant differences by country in HPV vaccine knowledge, $F(1, 923) = 85.299$, $p < .001$, $\eta^2 = .085$. Additionally, the interaction effect of gender and country was also significant for both HPV knowledge, $F(1, 923) = 6.231$, $p = .013$, $\eta^2 = .007$, and HPV vaccine knowledge, $F(1, 923) = 20.048$, $p < .001$, $\eta^2 = .021$.

Overall, the male and female participants in the US outscored males and female participants from Kenya on both HPV knowledge and HPV vaccine knowledge. There were minimal differences between males in the US and males in Kenya, but US females had greater knowledge about HPV and HPV vaccine compared to the Kenyan females. The clustered bar graphs in Figures 1 and 2 show the differences by gender and country for the HPV vaccine.

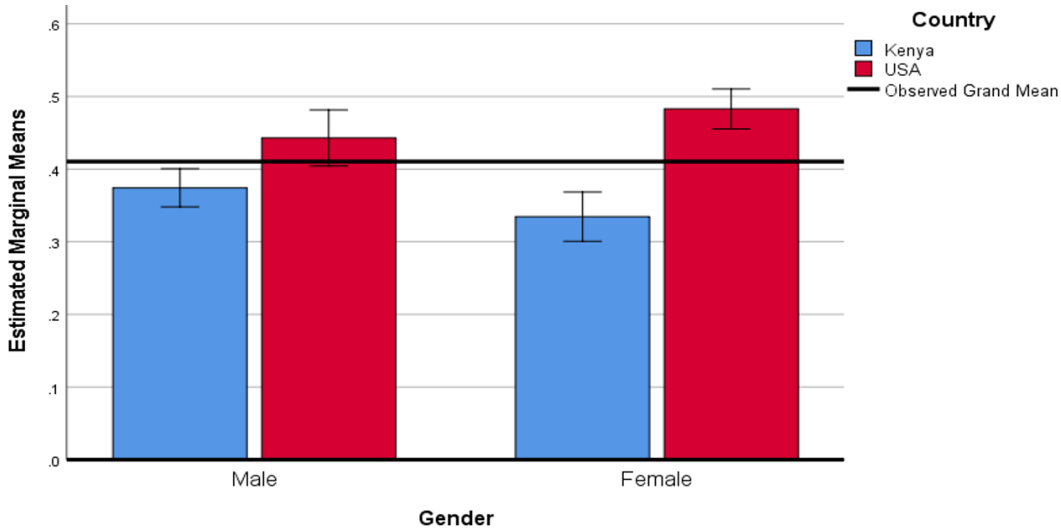

Figure 1: HPV Knowledge by Gender and Country

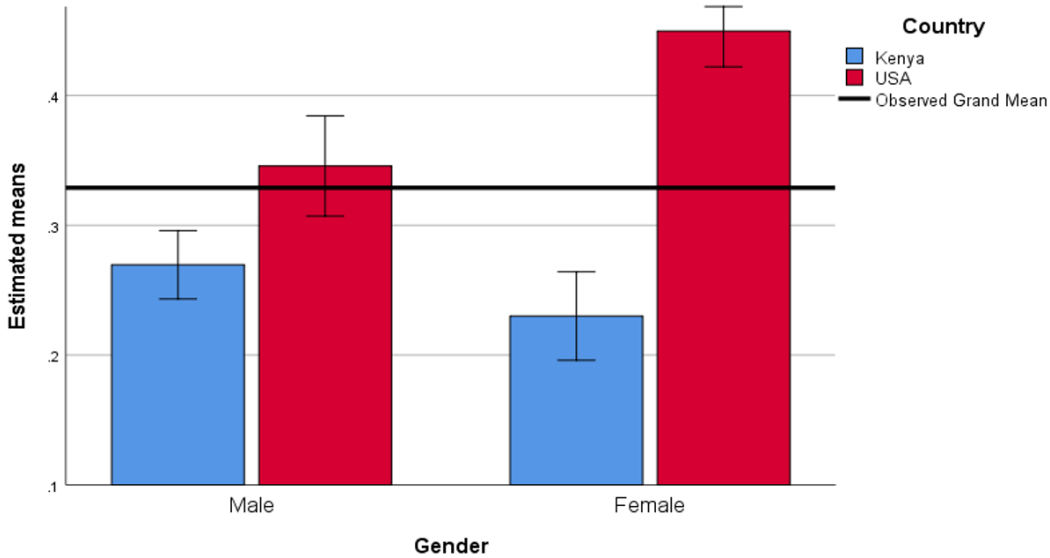

Figure 2: HPV Vaccine Knowledge by Gender and Country

DISCUSSION

Overall, the results suggest that Kenyan and the US students converged on certain health trends but differed in others. For example, the students at the Kenyan university indicated a low understanding of HPV and the HPV vaccine compared to students at the US university. More specifically, male and female students in the US scored higher than male and female students from Kenya on both knowledge about HPV and HPV vaccine. These finding are consistent with previous studies which have suggested that low HPV and HPV vaccine knowledge among Kenyans might be as a result of inadequate public awareness campaigns about risk factors of HPV, mistrust in government and health workers, poor service delivery, and religious beliefs (Muturi, 2020; Rositch et al., 2012). Also, the country of origin moderated the relationship between subjective norms and intentions. These findings suggest that when designing an intervention involving these two groups, there is a need to consider various factors relevant to the

country of origin such as the prevailing norms about the HPV vaccine. This is especially important for the Kenyan students because Sub-Saharan Africa continues to lead in HPV infections and cervical cancer (Kiatpongsan & Kim, 2014).

The study also found that gender interacted significantly with the country of the student on subjective norms about HPV vaccine. Specifically, the US students were more likely influenced by subjective norms than the Kenyan students to get the HPV vaccine. This suggests that the opinions of important others (such as close friends or family) about HPV vaccines, either positive or negative, matter to the US students compared to the Kenyan students when deciding to get the HPV vaccines. The implication is that campaign messages highlighting subjective norms (i.e., opinion of important others) about the HPV vaccine will more likely encourage the US students than the Kenyan students to get the HPV vaccine. Additionally, the study found that females in both countries have greater HPV knowledge compared to their male counterparts. This is not surprising, as previous studies have consistently shown that males have lower HPV and HPV knowledge than their female counterparts because cervical cancer campaigns have almost exclusively targeted females (Kolek et al., 2022; Shah et al., 2021).

Furthermore, the results revealed that subjective norms and HPV knowledge were the strongest predictors of vaccination intentions among Kenyan female students. In comparison, the strongest predictors of intention among the US female students were subjective norms and attitudes toward the HPV vaccine. These findings are consistent with previous studies which have suggested that among the predictors of the theory of planned behaviour, attitudes and social norms are strong predictors of HPV vaccination intention among college students (Catalano et al., 2017; Shah et al., 2021). This highlights that even among those of the same gender in a population, the motivations for vaccination intentions differ. The same trend regarding gender was observed among male participants in Kenya and the US. For example, the strongest predictors of vaccination intentions among the Kenyan male students were subjective norms, perceived behavioural control, and HPV vaccine knowledge. In contrast, only subjective norms predicted the intention to be vaccinated among male students studying at the US university. These differences in vaccination intentions suggest the need to treat each target population as unique when designing and implementing health interventions.

In addition, this study demonstrates the relevance of the theory of planned behaviour in predicting and explaining health seeking behaviours among students (Blanchard et al., 2007; Gerend & Shepherd, 2012; Hirth et al., 2018). For example, various concepts of the TPB, such as attitudes toward the vaccine, subjective norms, and perceived behavioural control emerged as salient predictors of the intention of students to get the HPV vaccine. The findings of this study demonstrate the importance of TPB in communication research as its validity has been criticised by some scholars for ignoring the role of some variables, such as emotions and demographic characteristics of participants in predicting the intention to act (Sniehotta et al., 2014).

Implications for Policy and Practice

This study's findings offer some insights that contribute to both policy and practice in various ways. The findings highlight the most salient predictors of vaccination intentions among college students that health communicators can focus on when designing and implementing HPV vaccination campaigns targeting students in Kenya and the US. For example, the findings indicate that, across male and female participants, subjective norms strongly predicted intentions to get vaccinated. Thus, when designing campaigns targeting these groups, it would be important to consider the prevailing norms about the HPV vaccine and find ways of targeting those norms. This can be achieved by linking the HPV vaccine to the social benefits it can offer members of a social group, especially in preventing HPV infections such as genital warts and various types of cancer.

The subjective norms about HPV might be influenced by the prevailing culture of the target population. Culture is often a salient factor in health because it offers a context through which health issues can be discussed and better understood (Airhihenbuwa & Webster, 2012). Past research (e.g., Airhihenbuwa & Webster, 2012; Tindall & Vardeman-Winter, 2011) has argued that replicating health

interventions developed from outside a culture can fail, especially if the interventions assume a universal, uniform approach to learning. In Kenya, there is a widespread belief that HPV and cervical cancer are women's health issues (Kolek et al., 2022). The feminisation of the HPV vaccination, which has resulted in female-focused initiatives, has resulted in a systematic disregard of the male sex in HPV vaccine campaigns, which is a cause for worry. As a result, there have been widespread requests for sex-neutral HPV vaccination campaigns (Kolek et al., 2022). The culture of students in Kenya is different from that of students in the US. Therefore, these groups might have divergent norms concerning the HPV vaccine that should be considered when implementing an intervention aimed at increasing uptake of the HPV vaccine. In addition, perceived behavioural control and HPV vaccine knowledge were important predictors of vaccination intention among the Kenyan males. This highlights the need to focus on perceived self-efficacy and self-control of Kenyan males regarding the HPV vaccine through the use of behaviour change campaigns based on theories, such as the health belief model. This is an interesting finding, considering that national HPV vaccination, which started in 2019, has solely targeted girls (WHO, 2019). The majority of men may not be aware that they can benefit from the HPV vaccine or even know where to get the vaccine. Therefore, a campaign aimed at enhancing the behavioural control of males can first target increasing their knowledge about the importance of the HPV vaccine and then explaining the infections it prevents. Such a campaign would be important because previous studies indicate that men tend to be less knowledgeable about the HPV vaccine than women, and they have a lower HPV vaccination rate than women (Mehta et al., 2013).

Among the Kenyan female students, HPV knowledge was an important predictor, while the US female students had an additional predictor such as vaccine attitudes. This suggests that to increase the vaccine intention of Kenyan women, besides targeting the subjective norms, health campaigns must also aim at boosting their understanding of HPV and the HPV vaccine. This would also be important because past research (e.g. Khan et al., 2016; Tatar et al., 2017) has indicated that students have little knowledge about HPV and the HPV vaccine. Previous studies (e.g., Korir et al., 2015; Vermandere et al., 2015) found that the major impediments to the uptake of the HPV vaccine in Kenya are inadequate awareness and low knowledge levels about HPV and HPV vaccines. To increase the uptake of the HPV vaccine among females in the USA, an effective health communication intervention should target both subjective norms and attitudes toward the HPV vaccine. Overall, boosting the knowledge of women in particular can help address misinformation associated with the HPV vaccine. In Kenya, for example, the doctors affiliated with the Catholic Church expressed reservations about the vaccine due to their concerns that the vaccine might encourage promiscuity among young adults (Njanja, 2019). Also, part of this misinformation alleges that the HPV vaccine might cause infertility among girls or even cause death (e.g., Cipriano et al., 2018), and might also be misconstrued as a validation of deviant sexual behaviours among young adults (e.g., Cipriano et al., 2018; Nan et al., 2016). Even so, promoting uptake of the HPV vaccine among female students is valuable and would go a long way towards preventing cervical cancer, which remains one of the leading causes of mortality among women (Nayak et al., 2016; Panatto et al., 2009).

Policy guidelines are particularly important for Kenya, which started its national HPV vaccination program in 2019 (WHO, 2019). When creating policies concerning HPV vaccination, the Kenyan government should consider both males and females, as the findings of this study indicate that males have scant knowledge about HPV and HPV vaccine and can benefit from the vaccine uptake to prevent genital warts and penile and anal cancers (CDC, 2016; Mehta et al., 2013). Kenya needs to enact policies that enable the access of both genders to the HPV vaccine, such as school-based programs that have proven effective in other countries (Brabin et al., 2008). This is particularly important, because the results of this study suggest that perceived behavioural control is an important predictor of vaccine intention among Kenyan males. Additionally, the Kenyan government can establish policies that support the administration of the HPV vaccine alongside other vaccines (e.g., Reiter et al., 2012). This would go a long way towards encouraging the uptake of the HPV vaccine in young adults.

LIMITATIONS OF THE STUDY AND FUTURE DIRECTIONS

This study had some limitations, such as its design which relied on self-reported measures. Therefore, it would be important to treat these findings with caution as it is possible that the participants forgot or even misrepresented their perceptions about their health-seeking behaviours. This study only focused on the vaccination intentions of students rather than the actual vaccination behaviours. Therefore, another possible route for future research would be to extend the current study to examine if the predictors of intention identified in this study also lead to vaccination behaviour.

CONCLUSION

Behaviour change communication aimed at increasing the uptake of HPV vaccine is a complex phenomenon that continues to intrigue many researchers and practitioners. Thus, the findings of this study provide preliminary data that can inform the design of effective HPV campaigns targeting college students. Collectively, the results of this study reveal the need for health communicators to appreciate that the health-seeking behaviours of college students are influenced by a confluence of factors. Such an appreciation is important in order to avoid the temptations of adopting a 'one health intervention fits all' approach when designing vaccination programs.

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Applying participatory communication principles in Covid-19 health message dissemination in a rural South African municipality

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Abstract

During global pandemics such as COVID-19, authorities around the globe have the responsibility of disseminating preventive health messages as widely as possible to contain the crisis. However, often times, as shown by earlier studies (see Molale, 2019; Williams, 2006), governments tend to apply top-down communication approaches and leave local citizens as passive receivers of messages they are required to put into practice. This qualitative inquiry examined how officials of Ratlou Municipality in North-West Province, South Africa, communicated COVID-19 messages to communities in the rural villages of Setlagole and Madibogo. Semi-structured interviews with 4 municipal officials and focus group interviews with 28 citizens were conducted. The findings suggest that active citizen participation is needed in the communication value chain so that citizens can have a meaningful role in addressing the pandemic. The study is significant in that it shows how linear communication methods often employed by municipalities to interact with community members are futile, especially when citizens need to be persuaded to adopt new behaviour such as during health emergencies like cholera, Ebola or COVID-19. Moreover, it adds to the growing corpus of research dedicated to advancing participatory communication as an anchor of citizen participation in South Africa's local government and beyond.

Keywords

Communication for Development and Social Change (CFDSC); COVID-19; dialogue; empowerment; participatory health communication; public participation

INTRODUCTION AND BACKGROUND

Many communication-related lessons can be drawn from COVID-19, especially when looking at how governments around the world handled social relations in the wake of the pandemic. The aim of this article is to explore how key principles of participatory communication, namely participation, dialogue, and empowerment could be applied in a public participatory process involving municipal employees and rural villagers in two villages in the North-West Province, South Africa, within the context of health communication. From a development communication perspective, efforts by officials that largely leave ordinary citizens as passive participants in the creation and dissemination of information often result in a lack of the desired meaningful and sustainable change given the citizens' lack of endorsement (cf. Maina et al. 2020; Melkote & Steeves, 2015; Molale, 2024; Tufte, 2017; Suzina et al., 2020).

