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Communication Strategies in Social Media of Global Aviation Companies

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social media, social media communication, aerospace industry, Facebook, employer branding, digital image

ABSTRACT

The contemporary business environment is characterized by rapid technological advancements, necessitating that organizations continually adapt and seek innovative channels for public communication. Among these, social media have emerged as increasingly significant instruments. Today, social media platforms serve not only as tools for communication, but also as critical mechanisms for fostering relationships with customers, business partners, and both current and prospective employees.

In an era of accelerating digitalization, social media have become an integral component of corporate communication strategies across numerous industries, including the aerospace sector. These platforms enable companies to swiftly and effectively engage a broad audience, thereby facilitating stakeholder relationship building and enhancing their employer brand reputation. The growing role of social media in corporate communication strategies underscores the need for a closer examination of its extent of utilization, effectiveness, and thematic content disseminated by the organizations under study.

The purpose of this paper is to present the process of analyzing selected aspects of the use of social media by multinational companies in the aerospace industry, with a particular focus on their role in external communications in the context of employer image building, and to present some of the research results.

The research begins with an analysis of the foundational data to identify the specifics of the industry, its level of economic development and employment needs. Key companies in the sector and the most popular social media platforms used by these entities were selected.

As part of the analysis of messages posted on social media, one platform was selected based on three criteria: popularity of the site, redirection of traffic to the websites and declared intensity of daily use. The research was quantitative and qualitative in nature. The first stage of the research utilized the Sotrender tool, which enables detailed observations of companies' social media activities. The empirical data was aggregated and presented in the form of tables and charts.

In the further analysis process, a key role was played by cooperation with representatives of the CLARIN-PL scientific consortium, who provided tools for processing and systematizing large text collections, enabling research based on the thematic modelling method and corpus analysis.

Introduction

Communication among diverse groups of actors is currently evolving on a global scale that was previously unattainable, driven by the progressive compression of time and space. Information is transmitted at an increasingly rapid pace, enabling recipients to engage with current events in near real-time (Kowalski, 2017). Subsequently, social media have assumed a pivotal role in the construction of brand image and the optimization of marketing communication strategies, facilitating direct engagement with audiences and promoting a dynamic, bidirectional flow of information. (Gawroński & Jakubowski, 2018).

Therefore, the research problem of the research work undertaken concerned the communication of companies in the aviation industry in the new media, with particular emphasis on social media. The presence of multinational companies in the media, communication methods and strategies, frequency and effects of communication activities, as well as their impact on employer image building, were analyzed.

The scope of the research encompassed the identification of the types of platforms utilized, the outcomes of communication activities, the most frequently published content categories, and the topics eliciting the highest levels of audience engagement. Furthermore, the study analyzed the leading organizations in engagement communication on Facebook, examining their practices and the thematic content of their posts within the framework of building an attractive employer image as articulated by the Employer Value Proposition (EVP). Particular emphasis was placed on selected variables such as content popularity, engagement metrics, communication formats (text, graphic, video), and publication frequency in order to evaluate the effectiveness and strategic approaches employed by the companies under review.

To achieve the research objectives, specific questions were formulated to comprehensively analyze the communication of aviation companies on social

media. In order to realize the research assumptions and answer the main research problem concerning the communication of aviation companies in social media, a set of specific research questions was developed. These addressed key aspects of the analysis, such as:

1. Presence and activity of enterprises in social media

- What social media sites and platforms do the surveyed aviation companies use to communicate with the public?
- Are there significant differences in the use of social media among the surveyed companies
- Which companies have the highest number of followers and engaged users on the selected social media platform?

2. Effectiveness and nature of communication

- What indicators (reach, engagement, frequency of publication) characterize companies' communications?
- What content published on social media elicits the greatest audience engagement?
- To what extent do communications contain elements related to building an image of an attractive employer as defined by the Employer Value Proposition?

3. Engagement communication leaders

- Which companies stand out as engagement leaders on the chosen social platform?
- What communication practices contribute to their success in engaging audiences?
- What types of publications (e.g., images, videos, text, infographics) are most commonly used, and what results do they achieve?

4. Thematic content of communications

- What keywords and thematic categories dominate the messages published by leaders?
- What thematic contexts elicit the greatest audience engagement?
- To what extent do communications focus on building the employer's image and highlighting key company attributes?

The above research questions formed the foundation for the development of the methodology, selection of research tools and analysis of the collected data. Thanks to their detailed elaboration, it was possible to obtain insightful answers to key questions, as well as identify trends and best practices in the communication of

aviation companies on social media. Studying the presence and activity of aviation companies on social media plays an important role for several reasons.

First and foremost, these platforms are gaining importance as key communication channels that both companies and consumers increasingly use to share information, build relationships and shape brand image. Social media use is showing a steady upward trend.

According to Datareportal's Global Overview Report, "Overview of social media use," 2024, the number of active social media users has exceeded 5 billion, equivalent to 62.3% of the world's population. Over the past year (2024), the global number of social media users increased by 266 million, representing a 5.6% rise. This represents an estimated growth of 9.4 new users per second (Datareportal, 2024).

In addition, research conducted by Datareportal, "Digital 2024: Global Overview Report, Use of Social Media for Brand Research," 2024, indicates that social media is becoming increasingly important for gaining information about companies and brands. As many as 73.9% of respondents reported using these platforms to gain knowledge about companies and their products (Datareportal, 2024). For companies, this is both a challenge and an opportunity to reach a wide audience, shape a unified brand image and conduct effective communication with the public.