Development communication, as a field, can be traced back to the late 1940s, and at its core is a rich research history that spans several decades, which is well documented, and can be categorised according

to three main paradigmatic perspectives as far as development and social change are concerned. These paradigms are modernisation, the dependency paradigm, and the participatory approach to development and social change. Nora Cruz Quebral from the Los Baños College of Agriculture in the Philippines coined the term "development communication" in the early 1970s. In addition, Manyozo (2006) has catalogued the history of development communication into six schools of thought, thereby making it easy for us to map the rich history of this field within a global scheme.

These schools are the Bretton Woods School, Latin American School, Los Baños School, Indian School, African School, and Post-Freire School, which focus on the participatory approach to development. It is arguable, however, that only three schools of thought have been dominant over the years and have shaped much of the debates around development and social change across the globe. These schools can each be linked to the three main paradigms, which are summarised in Table 1.1. below:

Table 1. A summary of schools of thought, related paradigms, and leading researchers in development communication as it evolved over the years

School of Thought	Related Paradigm	Proponents/Leading Researchers of the Schools
The Bretton Woods School	The Modernisation Paradigm	Daniel Lerner, Wilbur Schramm, Shannon and Weaver, and Everett Rogers, among others
The Latin American School	Dependency Paradigm	Arturo Escobar, Luis Ramiro Beltrán, Fernando Henrique Cardoso, and Alejandro Barranquero, among others.
The Post-Freire School	Participatory Approach to Development and Social Change	Linje Manyozo, Robert Huesca, Pradip Ninan Thomas, Gumicio Alfanzo Dargon, Karin Wilkins, Silvio Waisbord, Thomas Tufte, Nico Carpentier, and Thomas Tufte, among others

Historically, much of the research within the field of development communication has largely come from the West, hence the modernisation paradigm was regarded as the "dominant paradigm" (Melkote & Steeves, 2015). However, this dominance was challenged by contributions from Latin America in the mid-1960s to the early 1970s when the dependency paradigm emerged, largely due to the growth of critical scholarship influenced by, among other factors, the integration of Paulo Freire's work around liberation pedagogy, conscientisation, and dialogical praxis into development communication studies (Huesca, 2008; Molale, 2021). From the 1970s, scholarly contributions, mostly from the global south, began to emerge within the participatory communication paradigm, which was also largely influenced by Paulo Freire's prescriptive interpretation of dialogue as well as critical thinking (conscientisation) and participation (Gumucio-Dagron & Tufte, 2006; Huesca, 2008; Manyozo, 2008).

Scholarly work within the participatory approach to development communication is concerned with a fundamental problem inherent in development thinking when facilitating active and bottom-up citizen engagement around the dual complexity of empowerment. This is where on the one hand, empowerment is the resultant product of zero-sum, and on the other hand, the perceived lack by officials to apply a pedagogy of listening as transformational praxis when it comes to affording local citizens the power to actively participate in activities, whose success requires their active involvement (Li, 2017; Manyozo,

2017; Molale, 2024). This problem becomes central in the context of health communication, where the role of local citizens as receivers of health communication campaigns is deemed crucial to the success of the campaign. Additionally, in rural areas such as in South Africa's Ratlou Local Municipality, the use of indigenous languages is an important ingredient, and most preferred mechanism, when it comes to facilitating active citizen involvement in the dissemination of these messages (Molale & Mpofu, 2021).

Ratlou Local Municipality is domiciled in the Ngaka Modiri Molema District of the North West Province in South Africa. It covers vast tracts of rural land that is home to a predominantly Setswana population. The municipal area was chosen because of its rurality and that it is home to a predominantly illiterate population. Out of about 100,000 people, only about 16.1% of the population has completed matric or has some form of higher education (Media Monitoring Africa, 2016). Only 15.2% of the population is employed while only 2% of the population has access to flushing ablution facilities (most of the population uses pit latrines), while about 10.5% of the community has no access to any toilets (*ibid.* 2016). The community has access to two local community radio stations, namely Ratlou FM and Modiri FM. There is a community newspaper called *"Mmega Dikgang"* (loosely translated to mean the news reporter); however, the newspaper is written in English, which is not preferred by the predominantly illiterate community, which is conversant with the native Setswana language (Molale & Mpofu, 2021).

This study is divided into six sections. Following the introduction is a section that critically interrogates the literature on health communication from a communication for development and social change perspective. It further deals with challenges related to facilitating the active involvement and participation of local communities in health communication campaigns about COVID-19 in a rural municipality in the North-West Province of South Africa. In section three, we provide a theoretical framework that fleshes out the central meaning ascribed to concepts such as participation, empowerment, and dialogue from a participatory communication perspective as a way of aiding the data analysis section on how to explore the perceptions of role players in this study. In section four, we provide the methodological framework underpinning this study, which is a qualitative research approach that is rooted in an interpretive paradigm of inquiry. The section further explicates how the data were gathered and analysed. The fifth section outlines our presentation, interpretation and analysis of the findings of the study. In the last section, we conclude the study's main contribution and offer some recommendations.

COMMUNICATION IN HEALTH CAMPAIGNS: A LITERATURE REVIEW

Alongside a considerably large corpus of scholarly interest devoted to tracing interdisciplinary pathways between health and communication studies, there has emerged a particular interest in theorising participatory communication in health studies (cf. Basu & Dutta, 2008; Greiner, 2012; . Lagerwerf et al., 2009; Obregon & Mosquera, 2005) in different contexts around the globe.

In most cases, research focuses on how agency, participation and collective action could be employed in alleviating, for instance, alarming HIV/AIDS infection rates among sex workers; or how mediated communication through the use of different media platforms such as apps and games could be used to facilitate and collect user experiences, which is instrumental in an effective patient-centred care approach by nurses within a primary health care system. In other areas, studies have been conducted on how the use of entertainment education (e.g., television and radio) and participation in health campaigns can help influence social and behavioural change (cf. Basu & Dutta, 2008; McPhail, 2009; Tufte, 2001) or how youth participation in health-focused social action projects could lead to the improvement in adolescent health and related outcomes (Suleiman et al., 2006).

In public health, studies tend to focus on how communication and media could be used to foster citizen and behaviour change in health campaigns (Silk et al., 2022) or on how health practitioners, social scientists, health educators; media and communication experts; health experts and policy directors; and operational research directors could all be instrumental, if they work interdependently, to help address a health crisis faced by society (Neuberger & Miller, 2022).

One of the notable arguments advanced in health communication scholarly work is that communication is one of the key methods of overcoming the effects of the COVID-19 pandemic. In

addition, effective communication allows the information receivers to understand and apply the senders' health messages to improve their health conditions. For instance, Seytre (2020) posits that adherence to COVID-19 prevention recommendations is crucial to epidemic control. His study in 15 West African nations on communication messages on COVID-19 revealed unfounded messages, as well as a lack of communication on critical information to understand the prevention measures being promoted. However, the kind of effective communication advanced in this argument is linear, top-down, and unidirectional. This means that the receivers are not actively involved in the communication process and their role is just to receive the messages provided by the main actors (i.e., senders). In contrast, Hyland-Wood et al. (2021) argued that an effective communication strategy is a two-way process that involves clear messages, delivered via proper platforms, tailored for diverse audiences, and shared by trusted people.

Abu-Akel et al. (2021), based on the impact of spokesperson selection on message propagation during times of crisis, examined the effectiveness of different public figures in promoting social distancing among 12,194 respondents from 6 countries that were severely affected by the COVID-19 pandemic. Their results show that immunology expert Dr. Anthony Fauci achieved the highest level of respondent willingness to reshare a call for social distancing. This is followed by a government spokesperson while celebrity spokespersons were least effective. They suggest that the likelihood of message resharing increased with age and when respondents expressed positive sentiments towards the spokesperson. Therefore, it is evident that scientific experts and governments should not underestimate their power to inform and persuade in times of crisis and underscores the crucial importance of selecting the most effective messenger in to deliver lifesaving information during a pandemic.

A lack of acknowledging language significance in communicating COVID-19 pandemic messages results in public distrust of government efforts at combating the disease, as observed by Miller and Castrucci (2021). They explain the US government's highly politicised approach and how the growing ideological tensions continued to affect COVID-19 message dissemination. They believe that language has a profound influence on health behaviours and is a key component of science communication. Language gives meaning to messages that are conveyed and, when used effectively, has the potential to elicit behaviour change.

Premised on the fact that health messages are indispensable in public health, and are the connection between health experts, researchers and communities, Woke (2020) assessed the current health messages used to curb COVID-19 transmission in South Africa. He discovered a gap in the health messaging techniques adopted by South Africa's Department of Health Messages passed to the public were prescriptive on how to prevent COVID-19. Therefore, he believed the messages lacked innovativeness, creativity, and strategy. Moreover, community engagement was not satisfactory. He explained that South Africa's Department of Health rarely communicated supporting evidence from studies on the benefits of COVID-19 preventive measures and support for behaviour change.

In the case of the COVID-19 pandemic, effective health communication can benefit from well thought out strategies, the use of public figures and effective language, correct health messages, innovativeness, creativity and smart use of social media networking sites that can enhance public trust in government's efforts at tackling health-related issues. From the above review of the literature, we argue that it has been difficult to locate a single study that attempt to conceptualise key concepts in participatory communication, namely participation, dialogue, and empowerment, using a public health communication case study to try to explore the extent of citizen participation and empowerment.

THEORETICAL FOUNDATION

The Participatory Approach to Development Communication

Participatory communication is a citizen-centric paradigm of development communication that emanated in the late 1960s and 1970s (Melkote & Steeves, 2015), whose objective is rooted in allowing for the active participation and involvement of local citizens in development and social change programmes designed to improve the quality of their lives and their environment. The paradigm emerged as an intellectual

breakaway in the appreciation of development from a top-down, instrumental action approach called modernisation, to a bottom-up, citizen-centric approach that is hinged on collective action, collaboration and co-creation. The former paradigm placed control over decision-making about development programmes for poor citizens in developing nations squarely in the hands of international development aid managers, donors, bureaucrats, and external people due to their power and dominance of the process. Participatory communication, on the other hand, advocates for the beneficiaries of this development aid by seeking to guarantee their active involvement in decision-making so that genuine and meaningful development and social change can take place (Bessette, 2021).

Since the 1970s, different scholars have used different theoretical approaches to try to conceive ways in which the participatory communication paradigm could be imagined in practical settings. However, the work by Brazilian education philosopher and activist Paulo Freire and accounts from Latin American scholars such as Louis Ramiro Beltrán, Antonio Pasquali, and Juan Díaz Bordenave, among others (Sáez, 2013) can all be credited with how participatory communication became a viable paradigm to shine the spotlight on ordinary citizens who otherwise would be treated as mere passive objects without anything to contribute when development and social change are decided. One of the reasons for this is that inherent in participatory communication, are key concepts that can be used to anchor the role of ordinary citizens in development programmes. These concepts include participation, dialogue, and empowerment, among others (Mefalopulos, 2008). These concepts are also employed in the current study as a way of trying to ascertain if the communication between municipal officials involves bottom-up approaches that emphasise citizen agency.

With participation, a key takeaway is exploring how to enhance the involvement of development aid beneficiaries in all stages of the programmes to allow for the use of indigenous knowledge to become one of the defining features of those development programmes (Incio et al., 2021). In contrast, the present study approaches participation from the vantage point of local citizens from the bottom-up, focusing on their agency, their use of language as well as indigenous culture and knowledge without the influence of others (from the top down) (Huesca, 2008; Molale, 2024).

With dialogue, the participatory communication approach aligns with an instructive and prescriptive interpretation looking at how communication and interactions among development managers and ordinary citizens are facilitated (Molale, 2024). This prescriptive interpretation is rooted mainly in Paulo Freire's notion of dialogue as "genuine discourse" (c.f. Jenlink & Banathy, 2005) that is rooted in praxis (i.e., transformation) (Freire, 1970). In this way, dialogue can be viewed as an intersubjective process of interaction and engagement, where role players listen to one another and value each other's contributions, which at times may lead to conflict but are prepared to discuss opposing views until compromises and/or consensus and/or decisions are jointly made.

With empowerment, it is worth noting that its prescriptive interpretation is rooted in a rights-based approach where local citizens have equal latitude with development managers and authorities, especially over the decision-making stages of a development and social change endeavour. This is predicated by the fact that inherent power imbalances that are typically present when examining the typical relationship between development managers and local citizens need to be addressed and the latter stakeholder group deserves to have an active voice and involvement when decisions about development endeavours are made (Mefalopulos, 2008; Melkote & Steeves, 2015). In line with these arguments, Molale's PhD thesis describes empowerment as the "short- and long-term positive impact of development projects on the lives of local citizens as a result of their involvement in the decision-making process, and their contribution to local development activities as well as the extent to which they get opportunities to grow, learn and develop themselves in the process" (Molale, 2021:107).

Since power can be regarded as a relational concept, some scholars believe that such a move would render power to be interpreted as a "zero-sum game": a situation in which one stakeholder group gains power in a development process at the expense of another stakeholder group (Li, 2017). However, Molale and Fourie (2023), when faced with the same argument in their study that advocates for local citizens to be empowered to make decisions in a participatory process in a local municipality, advance an argument

that empowerment should be "conceived as the broadening of the power base, instead of merely a transfer of power and authority over to citizens". Here, the authors imply that instead of a zero-sum game, power should be interpreted as a "positive-sum game" in which the sharing of power among all role players and the apportioning of some degree of autonomy to local citizens is not seen as encroachment. This interpretation of power is also adopted in the present study, where citizen empowerment is not understood as a process that seeks to take power from current custodians of citizen participation processes but as a process through which there can be collaboration and co-creation of meaning in the development of health communication messages (whether they are about COVID-19 or any health emergency experienced across municipalities).

METHODOLOGY

A qualitative research approach was employed in line with the present study's interpretive/constructionist research paradigm. The purpose of a qualitative methodology is to "explore, describe, or explain social phenomenon; unpack the meanings people ascribe to activities, situations, events, or artefacts..." (Leavy, 2014:2). With this in mind, the qualitative research approach allowed the researchers to gain insights and multiple constructions of reality (Creswell & Creswell, 2018). This is rooted in the fundamental belief that "both reality and knowledge are constructed and reproduced through communication, interaction, and practice" (Tracy, 2013:40). Out of a population of about 100 000 people in about 30 000 households (Media Monitoring Africa, 2024), a purposive sampling technique was used to identify 30 respondents for this study. These were composed of 26 focus group respondents and 4 key informant interviewees who were mainly working as municipal officials. This sample was composed of key informants who are community leaders, ward councillors, and municipal officials. After receiving permission and consent from the municipality to collect the data, the 26 focus group interviewees were divided into 3 groups of community members. Group 1 comprised women from Setlagole village, group 2 comprised 8 people (6 women and 2 men) from both Setlagole and Madibogo Villages, and group 3 was composed of 12 men from Madibogo Village. Key informant interviewees were the manager in the office of the municipal manager; the municipal council speaker; a municipal ward councillor; and the municipality's communication manager. Pseudonyms were used to hide the identities of the research participants. Municipal representatives were referred to as "Official 1" or "Official 2", etc., while focus group respondents were referenced as "Participant FG1A" (this implies Participant A in Focus Group 1), or Participant FG2D (meaning Participant D in Focus Group 2).