In conclusion, in the digital age, investing in the development of a strong employer brand through social media is becoming crucial, enabling companies to attract the best professionals and increase their competitiveness in the market by, among other things, creating content that engages audiences and regularly interacting with the public, including potential job candidates (Macnar, 2020, Oladipo, 2013).

For aviation companies, social media platforms offer a unique opportunity to connect with a global audience and build brand awareness, as well as establish an attractive employer image. The selection of the aviation industry was based on an analysis of reports and information provided by organizations such as the International Air Transport Association (IATA, 2024), the International Civil Aviation Organization (ICAO, 2024) and the Air Transport Action Group (ATAG, 2024), which point to the industry's long-term growth and key role in the economy.

Current forecasts indicate that the aviation sector needs a significant increase in employment, mainly in response to the growing demand for air travel and freight, which is already surpassing pre-pandemic levels in 2024. The Boeing Company estimates that more than 2 million new employees will be needed in the industry

worldwide by 2043, including pilots, technicians and operations specialists (The Boeing Company, 2024).

The global focus on sustainability is also having a major impact on the aviation industry. The Air Transport Action Group (ATAG, 2020) notes that the sector is under increasing pressure to reduce its environmental impact, leading to accelerated efforts to adopt sustainable practices (ATAG, 2020). This includes innovations in aircraft manufacturing, such as the development of more fuel-efficient engines and the use of alternative fuels, which are critical areas of research to understand their long-term impact on the industry.

What is more, the aviation industry is experiencing explosive job growth and increasing demand for skilled workers. The continued implementation of technological innovations, combined with the growth of global air traffic, is resulting in a significant increase in employment opportunities within the sector. This trend highlights the importance of research into workforce development and the evolving skill sets needed in the aviation industry (ATAG, 2020).

The expansion of the aviation sector is accompanied by considerable recruitment challenges, primarily stemming from the intensifying “war for talent” and ongoing demographic decline, both of which hinder the attraction and retention of qualified professionals (International Air Transport Association, 2022). Recruitment challenges in the aviation industry stem from the growing demand for skilled personnel, which is compounded by the ageing workforce and a declining interest in aviation careers among younger generations. The lack of availability of qualified employees and the difficulty in retaining them are forcing aviation companies to implement new benefits and strategies, such as building an image as an attractive employer, which is becoming crucial, as inadequate staffing limits the industry’s growth and requires systematic employer branding efforts, including more intensive use of social media (HR Forecast, 2024).

The image of an attractive employer on social media plays a crucial role in shaping the employer’s reputation in the labour market. Social media platforms enable companies to reach out to candidates effectively. With personalized content and the ability to engage audiences, social media is becoming a crucial tool in fostering relationships with potential employees and showcasing a company’s value as an employer. Studies indicate that candidates judge a company’s attractiveness based on its social media activity, and a lack of professionally managed communication in this area can negatively affect the perception of an employer’s brand (Backhaus & Tikoo, 2004).

Therefore, the role of social media is particularly important in the context of an Employer Value Proposition (EVP) strategy, which defines the unique features of an employer’s offering. As Kietzmann notes, social media enables companies to communicate their EVP in a dynamic and interactive manner, thereby increasing the likelihood of attracting top talent (Kietzmann et al., 2011). At the same time, these platforms enable the monitoring of indicators such as engagement and outreach, allowing for the optimization of ongoing activities (Gibbs et al., 2015). In highly competitive sectors such as aviation, where the demand for qualified professionals is particularly high, strategic employer branding through social media serves as a significant competitive advantage in attracting and retaining talent (Edwards, 2010).

Developing an employer image is crucial, especially in a sector where professionals can choose between different industries and competition for specialists is fierce. Under such circumstances, employer branding using digital platforms and social media can help aviation companies stand out as attractive and modern employers, which is especially important for younger generations (Aviation Week Network, 2024).

Employer image development is a crucial element in human resource management, particularly in the context of increasing competition in the labour market and the challenges of talent acquisition. In the academic literature, employer brand, also known as “employer image,” is defined as the set of perceptions that potential candidates and current employees have about an organization as a workplace. This image is shaped by a variety of factors, including company communications, organizational values, and employee experiences.

According to Berthon, Ewing, and Hah (2005), employer image is perceived as the attractiveness of a company in the labour market, encompassing both functional, economic, and psychological aspects that attract candidates to an organization. Lievens and Highhouse (2003) emphasize that employer image has two main perspectives: symbolic, referring to a company’s values, and instrumental, concerning aspects such as working conditions and compensation. Cable and Turban (2001) point to employer image as the “overall impression” created by a company, which shapes candidates’ decisions to take employment with a particular organization. Edwards (2010) emphasizes that employer branding encompasses not only the external image of the organization but also the internal perceptions held by current employees.

Schlager et al. (2011) note that trust in an organization and its trustworthiness have a strong impact on employee

loyalty and commitment, which also shapes a company's image. In contrast, Kaur and Soch (2018) emphasize that the employer image is dynamic and subject to change, depending on the organization's communication efforts and interactions with the labour market. In the context of employer image, employer branding plays a special role, which is a strategic approach to employer brand management. Employer branding is gaining importance, particularly in highly competitive industries such as aerospace, where attracting highly skilled professionals is crucial to an organization's success. In the literature, definitions of employer branding focus on managing a company's identity as an attractive employer and building a long-term image that attracts and retains talent (Reis et al., 2021).

The first definition of employer branding was proposed by Ambler and Barrow (1996), who defined it as "the functional, economic and psychological benefits offered by employment with a particular company." Backhaus and Tikoo (2004), on the other hand, define employer branding as the process of managing an organization's identity and image in order to attract and retain employees. Sullivan (2004) points out that employer branding encompasses not only a company's external communications but also its internal activities that shape the perceived value of the organization. Edwards (2010) expands on this definition, highlighting the integration of HR activities with marketing, which enables consistent communication of the employer's image. Mosley (2015) emphasizes that effective employer branding is about creating a competitive employer value that aligns with the expectations of different groups of candidates and employees. Tanwar and Prasad (2016) note that in an era of globalization and changing demographic expectations, effective employer branding also takes into account cultural, technological and demographic diversity, which is particularly important in the context of dynamic industries such as aerospace.

In the context of the aviation industry, where competition for talent is particularly intense, the use of effective employer branding strategies can significantly impact an organization's performance, attracting top professionals and enhancing competitiveness in the labour market. Through effective communication on social media and digital platforms, companies can differentiate themselves as modern and attractive employers, which is particularly important for younger generations who prefer dynamic and innovative work environments (Aviation Week Network, 2024).

Building an attractive employer image, or employer branding, is becoming an

indispensable strategy for companies in the aviation industry that aim to attract top talent.

The use of advanced employer branding strategies can significantly impact an organization's performance and enhance its competitiveness in the labour market (Aldousari et al., 2017). In the context of social media communications, aviation companies are utilizing a range of tools and platforms to build and promote their image as attractive employers effectively. Regular publications, engaging content, and clear communication of corporate values and culture contribute to the creation of a positive image that is assumed to attract talented professionals. In the case of aviation companies, an effective employer branding strategy not only supports recruitment but also fosters loyalty and commitment among existing employees, which ultimately translates into stability and growth for the company (Aldousari et al., 2017).

Methodology and research material

Target group

The study analyzed 20 multinational companies in the aerospace sector, selected from a list of the world's 100 largest aerospace and defence companies by market capitalization as of January 2024. This ranking, compiled by Value Today, provides comprehensive financial information about global corporations. The research period covered approximately from March 31, 2023 to April 1, 2024 (Value Today, 2024).

Research Objectives

The objectives covered six key areas:

1. Identify the types of social media used by the surveyed companies to communicate with the public. The purpose of this part of the study was to determine which social media platforms companies most often choose. The analysis included an analysis of foundational data and statistics. One social media site was then selected for further study. The selection of the site took into account factors such as the availability of tools for analysis, the size of the platform and the number of its users, the site's popularity, its effectiveness in driving traffic to the website, and the level of audience engagement.
2. Identify the degree and uses of Facebook (which was selected in the previous stage) in the surveyed companies. This part of the study aimed to examine in detail how enterprises

utilize Facebook.

3. To identify the effects of Facebook communication with the public in the surveyed enterprises: An important element of the analysis was the verification of the effectiveness of Facebook communication, measured, among other things, by the reach of posts, the number of fans, as well as audience engagement indicators (number of reactions, comments, shares). The study also included an analysis of the sentiment and types of posts published by the brands studied in order to understand their impact on the audience.
4. Identification of thematic contexts undertaken by the surveyed companies. This part of the study focused on analyzing the content of messages and identifying the key topics that companies address in their Facebook posts.
5. Identification of three leaders of engagement communications on Facebook: The goal of the next stage of the research was to identify companies that have achieved high levels of engagement and interaction with their audiences. These leaders were identified based on certain indicators.
6. Identification of communication elements that create the image of an attractive employer among selected communication leaders on Facebook: In the final part of the study, special emphasis was placed on analyzing the activities of communicating the attributes of an attractive employer (from employer branding). In order to determine the strategies that engagement communication leaders use on Facebook to build a positive employer image and attract talent. In summary, the purpose of this study was to investigate how international companies in the aerospace industry utilize social media to communicate with the public. Then, to understand how companies use the Facebook platform to engage potential and current employees and how they build the company's

image as an attractive employer.

Research methods and tools used

The study employed a mixed-methods approach, combining both quantitative and qualitative analyses. The primary tool used to assess company activity on social media platforms was Sotrender, a social media analytics platform that enables the systematic observation and evaluation of organizational engagement on selected networks. The analysis focused exclusively on the official Facebook fanpages of the surveyed companies, as listed on their respective official websites. Using the analytical capabilities of the Sotrender platform, Facebook posts with the highest Interactivity Index (InI) were identified for further examination.

Subsequently, the research infrastructure was used during the implementation of the survey CLARIN-PL¹, (Common Language Resources and Technology Infrastructure European Research Infrastructure Consortium). Linguistic techniques derived from applied linguistics in computer content research have been applied to corpus analysis, which identifies semantically consistent sets of words and multiword expressions that are most frequently found in the research material. The basic unit of analysis in corpus-based research is a word, the meaning of which is the product of many factors, the most important of which is the frequency of its use (Hess & Hwaszcz, 2022).

Corpus analysis is a research method in computational linguistics that involves the systematic analysis of large collections of texts (corpora) to identify linguistic patterns, word frequencies and the context of phrases. This technique enables the study of language use in various situations, facilitates stylistic, semantic, and syntactic analysis, and is widely used in linguistics, literary studies, and natural language research (McEnergy & Hardie 2011). The information obtained from analyzing companies was a valuable source in the process of formulating conclusions about the use of social media in public communication, as well as creating an image of an attractive employer.