All respondents were asked questions that revolved around media platform type, selection process, languages and frequency of COVID-19 messages, and the challenges encountered when disseminating COVID-19 messages in the municipality. The purpose behind these questions was to explore the extent to which participation, dialogue, and empowerment were featured in all communication efforts employed by municipal officials and to record perceptions of citizens. This was to ascertain the extent to which they felt involved in COVID-19 health message development and distribution across different villages in the municipality in line with the ethos of participatory communication.

Participant consent was obtained for researchers to use their personal Android phones and laptops to record the interviews, which was instrumental in the data analysis process. Notes were also taken as the interviews progressed to supplement the recordings. From a deductive logical standpoint, the three concepts in participatory communication, namely participation, dialogue and empowerment, were adopted from theory and used as key themes in the study's thematic data analysis process. This is provided in the section below, where our findings are discussed.

FINDINGS AND DISCUSSIONS

The study's findings revolve around how Ratlou Municipality officials communicated COVID-19 health messages to community members during the government-imposed lockdown and restrictions on human movements. Then focus was on media tools, factors determining media tools' use, factors determining message frequency, language of message dissemination, media effectiveness, and challenges of health

message dissemination. In addition, we also concentrated on how participation, dialogue and citizen empowerment were facilitated and/or achieved in the communication process between municipal officials and residents in the rural communities of Setlagole and Madibogo Villages.

Ratlou Municipal Local Authority constitutes two wings: political and administrative. Headed by a speaker of the council, the political wing communicates directly with community members. It consists of ward councillors and a ward committee that relays feedback to community members. The administrative wing, headed by the municipal manager, assists in designing communication and providing platforms for use by political wing officials. It was found that municipal officials play a "custodian" role and are in charge of all public communication processes within the municipality.

Citizen Participation

Citizen participation looks at the extent to which the voice of the local community is accommodated, facilitated, and finds expression about development and social change processes. Ideally, studies that set out to examine the extent and nature of citizen participation would typically ask questions such as how the community participates in local development planning, what its role is, where its participation is limited, and so on.

However, for the present study, a different approach was employed. We intended to learn how Ratlou municipal officials as well as community members view their interactions and communication around COVID-19 health campaigns. Furthermore, we wanted to explore the perceptions of municipal officials and community leaders on how communication was facilitated within this context. This exploration was concerned with identifying opportunities for civic agency and active citizen participation in the communication processes followed, and if there were created spaces for communication and participation in COVID-19 message design, dissemination, and consumption. This, we believe, was crucial in helping to arrive at conclusions around the extent of citizen participation as far as communication around the COVID-19 health pandemic is concerned. We discovered that the municipality used different platforms to communicate with citizens, but this communication was linear and unidirectional with very limited opportunities for the facilitation of feedback. Notwithstanding, municipal officials maintained that their communication activities allowed them to reach as many people as possible across the different villages within the municipality. This is demonstrated in the following extract from one of the key informant interviews:

> We used the radio stations because at that time gatherings were prohibited. We used radio stations and requested people to send their comments via WhatsApp and through the lines we opened at the time. (Official 2).

Furthermore, when describing their communication with communities, another interviewee explained the process and communication protocols followed to ensure that COVID-19-related health messages reached the community. He stated that the chain of command started when they had to form a Municipal COVID-19 Command Council that was housed in the office of the municipal speaker and all their communication and plans around COVID-19 were initiated in this council. Ward councillors and ward committee members were then used as the municipality's mouthpieces to take messages into the community.

Two observations were made from one of the official's responses. First, all COVID-19 health messages were centralised in this municipal command council and cascaded down to other municipal structures, which then reached communities in the different villages around the municipality. Second, even when spaces were created for community members to make comments around their messages, it was not clarified if they did indeed receive those comments in the limited communication spaces provided due to COVID-19 restrictions, and what was done with the comments.

Notwithstanding, when asked how language affects the nature of their communication, in these limited spaces with the community; the respondent highlighted that the indigenous language spoken in

the community, namely Setswana, is critical to all their communication efforts. This point was highlighted by a municipal official during one of the key informant interviews and is demonstrated in the following extract:

> Remember that I said the communication from the institution/municipality is done through political office. If that happens, they have to go to the radio stations. It will be done in Setswana because that is the predominant language that people understand, and if there are questions raised by other members, who may not speak Setswana, that is also being catered for... (Official 4).

Another official referred to two media releases and a public notice from 2020 as examples of how they communicated their messages about COVID-19 to the community. He emphasised that they proactively updated the community about plans that were put in place to mitigate the spread of COVID-19 and always reminded the community to observe lockdown measures.

According to focus group respondents, they receive COVID-19-related messages once a month or even once every three months from the municipality. This, they said was comparatively lower than the weekly communication they have with their local traditional authority. They indicated that their weekly meetings at their traditional council are for talking about all issues affecting the community, including COVID-19. And yet, the traditional council is not a government structure and it does not have a COVID-19 Command Council but it is still more efficient in terms of accessing community members than the municipality with all its resources and authority. One respondent even suggested that there is a need for more people to be employed at the municipality to improve the communication process and to further reach community members based on their sociographic and demographic information.

> I think they should hire more people to help our community, including the elderly, to be more responsive to COVID-19. They should target our schools, our community in clinics and across the municipality... Mass employment is key to helping our community protect against this pandemic (FG2B).

From the above views, there are interesting conclusions that can be made based on how participation is understood or perceived by the research subjects. Drawing from the literature, scholars such as Eversole (2003) and Cornwall (2007) have established that participation, as a concept that is predominantly used in development discourse (alongside concepts such as democracy, citizenship, and dialogue), risks being labelled a "buzzword" - a word that is used in development discourse to unlock development aid funds if thrown around - even if there is no evidence of genuine local participation in development and change programmes. Likewise, various studies have found that it is common practice for the concept to be used in the local government sphere in South Africa as a buzzword (Hofisi, 2014; Molale, 2024; Tau, 2013; Williams, 2006), where officials tend to use the word merely as a means to achieve desired ends.

From the above interactions with key informant interviewees, it became apparent that although they say there is citizen participation in their affairs, they admit that due to COVID-19 restrictions, there were limited spaces created for public participation in their health message design and distribution. Officials relied on unidirectional message transmission from the municipal chambers via a channel (i.e., public notice, press release sent to the media, etc.) to community members.

Just as it has been found in other studies, it can be argued that Ratlou municipal officials use participation as a buzzword and a means to try and achieve desired ends. Notwithstanding, in their presentation of a model that is aimed at "rethinking" the public participation process in local government, Molale and Fourie (2023) suggest that perhaps participation should be redefined so that a clear mandate can be derived from a correct and realistic interpretation of the concept. They define participation as follows:

> A social process that is, at times ongoing and in other instances, planned; characterised by the establishment of platforms (i.e., invited space) where all role players engage in all-inclusive dialogue, and whose aim is to reach agreed upon decisions concerning solutions to common development problems (Molale & Fourie, 2023:4).

Here, the authors offer a theory-based and context-specific definition of participation, which describes the roles that municipal officials and community members should play in the public participation process. Most notably, the definition is rooted in the participatory communication paradigm of development communication. The following key implications are evident from this definition:

- Participation ought to be an ongoing process, but it can sometimes be planned.
- Participation should be rooted in dialogue.
- Participation leads to collective action and shared decision-making.

Dialogue

Similar to participation, dialogue also focuses on the extent to which citizens' voices are facilitated in communication processes that involve citizens and authorities. Ideally, dialogue is approached from a prescriptive sense instead of referring to mere everyday conversations or discussions. Within the context of participatory communication dialogue is prescriptive because it can only be seen as meaningful if interlocutors have careful regard for each other's contributions and are engaged in meaningful discourse that should ultimately lead to praxis (Freire, 1970; Jenlink & Banathy, 2005). Approaching dialogue from this perspective means when we conceive it in the context of communication between municipal officials and citizens, we need to probe how the role players communicate, how feedback is facilitated, and if the kind of communication taking place signifies opportunities where there is joint and equal contribution of ideas in meetings or any form of communication towards the attainment of praxis.

According to officials of Ratlou Municipality, they deployed loud-hailing techniques, local radio stations, social media networking sites, meetings, pamphlets, flyers, funerals and other events as communication tools for disseminating COVID-19 health messages to the public. Out of these media tools, findings show that loud-hailing techniques, local radio stations, social media networking sites and funeral events were predominantly used as avenues to reach out to community members about COVID-19 health messages.

The loud-hailing technique involves assigning someone who understands and is familiar with the community and the environment to disseminate information. He summons and gathers the available people, and delivers messages by word of mouth. It is similar to face-to-face communication from a source representing the machinery of the municipality to a group of assembled community people.

Focus group respondents confirmed most of the communication platforms that municipal officials indicated that they use, notably, the posters, a local community radio station, WhatsApp groups, such as the Ratlou Women's Desk, and announcements during funerals.

Regarding the use of WhatsApp, the focus group respondents highlighted that the social media platform is used to cascade messages to the community, in a one-sided and top-down manner, instead of holding two-way conversations and interactions that lead to collective action, agreements, and good mass practices around curbing the spread of COVID-19 in rural villages. This argument implies that the kind of interactions between municipal officials and the community in these WhatsApp groups is not dialogical in nature. Dialogue, when conceived from a participatory communication perspective, is linked to Paulo Freire's (1970) notion of praxis; that is, it is an action-reaction process where interlocutors use the word to transform the world. The presupposition here is that if municipal officials continue with the way they interact with communities on these platforms, there is little likelihood that genuine development, transformation, and change will take place. This line of thought is further evidenced in the following interview extract from a focus interviewee who expressed dissatisfaction with how the municipality interacts with community members:

> FG1A: "For instance, I would be using WhatsApp but not having data on my phone, this means I will maybe receive their messages long after they had sent them or shared them in the group."

In agreeing with the above respondent, other focus group members indicated that they do not trust the communication coming from the municipality because they believe municipal officials do not follow all COVID-19 protocols at all times.

> FDG 1 (D): "These people are afraid to close their offices, it's like they are worried about time and how delayed their programmes might be, but COVID-19 does not care about that.... Sometimes you would hear that the municipality is closed on a Wednesday because of a case, but come Thursday, the offices are open and they are operating again... They get COVID-19 cases every week and their communication is poor".

Another media tool used by municipal officials is local radio stations. Ratlou FM and Modiri FM were used to reach community members. The use of radio stations has an advantage over loud-hailing techniques due to audience reach. Although using local radio stations is effective, an official complained that radio use "is not effective in all the wards of the municipalities because when you go to some northern parts of the municipalities radio signals have not reached there. It's only one-sided. It reaches certain portions". Similarly, the speaker of the council explains the merits and demerits of using radio:

> The radio is also good. We use the radio to convey the budget messages to the communities, and also people even phone into the radio, asking questions and all that. They participated actually during a budget presentation by the mayor. That shows that our people can listen to the radio. The disadvantage is that it is not all of them that listen to the radios or participate in radio compared to loudhailing. (Official 2)

Despite its drawbacks, radio use encourages community participation in local government affairs. Funerals also serve as conduits of health information to people because it is easy for municipal officials to appeal to people's senses during such solemn occasions. Lastly, findings also showed that Ratlou municipal officials used social media networking sites and apps to sensitise community members about COVID-19 issues. WhatsApp appears to be an effective tool for information dissemination combined with radio.

One official explained that municipal officials are put in charge of different WhatsApp groups through which they interact with community members. Also, they use WhatsApp groups to hold council meetings among the officials and ward meetings with community members. However, focus group interviewees disagreed with this submission, indicating that municipal officials only use WhatsApp groups to share messages and not to hold virtual meetings.

Empowerment

As an important feature of citizen participation, empowerment focuses on how local citizens should be made to feel their views matter and that they can make meaningful contributions towards their development and the development of their surroundings. This is arguably the main idea that sums up the central argument behind the paradigm shift that took place in the development communication field, from modernisation to participatory communication (Wilkins 2009; Servaes, 2008).

Within the context of this study, we aimed to trace instances where either officials and/or community members referenced the extent to which residents were given the space and authority to decide on communication measures and efforts to curb the spread of COVID-19. We wanted to check if COVID-19 message development was informed by citizen involvement to help us in concluding that the citizens were empowered to decide on how to jointly find ways to curb the spread of COVID-19 and not merely be

passive receivers of information. Empowerment implies providing space and facilitation of the voices of ordinary citizens who are often disenfranchised and marginalised during development and social change.

Notwithstanding, the legislations that govern local government in South Africa do require that citizen participation processes be followed (South Africa, 1996; South Africa, 2000), thereby implying some degree of citizen empowerment and agency in these processes. However, they lack a failsafe mechanism to assess and guarantee that citizens are indeed empowered in a true participatory communication sense. It is from the above premise that power and, more specifically empowerment, should be redefined so that it becomes clear how citizens should be empowered if they are to feel valued and when making contributions towards defining the local development and social change agenda.

The challenges with having to mount an effective response to the COVID-19 pandemic in 2020, with the effects of the pandemic continuing to manifest even in 2022, hampered the free flow of health communication and its impact on the people that were supposed to use health messages to better their lives. Key informant interviewees indicated that communicating health information to counter the spread of COVID-19 in the municipality was affected by comorbidity of service delivery, people's low education level, PPE problems, media blackout, political ideology effects, and COVID-19 restrictions, regulations, and lockdowns.

In their view, service delivery that was significant in reducing the virulent effects of the COVID-19 pandemic suffered a great deal. This situation pertains to those workers during the pandemic who normally performed duties to curtail the spread of the disease. An official painted the picture thus:

> This is an unprecedented condition. We tried by all means to do what we had to do under normal circumstances. But it is not easy. We live in fear. We live in despair, and service delivery is also tremendously affected. (Official 2)

Comorbidity negatively impacts the fight against the pandemic in the municipality. Notwithstanding, the officials interviewed stating that they ensured that service delivery reached community members with minimal disruptions. This statement could not be verified since the speaker further admitted that COVID-19 restrictions affected public participation: *'I always mention the issue of this COVID-19 restriction because it affected us. I can't say we didn't have any challenge as regards public participation because the restriction itself, or the regulation itself restricted us to do more things that we could have done' (Official 3).*

Particularly, he noted the restrictions prevented them from employing traditional media platforms like the use of local music artists, poets or griots to disseminate important health instructions as these methods would attract large crowds, an aspect that was forbidden underCOVID-19 regulations. Community members' low level of education is also indicated to have affected how officials assessed COVID-19 health messages.

This challenge is believed to have been affected by the nonchalant attitude some community members displayed in observing mask wearing and social distancing publicly, especially in church and at funeral gatherings. The officials felt that people violated social distancing rules during funeral events as well as on days when they received their pensions, and these situations constituted a grave challenge for fear of super-spreading the virus. An official attributed this attitudinal behaviour towards disseminated messages to human nature.