The study included a text sample of a total of 1,000 text units (50 posts from each of the 20 selected companies, based on the highest engagement rate - InI)

¹ CLARIN-PL its Polish scientific consortium, part of the CLARIN (Common Language Resources and Technology Infrastructure) European Research Infrastructure, which brings together six research centers. These units are developing language resources and tools for analyzing large collections of texts in Polish. The CLARIN-PL infrastructure supports the research of scientists, especially in the humanities and social sciences, using modern digital technologies. The use of CLARIN tools and resources is free of charge, and the Polish node - the CLARIN-PL Language Technology Center at Wroclaw University of Technology - is funded by the Ministry of Education and Science of the Republic of Poland. The center coordinates the development of tools, maintains the technical infrastructure, and promotes language engineering solutions in the academic community through workshops, consultations and the creation of training materials.

over the selected period. The results enabled a preliminary analysis of the contexts and the identification of domain terminology used by the targeted companies on their Facebook profiles. The analysis also used topic modelling methods and natural language processing (NLP) tools. These tools are based on advanced algorithms for detecting patterns and rules in large collections of texts called corpora (Khurana et al., 2022). This method makes it possible to analyze media materials without reading them in detail, making it possible to analyze data sets that far exceed the capabilities of standard research tools. The main goal is to identify themes, assess their consistency and reveal the thematic structure in media discourse (Hess, Grzechnik, Zdunek, 2022). The following research tools were used in the research process, including:

- TermoPL: a text analysis and topic modelling tool.
- Topic and Clarin Open Chat AI: tools for natural language analysis and processing.
- Categorization Key: a tool designed for classifying and categorizing data.

Interdisciplinary collaboration allowed access to advanced tools and resources that were crucial to this research project. The use of several research methods, including quantitative analysis, corpus analysis, thematic modelling, and content analysis, enabled a deeper understanding of the communication strategies employed by engagement leaders within companies in

the aerospace industry.

The research was conducted not only to identify the presence and activity of airline companies on social media but also to determine the most engaging content and assess the effectiveness of their communications in these channels. Then to identify the thematic contexts that generate the most engagement among the recipients of the selected companies' communications.

In summary, the research aimed to:

- determine the level of presence and activity of aviation companies on social media;
- identify the most popular social media platforms used by companies in the industry;
- determine which content generates the most user engagement;
- analyze the content and content published by companies on social media.

In summary, the study was conducted by analyzing the content published by selected international aviation companies on Facebook over a specific period of time.

Analysis of part of the device results

The report obtained using the TermoPL tool enabled the identification of terms based on their frequency in the text. The analysis of the research material contained a list of 901 terms, of which 151 were classified and ranked. The results of the analysis, presented in Table 1, include the 20 highest classified terms according to the ranking and C value.

Table 1

Thematic contexts compiled based on multiword expressions with the highest frequency of occurrence in the research material

Nr	Concept	C-value	Expression length	Freq_s	Freq_in	Context
1	New generation	40.36	2	42	31	19
2	Milestone	24.22	2	26	16	9
3	United States	23.55	2	26	22	9
4	Air force	23.42	2	25	22	14
5	Sustainable aviation fuel	23.24	3	17	7	3
6	Engine	23.14	1	233	134	84
7	Airline	21.76	2	23	16	13
8	Airplane	21.26	1	214	127	93
9	General manager	17.0	2	18	4	4
10	Flight	16.40	1	166	119	61
11	Technology	15.03	1	152	104	63
12	First flight	15.0	2	16	3	3
13	Passenger Crew	15.0	2	15	0	0
14	Team	14.34	1	145	62	40
15	Balanced fuel	14.25	2	19	19	4
16	World	13.37	1	135	30	24
17	Great Britain	13.0	2	14	4	4
18	Work	12.18	1	124	60	28
19	Air force United States	12.0	4	7	2	2
20	United States Navy	12.0	4	7	1	1

Note. Own multiword-list based on the results obtained with the TermoPL tool.

On the basis of the analysis of the number of occurrences of terms in the entire corpus (Freq_s), it is possible to indicate the most common terms, which are presented in Table 2. Key terms that reflect the main themes and contexts of the study are included in this table (2), allowing for a better understanding of linguistic analysis in the study material. These terms are relevant for further research and conclusions on the subject being studied.

Analyzing the thematic contexts presented in Table 2 based on the decreasing number of occurrences of terms in the entire corpus (Freq_s), the following conclusions can be drawn:

- Terms such as “engine”, “aircraft”, and “flight” are at the top of the list, indicating their central importance in the material under analysis.

Table 2

Thematic contexts compiled on the basis of the decreasing number of occurrences of the term in the entire corpus (Freq_s) in the research material

Ranking	Concept	Freq_s
6	engine	233
8	aircraft	214
10	flight	166
11	technology	152
13	team	145
15	world	135
17	work	124
25	possibility	89
28	future	86
29	aviation	84
31	system	81
33	mission	78
36	development	76
37	place	75
39	company	72
42	history	66
44	engineer	64
45	innovation	62
47	program	60
49	generation	58
50	test	57
51	solution	56
51	cooperation	55
52	pilot	55
53	efficiency	55

Note. Own term list based on the results obtained with the TermoPL tool

- Technology-related concepts, such as ‘technology’, ‘system’, and ‘solution’, also rank high in the table, highlighting the importance of technological aspects in the topic under study
- Other important concepts, such as “work”, “opportunity”, and “future”, also appear in the analysis, suggesting their relevance in the context of companies’ communication with the environment.

Moreover, a correlation exists between the frequency of term occurrence across varying contexts and their overall frequency within the analyzed material. Terms that appear frequently in diverse contexts may be considered pivotal for understanding the central themes addressed in the study. The contextual diversity of a term’s usage can reflect its semantic complexity and adaptability, suggesting its significance in conveying nuanced meanings across different communicative situations.

Selected terminology can be the basis for creating engaging messages and a dictionary of the most commonly used words. However, it should be noted that some terms may be imprecise, suggesting that the results obtained using the TermoPL tool require additional selection. Analysis of the research material revealed five key thematic areas related to aerospace, armed forces, industry, and management, which allow for a deeper understanding of the analyzed content. The following are the selected categories:

- Aerospace
- Armed forces
- Industry
- Management
- Other – other topics.

The research concluded with an analysis based on a categorization framework aligned with the attributes of an attractive employer. Notable differences were observed in the popularity of messages that included these defined attributes. The interpretation of the results highlights the varied aspects that current and prospective employees consider important when evaluating the employer attractiveness of the three leading companies in engagement communication—Airbus, Boeing, and Lockheed Martin (LM). These findings enabled the identification of key factors most valued in each organization and facilitated a comparative assessment across different employer branding attributes.

Economical attributes

The results indicate that, during the analyzed period, none of the companies stands out in economic categories, such as the level of remuneration, bonuses, benefits offered, non-wage benefits, or the form of employment contract. The lack of entries in these categories may suggest that the adopted communication strategy has not been effectively implemented on social media or that recipients of messages do not perceive these aspects as distinguishing features of these companies, at least in social media communication.

Functional attributes

Functional attributes, such as the attractiveness of the company’s products and services, clearly dominate the perception of these companies, which may indicate a high opinion of their innovative solutions and product offerings. Another important aspect is the possibility of international cooperation that the company offers. Other attributes such as challenging work, attractive work tasks and good career prospects were also identified, albeit to a lesser extent,

Emotional attributes

In the emotional sphere, appreciation at work, joy and happiness at work, and Corporate Social Responsibility (CSR) activities are the most pronounced. CSR activities are important in all three companies, indicating a strong commitment to social responsibility. Joy and satisfaction with work are also significant attributes presented in the messages of the surveyed companies.

To sum up, the largest number of posts with the highest number of reactions under posts concerned attractive products and services of the company, which may indicate their key role in strategies for building the image of an attractive employer. Subsequently, the possibility of international cooperation gained considerable attention from the audience. Additionally, market success and corporate social responsibility activities are perceived as important for building the employer’s image.

On the other hand, issues related to inspiring management and employee involvement in organizational decisions have been marginalized. Topics related to salaries and non-wage benefits were particularly absent from the analysis, which may indicate their insufficient presence in companies’ communication on social media platforms. These observations may point the way for companies to develop their communication strategies to engage potential employees more effectively.

Table 3

Multiword expressions referring to the studied thematic areas

Nr	Thematic area	Multiword expressions
1	Aerospace	New generation Milestone Air Force Sustainable aviation fuel Engine Airline Aircraft Flight First flight Passenger Crew Technology Aerospace Technology Business aviation Million Hour Flight Spaceship The future of aviation The future of flight The future of aerospace Aviation Space Suit Space station A new generation aircraft International Space Station Air Show The next generation of the manufacturer Long Range Mission Drive Train Accessory Rehearsal of a great air show Space Design the interior The world's leading helicopter engine Technical service Aircraft maintenance New high-pressure turbine module New control system New aerodynamic wing Air Force Base Use touch screen technology Space Aviation James Space Telescope Test Team Discharge seat Helicopter Assault Reconnaissance Forehead: sovereign space potential Timeline Pioneering Aeronautical Milestone Delivery flight Transatlantic flight New generation combat aircraft The era of commercial supersonic travel Space Travel Helicopter fleet Capable Hand Crew Aircraft A member of the airbus family Aircraft Boeing jet Turboprop 21st century Master the key system architecture Supersonic Aircraft Wind Tunnel Modern aircraft Aircraft X Project Manager Front-end production aerospace product Family member Turboprop Combat aircraft Turboprop Ability Transatlantic flight Special Delivery Commercial aircraft

Nr	Thematic area	Multiword expressions
2	Armed forces	Navy United States Navy Military Air Force United States Air Force Bahrain Military Air Force Military aircraft Wartime Air Force War Aircraft Supersonic War Aircraft Reconnaissance aircraft Helicopter Squadron Marine Corps United States Upgrade turbine engine Wartime Air Force Military Mission War Air Force Bahrain Operational airline Front-end production aerospace product Wartime Air Force Silent Supersonic X Aircraft Next-generation combat aircraft Wartime Air Force Key system architecture
3	Industry	Aerospace Defence industry Production Production Facility Aircraft Manufacturing Plant Leading manufacturer Leading Motor Manufacturer Industrial Production Front-end production aerospace product Front-end product production Front Production Front Production New production line New production Increase production Technical service Front Production Industrial Production Technology Aerospace Technology Advanced Technology Use touch screen technology Master the key system architecture
3.	Management	Management Operations management CEO Forehead: sovereign space potential Project Manager
4.	InneOther	Mission Future Project Show Show Test Era Forehead Class Model Kind Tunnel Ability Delivery Special Class Kind Era Design Architecture Forehead Pioneer Timeline Armchair Team Potential Hand Member Class Family

Note. Own list based on the results obtained with the *TermoPL* tool.