If the insights obtained from municipal officials are anything to go by, the communication-related challenges experienced by the municipality at the height of the COVID-19 pandemic prevented it from exploring ways in which communication processes can be broadened, thus implying that it could not partner with the community or give them latitude through sharing the responsibility for developing COVID-19 messages. As custodians of municipal affairs, the municipal officials might have felt uncomfortable entrusting responsibility to citizens as this would lead to a "zero-sum-game" being experienced. As argued in the theoretical framework section of this paper, this should not be the case since empowering citizens does not necessarily need to lead to officials losing their power or authority over the process.

CONCLUSION

This article sought to explore how key principles of participatory communication, namely participation, dialogue, and empowerment could be applied in a public participatory process involving municipal employees and rural villagers in two South African villages in the North West Province within the context of health communication. We studied the nature of participation and communication between Ratlou municipal employees and villagers by exploring how they shared, exchanged, or disseminated COVID-19 messages during the pandemic's peak in 2021. Findings that emanated from key informant interviews as well as focus group discussions, include the fact that local community members were merely passive receivers of information from municipal officials. This implies the lack of meaningful and active citizen participation in line with the ethos of participatory communication.

Additionally, although there were platforms for two-way communication between municipal officials and villagers during this period, including the use of WhatsApp as an efficient communication tool, it emerged during focus group discussions that this platform was mainly used for one-way message transmission (i.e., from officials to community members). There was therefore no dialogue between the parties involved since local villagers were not granted spaces where they could make meaningful contributions to the COVID-19 health communication process. In terms of the power relationship, municipal officials viewed themselves as the custodians of all the communication and they believed that they were empowered by legislation to take control of all public participation processes, given that they were also required to form a COVID-19 Command Council. It is for this reason that given the dominance of municipal officials' overall communication processes, local community members were forced to be passive receivers of information and all COVID-19 health messages, thus implying a lack of citizen empowerment in decision-making to alleviate the effects of the scourge.

These findings suggest the need for public participation policies, regulations and guidelines in the South African local government sphere to be rethought and overhauled. It is arguable that if participation, dialogue, and empowerment are approached from the perspective of participatory communication across the South African local government arena, local citizens would find themselves making meaningful contributions to public participation processes (including decision-making), which would lead to the alleviation of many of the challenges experienced, including the mostly violent sporadic unrest and protests.

In sum, this article makes an essential contribution to the nascent, but growing, body of knowledge devoted to the exploration of participatory communication and how it is employed in public participation processes in local government. Further research inquiry is recommended where qualitative and quantitative studies could conducted in this area, thereby strengthening the need for further empirical review of Molale and Fourie's (2023) framework for participatory communication as a facilitator of public participation processes. A practical implication made by this study is that it calls for municipalities to rethink citizen participation processes to make way for more opportunities for genuine, active, and meaningful citizen participation through the facilitation of participation, dialogue and empowerment.

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Youth awareness of Facebook users' data commodification and its business model

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Abstract

Facebook (Meta) is one of the world's richest corporations, with about 98% of its revenue generated from advertising. Beyond its utilitarian function of connecting billions of people, Facebook is a global advertising machine that basically functions by commodifying users' information and monetising their behavioural data. But are users aware of this? While studies have examined youth's awareness of risks in online engagements, there are limited studies on youth's awareness of the commodification of their information and target advertising directed at them as trade-off for 'free' access to online platforms. This study investigated if educated youth with Facebook accounts in South Africa were aware of this commodification process, and that Facebook uses their information for advertising revenue. Drawing theoretically from discourses on commodification and digital capitalism, we examined youth's media literacy awareness about Facebook's commercial operation. We conducted a survey of 103 university students and employed online ethnography to elicit responses from a community of university students. The online ethnography generated 24 comments. Findings showed that the majority of participants were unaware of this basic critical media literacy fact about the commercial operations of Facebook. This inspired the recommendation for a broader focus on critical media literacy for youth, whose sociability and sense of citizenship are increasingly shaped by engagements on digital platforms.

Keywords

Commodification, digital capitalism, Facebook, media literacy, South Africa, youth

INTRODUCTION

Facebook has approximately 3.05 billion monthly active users, making it the largest social media network globally (Shewale, 2024); as such, it provides a platform for social connection to about a third of the world's population. But Facebook is also a commercial enterprise, with a remunerative objective of attaining monetary surplus, drawn largely from targeted personalised advertising by customising advertisements to the assumed interests of users (Fuchs, 2021). Facebook has successfully created a personalised sense of trust in many users in the presentation of self that they are willing to divulge very private facets of their lives, such as their relationship status, where they visit, when they were born, where they live, what they eat, where they work or school, what they like, and much other personal identifiable information. However, Facebook uses mass inspection and digital surveillance tools to store, juxtapose, evaluate, and sell the personal data and behaviour patterns of several hundred million users. These are subsequently used to provide each user with advertisements that, based on the algorithmic selection and comparison mechanisms, are believed to reflect the users' consumption interests (Fuchs, 2021). This process reveals the basic commercial operation of Facebook: exchanging users' attention and personal data for advertising

revenue. Users' awareness of this process is important for critical social media literacy about a platform they give their personal information to. Their personal data are not only used for commercial operations, but can also be used to influence the political decisions of users. For example, Facebook had allowed a consulting firm, Cambridge Analytica, to collect and use millions of Facebook users' personal information for targeted political advertising without their knowledge (Habib et al., 2022). This data harvesting was alleged to have impacted the outcome of the US presidential election of 2016 (Meredith, 2018).

Facebook is one of the most-used social networking platforms in South Africa; a 2020 penetration rate shows that 93% of Internet users of 16-64 years of age used WhatsApp, 92% used YouTube and 87% used Facebook (Varrella, 2021). The high penetration rate of Facebook among the youth has inspired various studies about its uses (Kraus et al., 2022; Sethna et al., 2021). But of critical interest is the need for an enquiry that examines youth's understanding of the workings of social media, especially the commercial nature of social media corporations and how users are commodified in the process. This will reveal their awareness about the trade-off they make for 'free' access to these platforms. But more critically, to examine if they care about these issues.

Studies have examined the importance of media literacy education in understanding many social issues relating to the media, for example, disinformation and misinformation on social media platforms (De Abreu 2021, Popescu 2020), parental mediating of social media uses of adolescents (Nagy et al., 2023) and issues of body perception and eating disorders among adolescent girls in relation to social media use (Kumar & Singh, 2023). In South Africa, there has been less focus on scholarly enquiry into the youth's awareness of the economic operations of social media. As such this study set out to examine if Facebook users understand that their data, derived from personal information and online activities, are commodified by Facebook for income generation. It also examined their awareness about the trade-off they make for 'free' access to Facebook, and what this means for their knowledge about privacy and commercialisation of users' data as the core business operation of the media platform they actively utilise. Such knowledge is critical for the media literacy awareness of a generation who, perhaps unbeknownst to many of them, remains the core economic value of social media corporations.

User commodification as core to social media economy

Facebook is a lucrative enterprise. In 2022, it generated US$116.8 billion in revenue (Iqbal, 2024), with revenue from advertising at US$114 billion (Mosby, 2023), being the major source of income. Facebook has made Meta (the parent company) one of the richest technology companies in the world, and has made Mark Zuckerberg, the founder and CEO, at a worth of US$ 138 billion, to be the fifth richest person in the world as of January 2024 (Bloomberg, 2024). Social media platforms, such as Facebook, rely on the commodification of users' data for target advertising as the core source of income. Commodification, according to Mosco (2009), is the process of transforming objects appreciated for their use into commercially viable goods valued for the monetary opportunity they provide in return. According to Gray, Roberts, Stafford and Broadbent (2023), commodification is the process of turning public goods—such as ideas, services, and publics themselves—into things that can be exchanged or traded on marketplaces. A commodity is typically defined as having four characteristics: supply, price, exchange, and demand (Hoffman, 2023). Information provided freely by social media users are the sole product of social media corporations. As Oyedemi (2019) asserts, information is produced every second from human behaviour on online platforms. This information is in the form of data generated by users who post photos, write comments, share information, like posts, create communities of friends, and browse friends' pages. They also include location check-ins, online searches, providing personal information on age, gender, hobbies, and cultural tastes – in music, arts, and movies. These then become commodities that are sold to advertisers for target advertising to users based on their profile, which is algorithmically constructed by the information users freely offered. Fuchs (2021) notes that Facebook basically offered its users as commodities to advertisers on the rationale that their exchange value is based on produced use values derived from personal data and interactions. This is the trade-off that many users might not be aware of: Users enter a transaction, and their data is gathered when they accept terms and conditions that have

a non-monetary cost or pay for services with money (Hoffman, 2023). Since users' data are important for the economy of social media, constant surveillance has become an integral part of the social media experience. Consumer monitoring is achieved through many softwares and techniques, such as the use of "cookies," and "web beacons" that are installed on devices when users visit online sites. Similarly, unbeknownst to many users, their information may be collected by third parties through these 'web beacons' and 'cookies' that users accept on social media sites, making it difficult to unsubscribe from these cookies due to mechanisms embedded in these platforms.

Facebook uses tools to get information from other websites and apps in addition to tracking users' activities. Users' comprehension of "third party" data collection, ad networks, and data aggregation across websites and apps is particularly lacking (Habib et al., 2022). The mass monitoring is personalised to provide consumers with advertisements that represent their consumption preferences based on algorithmic selection and comparison mechanisms (Fuchs, 2021). Advertisers subsequently pay Social Networking Sites (SNS) like Facebook to strategically position content that suits their particular target market. Furthermore, as Cole-Turner (2019) notes, social media platforms rely on billions of individuals or consumers voluntarily supplying them with an almost unimaginable quantity of personally identifiable data.

Since the sole business operation of the media is selling audiences and users to advertisers, this has also been the main income generator for social media corporations. Facebook is a massive advertisement network that makes much of its money by selling advertising space, which accounts for more than 97 percent of its revenue (Facebook Investor Relations 2021). As the largest social networking platform in the world, Facebook advertising has become increasingly dominant in the social media economy. When scrolling down Facebook newsfeed, various advertisements in the form of messages, photos, or videos can be seen, most of which are related to a user's online behaviour. Consumers are eager to divulge and share information on social media networks despite privacy concerns, suggesting that consumers have faith in the social media networks to protect their personal information. This allows Facebook to collect a vast amount of data about users, which includes their demographic and psychographic data (Sethna et al., 2021), then sell the data to generate income. But while many young users may not be aware of this process, studies show that they have opinions and reactions to the presence of advertisements on their social media pages (Ferreira & Barbosa 2017, Van den Broeck et al., 2020).

The personalised advertisements seem to be acceptable to many Facebook users. A study by Van den Broeck et al. (2020), based on semi-structured interviews of respondents between the age of 25 and 55, found there is a general openness among users toward being influenced by commercial messages on Facebook. The study shows that unsolicited ads were no problem for the respondents in the study, as long as the ads were unintrusive. This means that either the ads are relevant, or less relevant but not interrupting the content flow. However, earlier Ferreira and Barbosa's (2017) quantitative survey of 385 respondents shows that people who spend more time on Facebook find Facebook advertising to be annoying. Females have a more favourable attitude toward Facebook ads than males, and older people do not find advertisements as irritating as young people do. A South African study by Duffett (2015) using a survey of 3,521 young adults (Millennials), reveal that Facebook advertising has a positive attitudinal influence on intention-to-purchase and purchase among many young people. The study shows that the longer younger people stay on Facebook, the higher the chance of interacting with advertising on Facebook. Contrary to Ferreira and Barbosa's (2017) study, it shows that advertising on Facebook was most effective when Millennials spend two or more hours on Facebook per log-in session. But, if users are open to advertising on Facebook, are accepting of personalised advertising on Facebook and even interact with advertisements resulting in intention to purchase or actually making purchase, are they aware of their own data commodification in the process? This question is at the heart of this current paper. A study by Nyoni and Velempini (2018) has found a lack of awareness about privacy of personal data on social media platforms among a cohort of research participants in South Africa. They revealed that users regularly post sensitive data, which can be used to monitor behaviour and activities, but most are not aware that their posts and updates are in the public domain and can be easily accessed.

Postmodern capitalism: Surveillance and digital capitalism

The theoretical understanding of postmodern capitalism is described as a current phase of capitalism where marketable products are not limited to tangible products, services and labour (Oyedemi 2019). It is a capitalist system that describes the entrepreneurial aspects of the digital revolution, which influenced Facebook as a commercial enterprise. Postmodern capitalism has expanded and fragmented the elements of historical capitalism, consequently the commodification of humans and their labour has been fragmented and the elements of the 'unitary self' have become commodities and raw materials in the manufacturing of marketable 'products.' Subsequently, human characteristics like age, gender, location, marital status, community, and utterances are codified as raw materials and sold as commodities to advertisers. The human inherent activities of self-presentation and leisure have become labour in a coproduction of data that are marketable. Social media users and people online are working for digital media corporations through the unpaid labour of liking, commenting, rating, tagging, evaluating, reviewing and sharing information about products, places, and services online. All these actions are perpetuated under the guise of free access to digital platforms (Oyedemi, 2019). Because behavioural traits are commercial products, this has given rise to a panopticon mode of surveillance, not merely for power and control as described by Foucault (1975), but for wealth accumulation.

Surveillance capitalism as a form of postmodern capitalism is the selling of access to real-time daily digital traits of users to directly influence and modify human behaviour for profit (Zuboff, 2019). Meier (2019) describes surveillance capitalism as a process of monitoring and collecting behavioural information on people online and turning it into data marketed for advertising. It also involves a constant hunt for this information across various channels, platforms, services, devices, places and spaces for access to both current and future behavioural data of people, given freely by users, which are then turned into raw material available to the corporations. Through the use of algorithms, artificial intelligence and data science, the data are then optimised and converted into predictive products to be sold on a meta-market (Meier, 2019; Oyedemi, 2019). This is also the nature of digital capitalism, a form of capitalism through the Internet and the market operations of digital technology corporations. Digital capitalism, as Fuchs (2020:71) describes, is a dimension of capitalism that forms a "part of a capitalist society and a capitalist economy that is organised around the production of digital commodities and digital products". Its processes involve the centralisation of ownership through merging with and acquiring potential competitors, such as Facebook acquiring WhatsApp and Instagram, and Google's (Alphabet) acquisition of many technology start-ups, including YouTube.

Digital capitalism, from a theoretical analysis, builds on the critical scholarship in the critique of capitalism by Karl Marx and Friedrich Engels and, as applied to communication, by Theodor Adorno, Dallas Smythe, Dan Schiller, and Christian Fuchs, amongst many others. Social media corporations are key players in this digital capitalist society; they capitalise on human needs to create an illusion that generates wealth and commercial benefits for them. The human needs to present self, and for connectivity, finds realisation on social networking sites, which is made attractive and easily accessible by the illusion of free access. This illusion of 'free' service and 'free' access projects a faux reality of public good to the unsuspecting millions, who unbeknownst to them, are the commodified products of the capital exchange process in digital capitalism (Oyedemi, 2021). Digital corporations thrive on the ignorance of users about this capitalist process. As such, it becomes important that users have a basic knowledge of the economic process of social media, to not merely see Facebook, for example, as an innocent media platform for connecting the human race, but as a commercial enterprise. Such knowledge will empower users to make informed decisions about what personal information they want to trade for 'free access' to the social media platform and to be aware of what their information is being used for. This is part of the essence of media literacy skills.