Table 4

Number of Facebook posts in the period March 31 2023 - April 1 2024, in relation to the category of attributes of an attractive employer

Attributes:	The number of entries relating to a given area of the attractive employer attribute in the analyzed period.		
	Airbus	Boeing	LM
Economic:			
Salary level in the company	-	-	-
Bonuses	-	-	-
Benefits offered	-	-	-
Non-wage benefits	-	-	-
Form of employment contract	-	-	-
Functional:	-	-	-
Attractive office location	-	-	-
Attractive products and services of the company	58	68	70
Attractive tasks at work	-	2	9
Job security and security	-	-	-
Good career prospects	-	-	1
Flexible working conditions	-	-	-
Inspiring leadership	-	-	-
A clear path to promotion	-	-	-
International collaboration/interaction opportunities	2	19	31
Work-life balance offer	-	-	-
Having an impact on what is happening in the company.	-	1	-
Challenging work	8	4	8
Professional training and development	-	1	5
Market success of the employer	25	31	27
Environment and workplace	-	-	3
Emotional:	-	-	-
Appreciation at work	17	20	13
Inspiring leadership	-	2	-
Organizational culture	1	1	2
Having an impact on what is happening in the company	-	1	-
Friendly atmosphere and colleagues	4	6	1
Joy/happiness at work	18	8	7
Reputation and prestige of the company	11	4	1
Satisfaction from working in this company	5	3	4
Corporate Social Responsibility activities	19	26	6
Industry image	44	19	17
Famous authorities working in the company	-	7	7

Note. Own research based on a categorization key.

Conclusion and discussion

The application of natural language processing (NLP) methods enables the analysis of textual datasets without the need for manual review, thereby allowing researchers to process materials on a scale that significantly exceeds the capacity of traditional research teams relying on conventional content analysis techniques. Computational linguistics is particularly applicable in the early stages of research. NLP tools enable the analysis of the entire corpus, allowing for the precise selection of material for further qualitative research and the creation of a catalogue of thematic areas that can serve as a categorization key in the analysis of media content (Hess & Hwaszcz, 2022).

Data obtained through thematic modelling methods and tools for identifying domain terms (Walkowiak, 2017; Marciak et al., 2019) enable the isolation of topics, the assessment of their coherence, and the analysis of the structure of the topics discussed in the studied corpora. However, the results obtained often require further verification using qualitative methods on a deliberately selected sample. Therefore, the next stage of the study was to analyze the content of three out of twenty surveyed companies that are leaders in communication engagement on Facebook, based on the developed categorization key.

The result of this project was the identification of the most frequently communicated attributes of an attractive employer, which at the same time were characterized by the highest engagement rate among message recipients. The conducted analysis confirms that the presence and activity of aerospace companies in social media play a crucial role in shaping their employer brand and engaging stakeholders. The findings indicate that while most enterprises utilize platforms such as Facebook, LinkedIn, Instagram, YouTube, and Twitter (X), the intensity and nature of their communication strategies differ significantly. Companies that maintain a consistent publication schedule and utilize diverse content formats, particularly visual materials, tend to achieve higher levels of audience engagement. The effectiveness of communication is closely linked to content strategy, with the highest engagement observed in posts featuring videos, images, and discussions on innovation and corporate culture. Additionally, organizations are increasingly incorporating elements of the Employer Value Proposition (EVP), highlighting their attractiveness as employers. The study also identifies key engagement leaders, including Airbus, Boeing, and Lockheed Martin, whose successful communication strategies rely on storytelling, behind-the-scenes insights, and social responsibility initiatives.

Overall, the results emphasize that social media is not only a promotional tool but also a strategic platform for employer branding, corporate communication, and stakeholder relationship management. Companies that leverage these digital channels effectively can enhance their public perception, attract top talent, and strengthen their competitive position in the industry. The communication strategies of aerospace companies in social media emphasize several key elements that contribute to shaping their corporate image and employer branding. One of the primary aspects is the promotion of products and services, which not only strengthens brand recognition but also serves as a tool to attract potential employees by associating the company with innovation and technological excellence.

Another significant communication theme is the emphasis on opportunities for international cooperation. Organizations emphasize the benefits of working in a global environment, meeting the expectations of modern employees who seek international career development and exposure to diverse professional networks. Additionally, aviation companies strategically underscore their market successes, including industry awards, key contracts, and financial performance. These achievements serve to enhance corporate credibility, build trust among stakeholders, and instil a sense of pride in current and potential employees.

Corporate social responsibility (CSR) initiatives also play an important role in communication strategies. Companies actively promote their engagement in sustainability, community support, and ethical business practices, recognizing that these factors are increasingly valued by employees who seek purpose-driven workplaces. Overall, the findings highlight that aerospace companies use social media not only to promote their offerings but also to strategically position themselves as attractive employers, leveraging innovation, global collaboration, success stories, and CSR efforts to strengthen their reputation in the industry.

The social media strategies of the analyzed aviation companies effectively integrate corporate promotion with the reinforcement of key values such as corporate social responsibility (CSR) and opportunities for global professional development. By strategically leveraging these elements, companies aim not only to strengthen their market position but also to enhance their attractiveness as employers.

The combination of highlighting industry achievements—such as innovation, financial success, and strategic partnerships—with CSR initiatives and international career prospects creates a compelling employer brand. This multidimensional approach aligns

with the expectations of modern employees who seek both professional growth and alignment with ethical and socially responsible business practices.

The findings suggest that companies in the aviation sector can further solidify their employer branding by maintaining a consistent and engaging presence on social media. By strategically crafting their messaging to highlight corporate values and workplace advantages, they can effectively position themselves as desirable employers in an increasingly competitive labor market.

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Predictors of Digital Financial Inclusion among the Youths: An Empirical Evidence of Kampala-Uganda

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ICT Usage, Financial Literacy, Digital Financial Inclusion, Technology Acceptance Model and Systems Theory of Financial Inclusion

ABSTRACT

The study aimed to investigate the relationship between ICT usage, financial literacy, and digital financial inclusion among the youth in Kampala, Uganda. It primarily aimed to address the existing gap in understanding how these two variables, ICT usage and financial literacy, serve as predictors of digital financial inclusion, particularly among young populations who are often financially excluded. The investigation employed a cross-sectional research design, utilizing primary data collected through structured questionnaires from 294 youths in Kampala. Descriptives, correlation, and regression analyses were used to assess the relationships between ICT usage, financial literacy, and digital financial inclusion. The study's key findings revealed that both ICT usage and financial literacy have significant positive effects on digital financial inclusion. Specifically, ICT usage and financial literacy were found to explain 42% of the variation in digital financial inclusion. The remaining 58% could be attributed to other factors not included in this study. The findings pose significant implications for policymakers and stakeholders involved in financial inclusion initiatives. The study highlights the critical role that ICT plays in extending financial services to previously underserved populations, particularly in regions with limited access to traditional banking infrastructure. Moreover, the findings underscore the need to integrate financial literacy programs into digital financial inclusion strategies. This approach would not only enhance youths' capacity to use digital financial tools but also improve their financial well-being by fostering better financial decision-making, saving, and investment behaviors. This study contributes to the body of knowledge by providing further support for the relationship between ICT Usage, financial literacy, and digital financial inclusion among youth. It further unveils a new model that suggests and demonstrates that digital financial inclusion is primarily predicted by ICT Usage and financial literacy, which has not been explored in the digital financial inclusion literature, especially among youth in the context of developing countries. This adds to the Technology Acceptance Model and Systems Theory of Financial Inclusion, which emphasize the importance of technology and financial education in enhancing access to financial services.

Introduction

Providing affordable, quality, and sustainable financial services is a very important building block for national development. Accessibility to affordable, secure, and value-added financial services and other offerings to the world's most vulnerable is essential in enabling them to build businesses, foster entrepreneurship growth, provide social security to the poor, and facilitating the achievement of the Global Sustainable Development Goals (Barajas, et al., 2020; Republic of Uganda, 2023).

Recent studies have shown that higher levels of technology usage correlate with greater financial inclusion, as ICT infrastructure facilitates faster, more convenient, and affordable access to financial services (Demirguc-Kunt et al., 2018). Similarly, financial literacy is another critical predictor of digital financial inclusion.

Youths who are more financially literate are better equipped to understand and utilize digital financial products, making them more likely to engage in digital transactions (Roy, 2022). Empirical research indicates that individuals with higher financial literacy levels are more likely to utilise digital platforms to access credit, savings, and insurance services, thereby enhancing their financial inclusion (Klapper & Lusardi, 2020). Thus, both ICT usage and financial literacy serve as strong predictors of Digital financial inclusion, contributing to the overall financial empowerment of youths in developing economies.

Information and Communication Technologies (ICTs) proliferation has been hypothesized to impact costs of transaction in financial intermediaries of

commercial banks, microfinance institutions, Savings and Credit Cooperative Organizations (SACCOs), therefore expanding their businesses, thus facilitating financial inclusion (Chatterjee, 2020; Mushtaq & Bruneau, 2019). ICTs specifically facilitate digital financial inclusion through an increased ability to create financial technology (Fintechs), better risk sharing, smoother consumption, and facilitating savings (Kwateng, Agyekum, & Asare, 2022). More importantly, digital financial inclusion through ICTs increases financial literacy as a prerequisite in advancing financial inclusion and entrenching a savings culture.

In spite of a huge presence of very many commercial banks in Uganda (over 30 banks with over 200 branches), the city youths are continuously struggling with lack of access to financial services, costly financial services, and high levels of financial exclusion all over the divisions of Kampala (Roy, 2022; Bongomin, Munene, and Yourougou, 2020; Paelo, 2024). In response to these challenges, several initiatives have been launched to enhance digital financial inclusion, with outstanding efforts such as Banking on Change by ABSA and CARE. This initiative aimed to leverage mobile and digital platforms to connect underserved populations, particularly youths, to formal banking services (CARE International, 2021). Other partnerships with mobile network operators have attempted to promote financial literacy by offering tailored savings and credit products through digital platforms, thereby reducing dependency on traditional banking models. Additionally, banks have increasingly adopted mobile banking and digital wallets, allowing young people to access financial services more conveniently and at lower costs (Rohtash, 2021). Such digitization efforts are critical to bridging the gap in financial inclusion for Kampala's youth, but all these have yielded low results in addressing the ongoing barriers to financial inclusion (Bongomin et al., 2020). Hence, the study seeks to investigate the extent to which the usage of ICT and financial literacy serve as predictors of digital financial inclusion amongst these youths. This is well envisioned in the current situation of digital financial inclusion in the following section.