Media Literacy

Media literacy is a collection of abilities and competencies that encompasses knowledge exploration, comprehension and media use. It includes a variety of vital abilities required to function in the mediated and

interactive cultures of the twenty-first century (Tran-Duong, 2022). Assessing, technical skills (knowledge of how social media work), comprehension and management of social media interactions, informational awareness, privacy and algorithm awareness, and critical analysis of social media content are all included in the category of media literacy (Wei et al., 2022). Media literacy is perceived as an essential competence for citizens of all ages in today's mediatised and digitalised societies, and contributes to: (a) democracy, participation, and active citizenship; (b) choice, competitiveness, and the knowledge economy; and (c) lifelong learning, cultural expression, and personal fulfilment (Livingstone et al., 2005; Rasi et al., 2021). Core concepts of media literacy include the knowledge that media messages are 'constructed', that they are created using creative techniques and languages with their own rules, that people understand and interpret the same media messages differently, and because media messages are not value-free, they convey certain points of view and omit others – including the knowledge that most media messages are organised to gain profit and/or power (CML, 2005). Understanding that media are organised for profit is critical for audiences and media users. It calls for a critical approach to media literacy, which, according to Currie and Kelly (2021), is about connecting the power of media engagement to social change. A critical approach to media literacy draws attention to the analysis of the production and political economy of media, including textual and contextual analyses of media artefacts from TV and film to the new forms of digital media (Currie & Kelly 2021). The focus on understanding the political economy of the media is particularly relevant to this current study, as it focuses attention on the economic dynamics of the media. In the era of digital and social media, more critical media literacy skills are needed. Social media literacy skills will focus on knowledge about the production of text, the value of text, the political economy of social media corporations and the implications for the users. The implication for users reveals, for instance, the understanding of the effect of an always-on communication culture and privacy issues. As Trepte et al. (2014) observe, privacy literacy is critical in an online environment, because although users may show concerns about disclosing personal data online, they share personal and sometimes intimate details of their and others' lives on various online platforms.

According to Richardson et al. (2016), social media literacies are characterised by focus, participation, collaboration, network awareness, and critical consumption of participatory digital media such as Facebook, Twitter, Instagram, and blogs. As a result, as teenagers become more media literate, they will be able to further improve critical thinking skills and gain a better understanding of how inequity and injustice operate in society (Tosi, 2011). Social media users who have the requisite media literacy skills will be aware of what they are getting into when they sign up for social media accounts; they will find the skills useful as they become more aware of the privacy risks associated with social media sites and acquire strategies in managing privacy issues in an online environment. Zarouali et al. (2020) investigated privacy protection strategies and advertising literacy related to target advertisement on social networking sites (SNSs) through a quantitative survey involving 374 adolescents (aged between 12 to 17 years and 469 young adults (18-25 years) in Belgium. They found that adolescents have an inadequate awareness of commercial data collection practices and take little action to cope with targeted advertisements by means of privacy protection strategies. Although there are studies on media literacy about social media use in relation to many social issues, such as cyber-violence (Tirocchi et al., 2022), combating disinformation and fake news (Popescu 2020), and eating disorder (Kumar & Singh, 2023), there are few studies that explored basic awareness about the political economy of social media platforms and the commercialisation of users' data, especially in South Africa. Consequently, this study explores this critical area of knowledge about social media use among young adults in South Africa.

METHODOLOGY

This study adopted a mixed method approach. The use of the quantitative survey method was combined with qualitative data of open-ended opinions in the survey and in-depth online comments collected through observation in virtual ethnography. Descriptive research design was used in this study as it incorporates both the qualitative and quantitative methodologies to describe the patterns in the data. With the goal of exploring the knowledge about the commercial objects of the Facebook's operations

through user data commodification and advertising, we collected data through an online survey and online elicited data on Facebook. The online survey included both open-ended and closed-ended questions that examined respondents' knowledge and awareness about Facebook's basic commercial operations. The link to the online survey was shared in Facebook groups of selected South African university students and on student WhatsApp groups. The selection of the respondents was based on a convenience sampling, which involved students from a rural university in Limpopo Province, and through acquaintance with students from another university in Johannesburg. The survey ran from the 14th of June 2021 to the 19th of July 2021. There were 103 responses to the survey.

To gain a deeper understanding of participants' opinions and seek in-depth comments to support the open-ended responses in the survey, we sought online-elicited data on Facebook. The online-elicited data was a form of virtual ethnography with a participant-observation approach. The open-ended questions in the survey were posted on a Facebook page of a student online community in the same university in Limpopo Province on the 22nd of June 2021. The questions basically asked students on Facebook if they were aware of the extent of Facebook and its CEO's standing as two of the world's richest entities, and their opinion about the information that about 98% of Facebook's revenue is generated from advertising based on making users' profile and data available to advertisers for target advertising. The other question was more explicit in describing what constitutes user profile and data. It asked participants if they were aware that information such as updates, personal information about age, gender, date of birth, where they live, school, and so forth are used to generate user profiles that are made available to advertisers for target advertising; we then sought their opinions about this. The intention was to generate comments, opinions, debates and discussions among participants on Facebook. The opinions and discussions were observed and downloaded daily for almost a month from the 22nd of June 2021 through to the 19th of July 2021. There were a total of 24 comments and opinions at the end the process. The nature of the data collected through the survey and virtual ethnography inherently allowed for the maintenance of the anonymity of respondents. No personal identifiers of respondents were required or requested, and an assent to an informed consent prior to completing the survey was requested, which ensured that ethical issues of anonymity and privacy were maintained. At the end of the two data collection processes, the survey data were analysed using descriptive survey analysis, and a thematic data analysis method was used for both the open-ended responses in the survey and the Facebook comments and discussions. Themes emerged inductively from the data during the analysis, and describe the findings of the study presented below.

FINDINGS

The analysis of the data presented results that we condensed into two broad thematic categories. Firstly, there is a category of findings that reveals the participants' level of awareness of the commodification of their personal data. Secondly, the findings also reveal the participants' knowledge of Facebook as an enterprise and how this media platform generates revenue.

Users' awareness of the commodification of their personal data.

A critical aspect of this study was to test awareness of social media operations and examine participants' knowledge of the implications of using social media. The findings of this study showed that the majority of the participants projected self-confidence about their knowledge of social media, as 73.8% of the 103 respondents claimed they were knowledgeable about social media and understood the implications of using social media (Figure 1). It may be extrapolated that the majority of the participants were aware of the trade-off they make in accessing Facebook. It is important that social media users are aware of the commodification of their personal data, that accessing social media is not really 'free,' and that users pay in some way through providing their personal data. But the notion of free access to social media often makes people think access to social media costs nothing. In reality, Facebook is not free, users pay with their information and profile, which Facebook uses to design algorithms that allow advertisers to target users. But are users aware of this? Many of the respondents claimed they do not pay in any sort of way to use Facebook. The data from the study show that 59.2% of the respondents were aware that they pay

to use Facebook in some way, while 40.8% of them reported that Facebook is free, and they do not pay in any way.

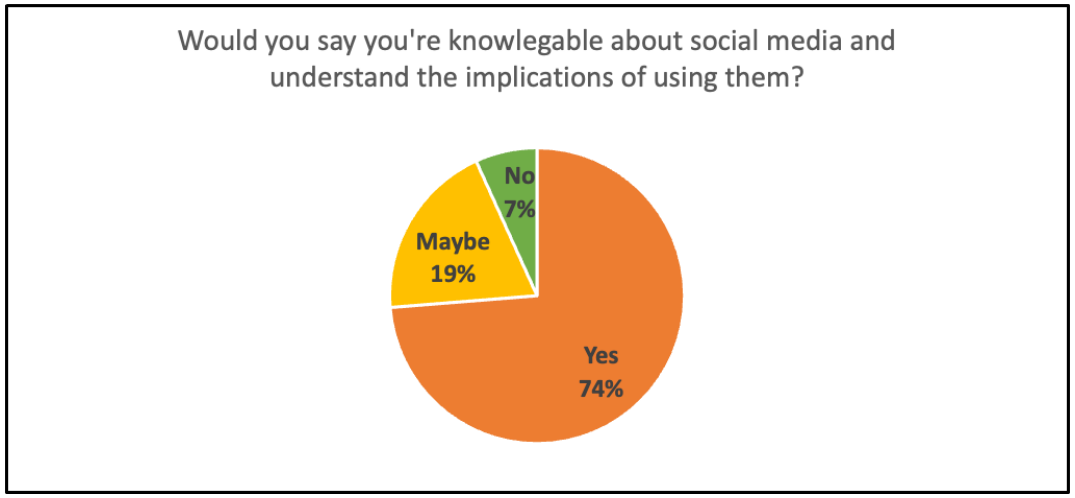

Figure 1: Self-proclaimed knowledge about social media and their implications

However, it turned out that nearly all of those that claimed that they pay to use Facebook in some ways did not actually have any knowledge of the ways they pay Facebook to access the platform. A follow-up question in the survey, which asks respondents that claimed they pay to use Facebook to explain the manner and nature of their payment to Facebook, revealed a complete lack of knowledge about the commodification of users' personal information as the trade-off for a free access to Facebook. Most of the respondents explained that they pay to use Facebook by buying mobile Internet data to access the social networking site, not acknowledging the fact that the revenue from Internet data bundle purchase goes directly to the telecommunications service providers, not to Facebook, which allows them access to the Internet. Examples of responses are:

> *"I buy data to view pictures and watch posted and live videos [on Facebook]".*
>
> *"I buy data to view other people's pictures and statuses".*
>
> *"I pay through data bundles. Some content on Facebook are not free, instead you won't view pictures without data bundles".*
>
> *"I buy data to access Facebook, because I don't use free mode, so I pay in that way".*

In fact, only one respondent out of all the 103 respondents offered an explanation close enough to the awareness of the trade-off users offer to access Facebook. The respondent (#58) wrote that he pays to use Facebook "through watching advertisements..." on Facebook. This lack of awareness of the commodification process shows the lack of critical media literacy, that Currie and Kelly (2021) argue is essential to the understanding of the media engagement within social systems that include awareness of the political economy of the media.

The survey also tested the knowledge of the respondents about the basic commodification process on Facebook, which is to algorithmically generate users' profiles based on their personal information and allowing advertisers to use the profiles to target users for advertisement. The majority of the respondents did not know that Facebook utilises users' personal information in this way (Figure 2). Only 18.4% claimed to be aware that Facebook utilises users' information in this manner. But, if the majority of the respondents

were not aware of the commodification process on social media, specifically on Facebook, what would be their reactions if they became aware of this commodification process – especially for a cohort of respondents that originally claimed to be knowledgeable about the implications of using social media? A survey question tried to explore this, and the finding shows that the majority of the respondents noted that they would be bothered if Facebook monetises users' personal information. Specifically, 79.6% of the respondents claimed they would be bothered if they found out that Facebook sells users' profile to advertisers who target them for marketing on their Facebook pages, whereas 20.4 % claimed they would not be bothered.

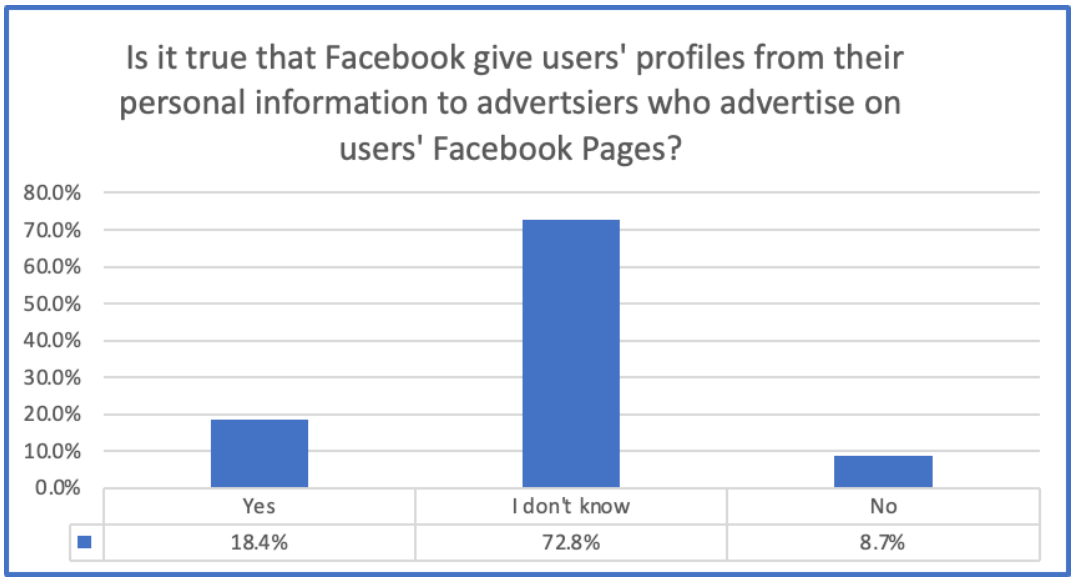

Figure 2: Awareness of data commodification

Users' knowledge of Facebook's revenue generation

The basic knowledge of media operation is that advertising is a huge source of income for many media corporations. Based on this, the study also attempted to investigate if the respondents were aware that Facebook, as one of the richest media corporations in the world, generates most of its revenue from advertising sources, derived from the commercialisation of users' profile information and online activities. The following open-ended queries, discussed earlier, were included as a question in the survey and also posted on a student community Facebook page to elicit comments and opinions.

> *According to studies, Facebook is the 6th richest company in the world, and Mark Zuckerberg, the founder of Facebook, is the 5th richest person in the world. What's your opinion about this? Do you know how Facebook and Zuckerberg make so much money? And what's your opinion about this?*

All 103 respondents responded to these open-ended questions, and there were 24 responses on the student community Facebook page to the questions. Analysis of the responses from both the survey and comments to this post on the Facebook page generated four groups of responses: The first is a group of respondents that has no knowledge about Facebook's revenue sources, a second group claimed to have knowledge of the revenue sources, but their explanations showed they actually lacked the knowledge. A third group of respondents seemed to show some knowledge, and the last group are respondents that were not concerned about how Facebook generates revenue.

No knowledge of Facebook's process of revenue generation

Most of the survey respondents belonged to this group that lacked knowledge of Facebook's entrepreneurial process. All the respondents in this group (70) did not know how Facebook generates income; this group accounted for 68% of the 103 respondents to the survey. There are twelve responses from the 24 posted comments on Facebook that belonged to this group.

Here are examples of some of their responses:

> *"I really do not know how Facebook is making money but whatever it is doing, it is working for them".*
>
> *"I don't know how Facebook makes money, according to me it is not a bad thing because Facebook helps a lot".*
>
> *"No, I have no idea".*
>
> *"No, I don't know, but I think it's true, because it has more users".*
>
> *"I didn't know that Zuckerberg makes so much money. I think Facebook should have age-restriction".*
>
> *"I know nothing about that".*

These examples indicate the ignorance of these university cohort of respondents regarding how their personal information are used to create advertising revenues for Facebook. This supports an argument by Zarouali et al. (2020), in their study based in the European Union context, that many adolescents have a poor understanding of industrial data processing methods for target advertising.

Inaccurate and incomplete claim of knowledge of Facebook's income generation process

There is a second group of respondents that claimed to be knowledgeable about how Facebook generates revenue on the platform, but they were unable to specifically explain the process, or they offered completely wrong explanations. There were 25 respondents in this group: 24% of the survey respondents and one commenter on Facebook. Some of them noted that Facebook generates income the more people access the platform; while this is partially true, because the more users the more personal information that Facebook can mine for advertising revenue. However, they did not explain how the number of Facebook users translate into revenue. Others thought Facebook generates revenue from users purchasing mobile Internet data bundles to access Facebook. Here are examples of their responses and comments:

> *"Every minute someone logs in on Facebook, Mark Zuckerberg makes money".*
>
> *"Yes, they make a lot of money, many people interact on Facebook and that means more money for Facebook and Mark".*
>
> *"I totally agree because the major percentage of humans do use Facebook which means he surely make [sic] money out of it".*
>
> *"Yes. Accessing Facebook account with data makes money for Facebook company".*
>
> *"I don't understand anything about how the founder of fb make [sic] so much money, but I know that as many people access the site, he gains a lot".*

"I think they make money simply because many people have Facebook accounts, and they use them each and every day".

Knowledgeable about how Facebook generates revenue.

In the third group were those who were specific that Facebook makes money through advertising and "selling" personal information of users and showed concerns about users' privacy. This was a very small group, with six respondents. They were the ones that specifically talked directly to the objective of the study, which was examining if these university students were aware of the commodification of their personal data in exchange for advertising income by social media companies. The respondents mostly identified awareness of advertising as sources of revenue and the selling of users' personal information. Examples of their responses are:

"Facebook sells ads on social media websites. Advertisement sales are the primary source of Facebook's revenue. Facebook is experiencing an increase in demand for advertising and the acceleration of the shift to online commerce spurred on by Covid-19 pandemic, which is a good way to earn a living, because social media is always in use".

"In order for Facebook to make money, they sell our personal information to advertising companies. I think it is a good strategy to make money as long as our personal information is not given to thieves".

"He makes so much money by advertising for companies on his platform".

"Facebook makes so much money ... from digital advertising, mostly from Facebook and Instagram. They also own WhatsApp and Facebook messenger, but these apps don't drive a lot of ad revenue yet...".

"I think through data collection of people using Facebook. I think they do not respect our privacy".

Comments from nine participants on the community of students Facebook page also indicated awareness of how Facebook generates income. For example, one commenter stated:

"Facebook is a business. They make money from running targeted ads. I, for one, use Facebook business manager to run my ads and benefit a lot because my ads reach people who actually need my services".

Another comment reads:

"You agreed to the term and conditions, and they need money to fund their business, plus if a business is free, they finance it using advertisements".

A commenter actually showed a strong knowledge of the way personal data is mined with a simple, but critical comment:

"Cookies have been doing that since stone age".

Two commenters showed a good knowledge of the commodification process and income generation through advertising, that is not only limited to Facebook:

> *"Information is sold everywhere, why you think you'd receive an SMS trying to sell you insurance, yet you've never spoken with any representative of that company?"*

The other noted:

> *"Fair exchange, you get free services from Facebook, they get your personal data, and they make money.*
>
> *They are a business, not a non-profit organisation, besides if this bothers you, one can always delete their Facebook account".*

These few respondents in this group seemed to be aware of the commodification process and the surveillance capitalism on digital media platform as theorised by Fuchs (2021) and Zuboff (2019).

Not concerned about how Facebook generates income.

There was a small group of participants (two respondents from the survey and two from the Facebook discussion page) who claimed not be bothered or concerned about how Facebook generates revenue, or that the company and its founder make so much money from the platform. A comment read "We know…. and we don't care". This comment elicited two laughing emoji responses. The other one simply stated "We don't care", this also received six laughing emoji responses on the Facebook community page. Similar types of response were also found in the survey responses. A respondent claimed, "I don't know and neither do I care". The other respondent noted, "I don't know, and I don't want to know."

DISCUSSION

In 2018 the CEO of Facebook (now Meta), Mark Zuckerberg, testified before the US Senate. During the testimony a senator asked, "How do you sustain a business model when users don't pay for your service?" Zuckerberg curtly replied with a smirk, "Senator, we run ads". A long-serving member of the US Senate asking such a question presents a poignant moment of the awareness of the basic commercial operation of social media. It thus implies that many users of social media platforms are not knowledgeable about the monetisation process on online platforms. For many youths, the engagement with digital technologies is inherent to their daily sociability. This is a generation that has native experience with smartphones and digital platforms, using these technologies for hours on a daily basis. Perhaps, this intrinsic experience with digital tools and the observation that Facebook is one of the most commonly used social media in South Africa, after WhatsApp and YouTube (Statista, 2022), creates a sense of familiarity that makes some youths believe they are knowledgeable about social media. This study, based on a cohort of university students, attests to this with a finding that shows that the majority of the respondents believe they are knowledgeable about social media and understand the implications of using them. In fact, less than 10% of the respondents in the survey acknowledged that they are not knowledgeable about social media and their implications. However, when their knowledge about the most basic commercial operation of Facebook was tested, the majority of them actually failed to show any knowledge of this.

The majority of the participants were not aware of the trade-off they make for a 'free' access to Facebook. They were unaware that they pay for this access with their personal information, which Facebook mines to develop profiles for targeted advertising. Only one of the 103 respondents was correct in stating that looking at advertisements on his page is a way of paying to access the platform. Most of the participants in this study were not aware that Facebook is not merely a social networking site, but a huge advertising machine with an objective of gaining monetary surplus from targeted personalised advertising by customising advertisements to the assumptive interests of users (Fuchs, 2021). As Fuchs further explains, Facebook basically turns users into commodity for advertisers on the logic that users' exchange value is based on produced use values derived from their personal data and interactions. This study showed that the majority of the survey respondents did not know that Facebook sell their personal

information to advertisers, by creating users' profiles that advertisers use for target marketing on users' Facebook pages. The fact that the majority of these university participants were not knowledgeable about the commodification of their personal information, Facebook's revenue generation and the role they play in that process but merely relish the utilitarian function these media serve, may be indicative of a general lack of interest by many users in the critical context of social media. This is supported by previous studies, for example a study by Nyoni and Velempini (2018) among a group of research participants in South Africa, indicating a lack of awareness of or interest in the privacy of personal data on social media platforms.

This lack of awareness is indicative of the importance of media literacy for youth, the 'digital natives,' whose avenue of social interactions is predominantly on digital platforms. As Livingstone et al. (2005) note, media literacy is important for navigating, controlling, comprehending, and critiquing the media, as well as creating media and interacting with the media. As such, media literacy is essential for active citizenship in relation to issues of participation and democracy, understating competitiveness and the knowledge economy in today's digital world, and for cultural expression and socialisation for lifelong learning and personal fulfilment (Livingstone et al., 2005). A basic critical knowledge about media, beside their functionalist roles of informing and entertaining, is that they are organised for commercial benefit. This they accomplish by selling and making audiences and users available to advertisers. For most of the participants in this study, this is a process they were unaware of.

CONCLUSION AND RECOMMENDATIONS

Whilst studies have examined literacy and awareness of the social risks that youth are exposed to on social media and on online platforms broadly, limited studies have addressed media literacy amongst youth about their awareness of the commercial operations of social media platforms and their role in the process. Awareness of this basic media commercial process is a good introduction to critical media literacy around the political economy of the media. As Currie and Kelly (2021) note, a critical approach to media literacy draws attention to analysis of both the production and political economy of media. There are benefits to social media literacy for youth. Firstly, understanding the commodification and political economy process becomes useful for social media users to be aware of what they sign up for when they register on social media accounts. Secondly, it provides the knowledge about how media operate in society, beyond their functionalist role. Thirdly, they become aware of how society is organised and understand different locations of power, control and inequalities in society. Fourthly, it fosters a culture of engaged citizenship, which enriches democracy, openness and participation. Lastly, it creates media users who are actively aware of their engagements with the media and the implications thereof. As this study has shown, many users are not aware of the nature of surveillance capitalism that operates in the social media space, unaware of the digital capitalism that is based on power to monitor and collect users' behavioural information and profile, and to sell access to real-time daily digital traits of users in order to directly influence and modify their behaviour for profit (Zuboff, 2019). We therefore recommend that media literacy programmes should not only be available to university and college students, but pre-tertiary educational institutions should equally provide media literacy programmes covering basic knowledge of the media's political economy to teenagers. Media scholars should expand awareness to media users outside of educational settings, and media users should become critically aware of the trade-off they make for 'free' access to these platforms.

Although this study has revealed important findings about youth's awareness of the basic commodification processes on Facebook, future studies may explore this further, with broader demographics and larger pool of respondents. This study specifically focused on Facebook; other studies may explore the awareness of the commercial power and commodification processes embedded in many other social media platforms. Building on this study, future research may explore other critical issues concerning the political economy of social media. For example, examining the overtly monopolistic nature and dominance of global, mostly American-owned, social media in Africa, and what this reveals about youth, technology innovations and global media.

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Posthuman communication design in South Africa

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Abstract

This article investigates the evolving landscape of visual communication design within a Posthumanist framework, in the context of South African design. It addresses the dearth in research regarding the interconnectedness of Posthumanism and communication design practice, specifically aiming to bridge the gap between human-centric design solutions and the traditional commercial facets of visual communication. This article builds upon a review of existing literature to engage in a dialogue where the shared attributes discernible in both Posthumanism and design practice are explored. Framed by the research question —"What elements contribute to Posthumanism in South African communication design, and how do these elements intersect?"— this study aims to uncover commonalities between Posthumanist principles and elements evident in contemporary visual communication design practice.

Furthermore, the concept of Ubuntu is scrutinised, leveraging it as a contextual lens through which to understand the integration of Posthumanism within visual communication in an African context. This study goes beyond the theoretical foundations of Posthumanism by suggesting six practical dimensions that were identified through the analysis of significant keywords appearing in the literature. These dimensions aim to enable practitioners to incorporate Posthumanism into design practice in South Africa, thereby bridging the gap between philosophical concepts and the practical aspects of the field.

Keywords

Communication design practice; Posthumanism; Ubuntu; visual communication design

INTRODUCTION

Twenty years ago, design academic Richard Buchanan (2001:9) stated "[D]esign is the creative human power of conceiving, planning, and realising products that serve human beings in the accomplishment of their individual and collective purposes." Within the profession of communication design, visual communication design, communication design, and graphic design are synonymous phrases that refer to the identical creative business. It is worth mentioning that within industrial practice, the word "graphic design" is commonly employed, while "visual communication design" is predominantly utilised as an academic designation. Visual communication design is no longer categorised as either primarily a human occupation or a commercial venture, as was once the case (Friedman, 2012). Although the larger environment of design is still increasingly influenced by human experiences and decision-making, design products could instead be used for animal, industrial, technological or environmental objectives

rather than mainly being designed for human use. Designing environments, ecosystems, or habitats can prioritise the well-being and preservation of non-human species and ecosystems over human needs. The growing use of AI (artificial intelligence) in design poses a challenge to the belief that humans are the exclusive originators and beneficiaries of design outcomes. Posthumanism encourages designers to create products and services reflecting this understanding.

Considering the factors mentioned above, communication design practice has fundamentally changed over the past decades (Forlano, 2017). The availability of and common integration of AI enable designers to use their skills to streamline design production and analyse and enhance results to fit customer needs. In this environment, technology aggregates, sifts, and changes existing graphic information, typefaces, and images to generate a 'new' design (Laing & Masoodian, 2015). Consequently, designers assume a diminished role in shaping the physical aesthetics of the product, instead prioritising the product's integrity and compliance with appropriate quality standards (Matthews et al., 2023).

This article seeks to identify the main intersections between Posthumanism, Ubuntu, and communication design in existing literature. The goal is to provide a path for enhancing design practice. Posthumanism and Ubuntu, though originating from distinct philosophical traditions (Western and African, respectively), converge on several key concepts that challenge traditional anthropocentric views of humanity. Both frameworks emphasise interconnectedness, suggesting that all living things are intricately linked and interdependent. This contradicts the concept of human detachment from or dominance over nature. Moreover, they promote the concept of decentering the human, which involves rejecting the notion that people have a pivotal position in the cosmos. Alternatively, they propose that humans are simply a constituent of a broader, interrelated framework. Ultimately, Posthumanism and Ubuntu share a focus on relationships, emphasising the importance of co-existence with other beings, encompassing both human and non-human entities (Braidotti, 2019; Ewuoso & Fayemi, 2021). In essence, both frameworks offer valuable tools for re-imagining ourselves as part of a vast and interconnected web of existence.

Technology, sustainability, and environmental issues are increasingly influencing design practice, and this research questions what theoretical foundations assist design practitioners in dealing with increasingly complex issues. This article aims to provide context, discuss the predominant theoretical framework, and provide an overview of relevant studies to establish a foundation for future research.

BACKGROUND

Scholars have reconsidered the concept of humanism as fundamental in meeting the expectations of stakeholders in design practice. From an ontological perspective, the humanistic assumption argues that visual communication design is exclusively a human activity and, as a result, promotes human values and perceptions (Wakkery, 2020). However, this assumption has been challenged in recent years, as technology has become more integrated into design practice, blurring the boundaries between humans and machines. Therefore, design academics have proposed a more inclusive approach, considering the deep relationship between humans, technology, and nature (Laurel, 2018; Norman, 2023; Resnick, 2019).

At present, we are faced with uncertainty and confronted with issues such as environmental degradation, economic downturns, poverty, and gender and racialised inequality. This necessitates a reassessment of our aspirations in a world that goes beyond human-centred perspectives, as well as a re-evaluation of design approaches (Du Preez et al., 2022). Posthuman design, informed by Ubuntu's spirit of interconnectedness, can create a future where design benefits not just humanity, but all beings. However, an intersectional lens is crucial to ensure this future is equitable as Posthumanism, in its emphasis on a technologically transformed universal human, overlooks how current disparities rooted in race, gender, aptitude, and other factors will shape who benefits and who is left behind in this future, potentially creating new forms of marginalisation. By examining the influence of social identities and power structures on the impact of design, we may establish a society where the advantages of coexistence between humans and technology are equitably distributed (Susen, 2022). Considering this, designers are discovering new ways of thinking and practice in response to the developing Posthuman discourses.

Humanism sees agency as the natural and deliberate ability of people to act on the world (Mazzei, 2013). Human-centred design (HCD) processes, such as co-design, employ designers' agency to collaborate with stakeholders to develop creative solutions (Sanders & Stappers, 2008). Posthumanism suggests that agency does not exist only in humans, but "results in a complex network of human and non-human actors" (Barad, 2007:23). In contemporary design, agency refers to the amalgamation of both human and non-human factors that exert influence over the process and outcomes of design creation. This shift in thinking has led to a focus on how technology can be used to enhance the creative process rather than simply replace human labour.

METHODOLOGY

To answer the research question: "What elements contribute to Posthumanism in South African communication design, and how do these elements intersect?", this article reports on a literature review that formed part of a larger case study to initiate a dialogue that examines the intersections between Posthumanism, visual communication design practice and Ubuntu in a South African context. The relevance and scope of this research topic are limited to the exploration of Posthuman practices in the visual communication design profession in South Africa. The identification of search terms and criteria ("visual communication design", "communication design", "graphic design", "Posthumanism", "Ubuntu") was carried out in accordance with the study question.

In addition to extracting information from pertinent literature, the following instruments were utilised in database searches: Google Scholar, Semantic Scholar, and Elicit software. In this regard, the artificial intelligence-based software Elicit proved particularly useful, as it selects relevant literature based on a research question and provides a summary of the results. This facilitated the efficient sorting of pertinent sources. Additionally, use was made of the AI-enhanced online tool Connected Papers, which creates a visual of academic papers that have overlapping citations and thus may contain related subject matter. Following the literature search, emergent keywords were analysed using Atlas.ti. These fundamental keywords serve not only as the foundation for the proposed practical dimensions for improved practice, but also as a framework for reimagining communication design in South Africa. By integrating these dimensions into their core design process, South African designers can leverage the lenses of Posthumanism and Ubuntu. This framework empowers them to transcend anthropocentric limitations and pursue a more responsible, ethical, and interconnected design practice.

The inclusion criterion for article selection comprised publications that incorporated at least two of the keywords and encompassed a wide variety of publication dates, spanning from 1999 to the present. 1999 was designated as a threshold for publishing, since it was conceived that the bulk of papers preceding this year would not sufficiently address the digital advancements in visual communication design practice. These are crucial in understanding the integration of humans and technology in the context of Posthumanism. Posthumanism investigates the potential transformation of human beings by technology, leading to a merging of human and machine identities. In communication design desktop publishing and digital design applications like Adobe Photoshop and Macromedia Freehand were major innovations developed in the 1990s. Digital technology allowed designers to explore more freely, alter their work quickly, and develop designs with unequalled accuracy (Meggs & Purvis, 2016).

The resultant review of the literature found limited previous research in the areas of visual communication design, Posthumanism, and Ubuntu. A Boolean search using the keywords "design" AND "Posthumanism" (17 200 results with minimal results in graphic or visual communication design), "graphic design" AND "Posthumanism" (474 results), "graphic design practice" AND "Posthumanism" (1 result), and "graphic design" AND "Posthumanism" AND "Ubuntu" (2 results) found research limited to general topics on design and Posthumanism (Forlano, 2017; Wakkary, 2020), but none that was relevant to visual communication design practice, Posthumanism, or Ubuntu. Boolean searches allow for the efficient combination of words and phrases by employing Boolean operators such as AND, OR, and NOT inside search engines or databases. These operators have the function of limiting, broadening, or precisely defining a search (Ryan, 2022).

The extant literature described in this article explores the adaptations of visual communication design to changing social expectations and technological advances, with a focus on the shift from a human-centric approach to a more inclusive approach that considers the deep relationship between humans, technology, and nature, leading to the development of Posthuman discourses in design practice. Here Ubuntu serves as a guiding principle that can inform the design approach by considerations of inclusion and sustainability. Currently, there is no existing literature on the intersections between communication design practice, Posthumanism, and Ubuntu. However, this link is explored in a separate case study that is not included in this article.

Contemporary communication design practice

Socially focused design

The existing literature on the interrelationships among graphic design, Posthumanism, and Ubuntu is mostly focused on the integration of either Posthuman or Ubuntu principles into academic courses (Raina, 2020; Van Zyl & Carstens, 2023). However, there is a lack of exploration on how these three concepts might synergistically interact. The following discussion will explore the changing role of the designer and attempt to contextualise Posthumanism and Ubuntu within the practice.

The ideas of Enlightenment humanism, which include free will, societal drive, acceptance of individual progress, and a focus on human exceptionalism, serve as the foundation for the prevailing anthropocentric approaches to design. Human-centred design (HCD) is a philosophy embraced by designers that want to bring about societal change by adding a social dimension and working together to produce solutions that fulfil the demands of stakeholders. HCD is a design approach related to humanistic paradigms such as social responsibility in design, user centricity, and the role of the audience in the design process. Using an HCD approach, practitioners focus on developing outcomes to improve societal needs rather than purely commercial interests (Steen, 2008). By integrating HCD with the methodologies of design thinking (Manzini, 2015), it is possible to generate design solutions that promote a fairer society. Conversely, critics of the human-centred process argue that designers cannot "know" all users and stakeholders in the design process, given that the output of the design process may be crafted for a global audience (Norman, 2023). IDEO, a globally renowned design and innovation agency, is acknowledged for its emphasis on human-centric design methodology and has developed toolkits and resources to aid individuals and organisations in implementing this design approach.

The IDEO Human-Centred Design Toolkit facilitates the development of user-centric solutions by designers and teams. This resource is useful for anybody seeking to incorporate human-centred design principles into their projects and enhance creativity by prioritising the desires and experiences of users. However, human-centred design approaches, such as IDEO's field guide to HCD, unintentionally place designers in positions of power, suggesting Said's (2013:214) view of "flexible positional advantage". IDEO's HCD model focuses on vulnerable and often non-Western communities. As mentioned previously, a designer's agenda is often rooted in the desire for commercial success. Utilising IDEO's design methodology enables designers to engage with the global community, but also places them in positions of power and influence over stakeholders from non-Western contexts, as Cesaire (1972:63) calls the "tools of production". A critique of a human-centred approach is that it uncritically places stakeholders at the centre of the design process without questioning humanistic theoretical positions. Thus, HCD practices contribute to an anthropocentric agenda that, according to Posthuman theory, can support patriarchal, colonial, and capitalist structures (Braidotti, 2019). A Posthumanist perspective compels us to consider beneficiaries beyond humans, including animals, the environment, and even technology itself. However, an intersectional lens reminds us of inherent power dynamics. One may ask who defines the needs of these non-human stakeholders? To create a more fair and just future, design interventions should aim to be inclusive, and actively question and disrupt current systems of power (Susen, 2022).

Continual adaptation to new ideas and technological advances is common in communication design. Although this study discovered relevant literature on visual communication education that is in line with

human-centred methods, it does not redefine visual communication within the developing framework of automation or artificial intelligence (Matthews et al., 2023). Tools and methods used in contemporary design must address the dynamics of cultural differences and perspectives. Regardless of the shifts taking place in society and in the use of technology, design outcomes are still developed primarily using the same Eurocentric thinking that has historically shaped relationships between countries (Bonsu, 2019). The presence of Eurocentric thinking in design can result in the neglect of the needs and viewpoints of individuals belonging to marginalised communities. Ubuntu-focused design, like posthumanism, could advocate for a comprehensive strategy that takes into account the broader influence of technology on all individuals, rather than a select privileged few.

Towards embodied design

Socially focused design processes such as HCD emphasise understanding people as independent, individual subjects. New relationships with nature and sociotechnical systems are challenging this understanding (Forlano, 2017). Both designers and academics agree that design must remain in contact with theoretical and methodological advancements (Forlano, 2017). Braidotti (2013:47) rejects the 'selfish individualism' of design and proposes a post-human approach to promoting communal well-being, based on 'environmental entanglement'.

Posthumanism offers a better understanding of human and non-human knowledge and supports the development of design methodologies, frameworks, and practices that are better suited to the challenges we face as a species. The previous perceptions of the world are challenged by new relationships with the natural world and socio-technical systems. In the context of Posthumanism, agency is inherently connected to matters of responsibility and accountability. Humans are inherently answerable to not just other humans, but also to non-human entities with whom we are interconnected (Barad, 2007).

Design practitioners have long questioned the role of design in society (Papanek, 1984). While some focus on incorporating innovative approaches into design practice (Dorst, 2010; Norman & Draper, 1986), many (Buchanan, 2013; Margolin & Margolin, 2002) are concerned with the apparent lack of educational foundations that focus on the consideration of human and societal needs for sustainable design practice. Recent discussions have focused not only on (local) social and environmental issues (Escobar, 2018), but also on considering human needs to support the needs of non-human actors (Forlano, 2017). The focus is on design beyond current practice. Figure 1 aims to organise and illustrate the concepts that play a role in the communication design profession while highlighting their interrelationships.

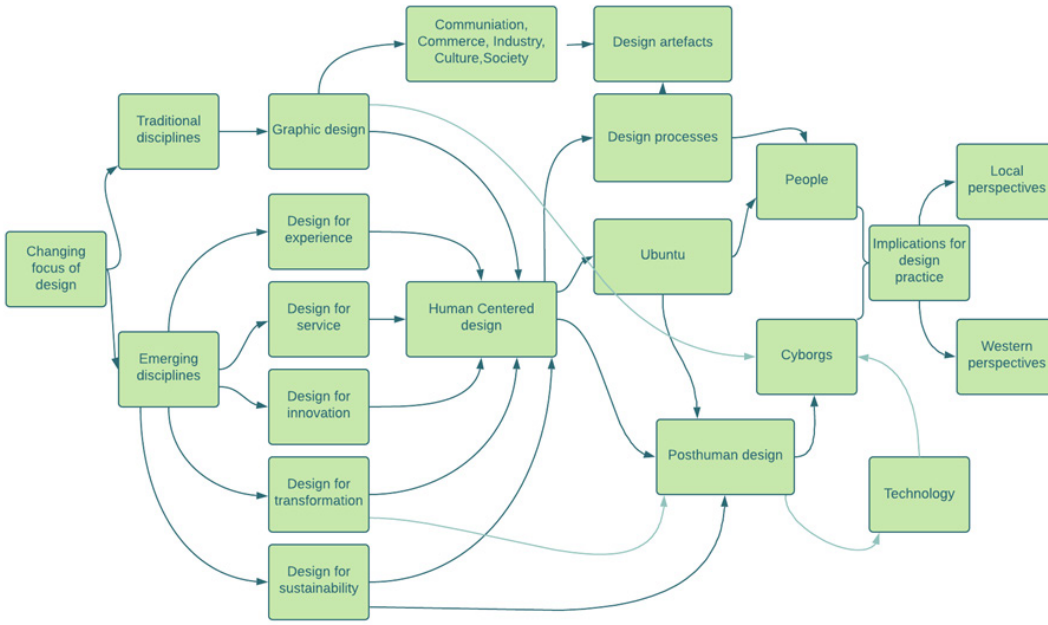

Figure 1: A diagram illustrating the growing relationships among the many concepts that have been revealed through the analysis of relevant literature.
Source: Author's own conceptualisation.

Design has also been criticised for its contribution to environmental decline through the proliferation of products and services that are unsustainable and contribute to the depletion of the earth`s resources (Fry, 2009). A collaborative approach between designers and clients is crucial to consider the entire life cycle of a project. Careful selection of tools and materials can minimise the negative impact on the environment, society, and the economy throughout the design, production, and usage phases.

Posthuman design, especially through the lens of the Fourth Industrial Revolution, shows that nonhuman actors, such as animals or artificial intelligence, require new knowledge and expertise (Forlano, 2017). In contrast to designers who concentrate on human-centred projects, designers who engage with Posthuman design will have to consider a broader range of criteria when developing design solutions. Within this framework, the rise and use of generative AI is viewed advantageously, with a specific emphasis on the untapped possibilities to enhance partnerships between humans and technology. Embracing the principles of Ubuntu would contribute to the development of the Fifth Industrial Revolution (5IR) in Africa (Goode & Potter, 2023).

Technologically focused design

The field of design is undergoing transformation in response to the increasing use of digital technologies. The transition from analogue tools to a digital workflow, which is employed in nearly all facets of the design process, has proven to be highly consequential. The utilisation of digital tools enables designers to enhance their productivity and unlocks novel opportunities within the realms of visual communication, interactive, and multimedia design (Kiernan & Ledwith, 2014). This technological evolution has resulted in the development of new design disciplines that may be connected to the skill set required of visual communication designers, such as user experience (UX) design and user interface (UI) design (Dziobczenski & Person, 2017). These disciplines focus on the development of digital experiences that emphasise user-friendliness, accessibility and engagement. They have a vital role in the creation of digital products that are both efficient and engaging.

Moreover, the emergence of technology has enabled improved cooperation and collaboration among designers, allowing for effortless engagement with clients, colleagues and stakeholders worldwide. This

has optimised the process of collaborating on projects at a distance and enabled the quick and seamless exchange of design work.

Contemporary design practice must consider sustainability. In digital design, an environmental consideration may be observed in the case of an application or website that possesses a streamlined interface, which necessitates reduced user interaction, hence leading to a decrease in energy usage. Within the realm of conventional visual communication design, the practice of sustainable design entails making deliberate choices such as prioritising whitespace over colour in printed designs or using recycled materials in design for packaging (Dziobczenski et al., 2018).

The integration of technology into design practice has been transformative, but raises concerns about its potential impact on designers. In the 1960s, Marshall McLuhan speculated that the social transformation brought on by the media affected human beings in different ways. Some scholars (Huber et al., 2020; Sun & Zhao, 2018) have argued that designers are becoming increasingly reliant on technology to the point where they are essentially becoming cyborgs and unable to function without it (Särmäkari & Vänskä, 2022). McLuhan recognised that electronic media could bring about a reconfiguration so extensive as to change the nature of "man" (Hayles, 1999:34).

In her seminal work published in 1999, titled *"How We Become Posthuman,"* Hayles argues that technology is progressively assuming the role of an extension of the human body, hence erasing the boundaries that traditionally demarcate individuals from machines. The author refers to this phenomenon as Cyborgian hybridisation, which involves the amalgamation of human and non-human elements to generate a novel organism (Hayles, 1999). Visual communication designers are progressively integrating technology into their practice, enhancing their abilities and expanding their scope of influence. Similarly, technology has a significant impact on (design) employment, leading to a convergence between humans and non-humans (Haraway, 2004). Haraway's (2004) concept of 'cyborg feminism' entails the dismantling of boundaries that traditionally separate individuals from technology, resulting in the emergence of a novel entity. According to this stance, technology has the potential to assist designers in surpassing their inherent physical limitations.

The correlation between technology and design practices is not straightforward. The impact of technology on design work is undeniable, as it undergoes a transformation that is concurrently influenced by the designers themselves. Designers have an active role in determining the development and use of technology, rather than being passive recipients (Rock, 2009). In addition, designers have always depended on tools to facilitate the creation of their work, including a wide spectrum of instruments such as brushes, pens, and eventually computer software and AI. The use of digital tools signifies the latest chapter in communication design's ongoing story of tool integration (Wakkery, 2021). The use of interactive software, for example, enables designers to create a highly personalised user experience that can be constantly adapted to fit users' individual needs. In an academic space, visual communication designers such as Anastasiia Raina (2020), consider the incorporation of the human elements of randomness and irrationality into "technocratic cultural paradigms" as a critical component of Posthuman design aesthetics. Snaza and Weaver (2015) state that from a Pothumanist perspective humans and non-human objects are irrevocably entangled, but while the lines between human and machine may blur in the future, a complete cyborgian designer reliant solely on technology is improbable.

A Posthumanist perspective suggests a future of collaboration. Designers might leverage AI for specific tasks, but human judgment, creativity, and emotional intelligence will remain paramount. This future could see the rise of new forms of co-design, where humans and AI work together to push the boundaries of the field. Ultimately, the enduring human element in design – empathy, understanding user needs, and translating emotions – will likely ensure that designers do not become solely reliant on technology (Haddow, 2021).

THEORETICAL UNDERPINNING

According to Braidotti (2019), the Critical Posthumanist opposes human exceptionalism and believes that Posthuman studies, ecocriticism, technology studies, and ethics have all converged to shape human

behaviour. The goal of Braidotti's (2013, 2019) Critical Posthumanism is to develop affirmative perspectives on the Posthuman subject and to affirm the productive potential of the Posthuman predicament (the need to connect with the more-than-human world and our growing dependence on technology). This perspective is informed by Braidotti's anti-humanist roots (Du Preez et al., 2022). Braidotti (2019) acknowledges that an increasingly relationship-based paradigm is replacing the humanistic and anthropocentric paradigms, where subjects are asked to reflect on their relationships with others, especially non-humans. Thus, a critical aspect of Posthumanism is the re-evaluation of the self, considering technology, biotechnology, design, and artefacts.

Whilst often discussed together, Posthumanism and transhumanism are separate ideologies with divergent objectives. Posthumanism endeavours to surpass the tenets of humanism and the anthropocentric perspective of the world, whereas transhumanism strives to augment human capabilities by technological progressions and cognitive alterations, while remaining faithful to humanistic ideals. While Posthumanism promotes a societal transition towards a broader worldview that does not prioritise people as the central focus, transhumanism is centred towards enhancing and altering inherent human characteristics via technology (Wolfe, 2009).

Within this context, Posthumanism re-defines what it means to be human and develops a number of new principles to describe the relationships humans have in the world. While humans are typically privileged, Critical Posthumanism commits to 'thinking with' humans and non-humans alike (Wakkery, 2020). Importantly, both the European heritage and non-Western sources of moral and intellectual inspiration lend credence to Braidotti's (2013) cosmopolitan view of Posthumanism.

A prominent methodological characteristic of Posthumanism is its commitment to interdisciplinary, transdisciplinary and supradisciplinary inquiry. Braidotti's (2019) Posthumanities exist within and outside of advanced capitalism's neoliberal framework. Some of its interests include influencing global capital flows, finance, and corporate culture. In contrast, it aims to undermine neoliberalism's hold over popular opinion.

Braidotti (2019) argues for a Critical Posthumanist perspective that challenges the idea that humans are special and emphasises the importance of relationships with non-humans, technology, and the more-than-human world.

The manifestation of Posthuman theories in design

The development of the practice and stylistic content in visual communication design has been influenced by various movements, including avant-garde ideals of a utopian society, postmodernism's embrace of mass culture and scepticism towards universal truth, and the emergence of Posthumanism, which explores the deconstruction of the human in the context of globalisation, technology, capitalism and climate change (Wakkery, 2020).

Implications of Posthumanism for design practice

To provide solutions for society and address issues within complex sociotechnical systems, it is crucial to consider the fundamental principles that support previous methodologies, models and frameworks, and strive to integrate new social theories. The act of designing items, processes, and environments demonstrates an understanding of and embodies a creative response to the complex underlying and practical challenges, interconnections and interrelationships in our world (Hroch, 2014).

Visual communication design practice is a continuously expanding field, and recently the roles and responsibilities of designers have changed due to technological advancements and rapid globalisation. Therefore, the skill set required for design practitioners is constantly evolving and is impacted by developments in technology or changing theoretical positions. Research has not fully addressed the essential inquiries regarding the methods by which visual communication designers enter the workplace and the specific design proficiencies that employers seek in potential recruits.

In 2018, a study based in the European Union defined the skills for visual communication designers as (1) process management skills, (2) conceptual design skills, (3) technical design skills, and (4) digital and

software skills (Dziobczenski et al., 2018). These abilities were chosen based on the ones that appear most commonly in visual communication design job postings. The ability to work as part of a multidisciplinary team, as well as proficiency in the Adobe Creative Cloud suite of design software is still seen as being particularly valuable and has been a feature of communication design job advertisements for some time. These skills, however, make no concessions to the recent developments in AI and its significant impact on the design profession. More recently, the AIGA (American Institute of Graphic Arts) has considered the following future design trends important: complicated challenges, aggregation and curation, linking physical and digital experiences, fundamental values, resilience, making sense of the data economy, and accountability (https://www.aiga.org/resources/design-futures-research). A local study has found that advertisements require certain essential skills, but they do not require communication designers to have expertise in inclusive practices or sustainability. However, it is worth noting that several South African design education institutions incorporate concepts of Ubuntu, citizenship, and ethics into their design curricula, as evidenced by literature from Cassim (2013) and Costandius and Botes (2018). The literature suggests that students may be helped to shed an ethnocentric, Western, white hegemonic perspective on design by purposefully focusing on comparative, global viewpoints on beauty, aesthetics, and design (Matthews et. al., 2023).

This finding underscores the evident gap between academic pursuits and the expectations of the design industry and highlights the ongoing developmental nature of communication design practice in South Africa (Van Zyl & Carstens, 2023). Regardless of the demands of the industry, designers must be cognisant of the developments in their profession and be willing to incessantly upgrade their capabilities to remain relevant.

AN AFRICAN PERSPECTIVE

Western philosophies consider Anthropos as human, thus emphasising the individual and unwittingly relegating human-centeredness to a form of anthropocentricism. By considering humanness through the lens of Eastern philosophy, design researchers such as Yoko Akama emphasise humanness in relation to others (Akama et al., 2016). In this article, humanness as a tenet of social design, and connectivity as espoused by Posthumanism, are contextualised via the African philosophy of Ubuntu.

The Ubuntu worldview holds a prominent and substantial position within the context of sub-Saharan Africa. This African philosophy rose to prominence in post-apartheid philosophical literature. Notable scholarship on this philosophy has been embarked on by Mogote Ramose, Thaddeus Metz, Desmond Tutu, Christian Gade, Kevin Behrens and Motsamai Molefe (Ewuoso & Fayemi, 2021). Former South African president Nelson Mandela described Ubuntu as a philosophy that establishes "a universal truth, a way of life, which underpins an open society" (Modise, 2006). Accordingly, the philosophy of Ubuntu embodies the concept of human beings and their relationship with the community that characterises the ethics that define Africans and their social behaviours (Dia, 1992; Mbigi & Maree, 2005). Hence, communalism and collectivism are essential to the spirit of Ubuntu philosophy. Similarly essential is the characteristic of teamwork (English, 2002; Poovan et al., 2006). Through Ubuntu, individuals contribute their best efforts for the betterment of the entire group (Khomba, 2011). Du Preez et al. (2022) maintain that instead of being anthropocentric and parochially speciesist, as some have said, Ubuntu is a symbol of the interconnectedness of all creatures in the universe.

Thus, Ubuntu takes a relational view that emphasises the importance of an individual's close ties to and deep respect for other individuals as well as "animals living or dead, rocks, insects, the land, and so forth" (Schreiber & Tomm-Bonde, 2015:658-659). This ontology is a direct contradiction to the dualistic thinking that typified Enlightenment philosophy and, through colonialism, had significant implications on what became known as design (Kotze et al., 2018:26).

In Badmington's (2003) view of Posthumanism, the term refers to the imagining of Otherness as it is expressed in culture and speaks to the 'othering' of particular groups of people. It may be argued that globalisation has contributed to the notion of the 'other' through the highlighting of not only the interconnectedness between people, but also their differences. The Ubuntu emphasis on the capacity

for communal relationships can be a useful tool for reducing this negative view, since it ensures that harmonious communal relationships are central in all uses of emerging technologies (McDonald, 2010).

The concept of Ubuntu entails an imperative for individuals to cultivate greater moral humanity, facilitate the development or expansion of personal opportunities, cultivate profound communal connections with others, manifest their inherent ability to engage as both subjects and objects within relationships, and thereby promote and elevate their sense of dignity. Likewise, through the application of a Posthuman stance, designers have the capacity to positively affect the lives of certain groups through a communal, participatory approach to developing design outcomes. In South Africa, Ubuntu may be seen as an "endogenous discourse" (Pieterse, 2006:63) and thus design practice underpinned by Ubuntu could aim at channelling design's capacity towards ways of being and doing that are deeply attuned to local social and environmental concerns.

In the context of South African design, the interrelationships among graphic design practice, Posthumanism and Ubuntu could potentially underscore the significance of inclusion, sustainability, and community participation. Following these paradigms designers can develop designs that are more sensitive, socially conscious, and reflective of the different experiences and viewpoints within South African society by considering the relationships between humans, non-humans, and cultures.

To address this imbalance, the field of communication design practice, when examined from a Posthumanist perspective, may incorporate the concept of Ubuntu by acknowledging the innate connectivity and interdependence among all entities. Designers are obliged to consider the potential consequences of their outcomes on the wider environment. It is fundamental for practitioners to acknowledge that design choices possess social and cultural ramifications that can significantly influence society. Importantly, designers should consider the needs and perspectives of marginalised or underrepresented communities and strive to create communication design that promotes social justice and equality. Industry can play a crucial role by offering internships and workshops focused on social impact design, whereas policymakers can incentivise educational institutions to integrate social responsibility into design curriculums, potentially through funding or accreditation processes (Shah, 2024).

The literature (Escobar, 2018; Manzini & M'Rithaa, 2016) maintains that design is a powerful force for social change. Through its focus on community, Ubuntu promotes empathy and compassion whilst Posthumanism manifests in designs that value the needs and perspectives of all beings, including non-human entities. The embodiment of Ubuntu can be detected in the behaviours of Posthuman designers, who vigorously foster a culture of collaboration and cooperation. Designers must recognise that they are integral participants in a larger ecosystem that includes fellow designers, stakeholders, and users. It is critical for designers to embrace collaboration to develop outcomes that are sustainable, ethical, and inclusive (Manzini & M'Rithaa, 2016).

SIGNIFICANT TAKEAWAYS

The convergence of Critical Posthumanism and Ubuntu offers a compelling lens through which to explore the intersections between visual communication designers, technology, and the wider societal landscape shaped by their interactions. In answering the research question, the findings of this literature review suggest that the relationship between Posthumanism, Ubuntu, and South African graphic design practice is limited. An abridged reflection on answers to the research question arising from literature appears in Table 1 below.

Table 1: Summarised reflection on answers to research question arising from literature.

	Problems/Answers from the literature	Implications
1	The connections between Posthumanism and design lie in the advancements in technology and the potential for computers to have computational power equivalent to human intelligence. Designers need to consider the effects of their practice on the world and on what it means to be human, as technology has the potential to empower humans but also make them obsolete in the workplace. Designers should look beyond human intelligence and consider the implications of a post-human future.	The implications of these connections are that design can become more sustainable, inclusive, and responsive to the changing world by considering Posthuman principles; however this may be limited by client expectations, budgetary and time constraints.
2	Posthumanism can inform new design practices that consider the environmental and socio-technical changes in the world.	Posthuman practices are limited in graphic design, however they may have the potential to gain greater traction in the field of sustainable design, leading to more widespread adoption of environmentally friendly and socially conscious design practices.
3	The connections intersect by challenging designers to think beyond human intelligence and consider the implications of their practice on the world and on what it means to be human. Designers need to anticipate and guide rapid changes, as design is inherently more future-oriented than other fields. Designers should explore speculative and hypothetical scenarios to evaluate possibilities and determine how best to proceed. Designers may be limited by the "traditional" expectations of the industry.	The commercial focus of the design industry limits designers' ability to engage with broader aspects of design such as environmentally and socially conscious practice. Additionally, designers' reliance on a particular set of tools expected by the industry highlights the potential for a broader approach in the education of graphic designers.
4	The connections between Posthumanism and design intersect by challenging traditional human-centred design practices and incorporating a broader understanding of the relationships between humans and nonhumans and result in shifts in design practices.	Designers must be taught to consider the broader ramifications of their design outcomes.

Underpinned by Posthumanism and Ubuntu, six fundamental dimensions for improved practice become apparent from an analysis of the keywords that appear from the literature and provide a lens for further explorations of communication design in the South African context. These dimensions transcend theoretical abstractions, instead serving as actionable pillars for reimagining design practice with both philosophical complexity and pragmatic application.

Relationality, echoing the Ubuntu philosophy, underscores the inherent interconnectedness that binds humans to one another and the world around them. *Visceral Engagement* dismantles the artificial barriers between humans, nature, and technology, urging design to embrace them as an interwoven dance of embodied experience. The dimension of *More-than-Human Agency* acknowledges the inherent value and influence of non-human entities, prompting design to move beyond anthropocentrism and engage with animals, technologies, and ecosystems as active participants in the narrative. *Hybrid Identities* celebrates the fluidity and interconnectedness of individual and collective identities, challenging rigid binaries and embracing multiplicity. *Ubuntu-informed Ethics* positions design as a tool for social commentary, guiding it to address issues of equality, diversity, and inclusion through the combined lens of Posthumanist and Ubuntu values. Finally, *Beyond Anthropocentrism* champions the idea of transcending the limitations of the self, urging design to move beyond human-centeredness and consider the needs and perspectives of all beings.

Identifying and exploring these dimensions is the cornerstone contribution of this study. It offers a

potential framework for further investigation into the intersections of Posthumanism and Ubuntu within the context of South African communication design, paving the way for innovative and responsible design practices that resonate with the complexities of our shared world.

CONCLUSION

In summary, academic papers that explore the expressions of Posthumanism and Ubuntu in communication design are rare. The existing literature describes both concepts in relation to the academic instruction of graphic designers (Kotze et al., 2018; Van Zyl & Carstens, 2023), but not in relation to graphic design professional practice.

Visual communication design, a historically creative profession encompassing diverse disciplines, faces growing anxiety about its future (Matthews et al., 2023). As AI and machine learning automate design tasks once requiring human expertise and investment, educators and researchers must question the evolving role of humans in this domain (Kaiser, 2019; Matthews et al., 2023).

However, the integration of technology has facilitated the ability of designers to participate in collaborative endeavours and improve communication. Nevertheless, there is a prevailing concern regarding the potential excessive reliance of designers on technology, which could potentially hinder their capacity to function independently.

Open design and collaborative practices like HCD have enabled the participation of those without professional backgrounds in the design process, thus promoting its democratisation. Moreover, the emergence of connectivity and digital technology has resulted in substantial transformations in the approaches utilised by designers and non-designers alike in the process of generating and distributing their designs.

In her work, Braidotti (2019) presents a compelling case for adopting a critical Posthumanist framework. This perspective seeks to question the notion of human exceptionalism and instead places significant emphasis on the significance of our connections with non-human entities, technology, and the broader, more-than-human world.

Ubuntu, with its focus on interconnection, empathy, and social justice, is compatible with the concepts of Posthumanism and may be a guiding philosophy for designers aiming to build inclusive and socially responsible products. Designers possess the ability to exert a beneficial influence on various physical issues, such as the environment, architecture, and artefacts. Additionally, they play a significant role in shaping individuals' understanding and interpretation of the surrounding environment through communication design and its related disciplines.

This article described how technological and social integration play a role in bringing Posthumanism and Ubuntu into the field of communication design. Within the South African environment, the attitudes towards non-human entities, the incorporation of ecological and sustainable principles, the emphasis on collaboration, and ethical approaches align with the concept of Ubuntu, hence resonating with South African designers. The purpose of this article was to present an overview of existing literature on the topic and is by no means exhaustive.

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