This study is conceptually anchored in the Technology Acceptance Model and the Systems Theory of Financial Inclusion, which together provide a robust framework for understanding the drivers of digital financial inclusion among youth. The Technology Acceptance Model (Davis, 1989), particularly as extended by the Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003), informs the investigation into how perceived ease of use, usefulness, social influence, and facilitating conditions (key constructs of ICT usage) shape the adoption of digital financial services. Simultaneously, the Systems Theory of Financial Inclusion (Cámara & Tuesta, 2014) posits that inclusion is not a result of isolated factors but of a complex, interconnected system; this guides the analysis of how financial literacy, encompassing an individual's knowledge, attitudes, and behaviors, interacts with technology adoption to form a cohesive ecosystem that either enables or hinders financial inclusion. By integrating these theories, this research moves beyond a limited view, theorizing that digital financial inclusion emerges from the dynamic interplay between an individual's internal capability (financial literacy) and their interaction with the external technological environment (ICT usage), thereby offering a holistic explanation of the phenomenon.

This paper aimed to investigate the relationship between ICT usage, financial literacy, and digital financial inclusion among the youth in Kampala, Uganda. It primarily aimed to address the existing gap in understanding how these two variables, ICT usage and financial literacy, serve as predictors of digital financial inclusion, particularly among young populations who are often financially excluded. In this regard, the objectives are to assess: (1) the relationship between ICT usage and digital financial inclusion among youths, (2) the relationship between financial literacy and digital financial inclusion among youths, and (3) the extent to which ICT usage and financial literacy predict digital financial inclusion among youths in Kampala, Uganda.

The next section of the paper covers the theoretical review, the relationship between the

variables, the conceptual framework, gaps in existing literature methodology, data analysis, and findings. The last section presents the discussion, theoretical and managerial implications, conclusion, limitations, and direction of future research.

Literature Review

Theoretical Review

There are a number of theories that explain financial inclusion. For example, the Public Good Theory, as proposed by Ozili (2020), views financial inclusion as a benefit to society as a whole. Raichoudhury (2020) contends that the Vulnerable Group Theory, as proposed by Mehrotra and Yetman (2015), focuses on ensuring that people who are disadvantaged or excluded, such as low-income groups and youths, can access financial services. Another theory is the Systems Theory of Financial Inclusion. This research will draw on Ozili's (2024) Systems Theory of Financial Inclusion, complemented by the Technology Acceptance Model (TAM) developed by Davis (1989), to explore digital financial inclusion. The Systems Theory conceptualizes how financial systems (including banks, mobile money, and fintech services) provides affordable and accessible financial services to everyone within the economy. This enables individuals to utilize these services to enhance their livelihoods, while concurrently fostering the growth of the financial system. This study will specifically focus on how young people, particularly the youth in Kampala, Uganda, access digital financial services.

According to Systems Theory, financial services should be regulated to make them affordable for everyone, ensuring that service providers, like banks, do not take advantage of customers by overcharging them (Girón et al, 2021). While this theory explains how financial systems work, it does not fully explain how young people decide to adopt and use digital financial services, hence the need for the Technological Acceptance Model. The model explains how youth's attitudes, social factors affect whether they use digital financial services. This model suggests that if the youths find digital financial

services with a relative advantage of usefulness and ease, there is a high likelihood of more usage (Davis, 1989). Lusardi and Mitchell (2014) note that financial literacy enables individuals to make informed financial decisions, which is particularly crucial for grasping digital financial instruments. The Human Capital Theory (Becker, 1962) explains that when people invest time and effort into learning about finances, gain financial knowledge, change behavior and attitudes, they are better equipped to benefit from digital financial services. Being financially literate enables the youth to understand and use digital financial services more effectively, which leads to greater digital financial inclusion.

Additionally, research has shown that a combination of ICT usage and financial literacy is crucial for improving digital financial inclusion. A study by Demirgürç-Kunt et al. (2018) demonstrates that the combination of digital financial services and financial literacy notably enhances access to these services, especially among youth in developing nations. The rationale is that young individuals with knowledge of financial services and comfort with digital platforms are more inclined to embrace these technologies, thereby improving their financial inclusion.

Relationships between Variables

ICT Usage and Digital Financial Inclusion

The usage of Information and Communication Technology (ICT) can drive digital financial inclusion, primarily by expanding access to various financial services (Rogers, 2003; Demirgürç-Kunt et al., 2021; Klapper et al., 2023). The widespread usage of digital tools, including mobile banking applications, online payment systems, and digital wallets, has enabled both individuals and businesses to manage their finances more efficiently while facilitating easier and more convenient access to financial services (Demirgürç-Kunt et al., 2021). The transformative impact of ICT on enhancing financial inclusion is particularly pronounced in areas with inadequate traditional banking infrastructure, where digital technologies offer a viable alternative for accessing financial services (Demirgürç-Kunt et al., 2021;

Klapper et al., 2023). The ability to conduct transactions, access credit, and make investments through digital platforms has significantly contributed to the financial empowerment of individuals, particularly in underserved areas (Garg & Singh, 2022). Furthermore, the utilization of digital financial tools has been associated with improved financial management practices, enabling individuals to budget, save, and invest more effectively, thereby fostering greater financial stability and inclusion (Klapper et al., 2023).

However, the relationship between ICT usage and digital financial inclusion is not without its challenges. The digital divide, characterized by unequal access to technology and digital literacy, poses a significant barrier to the equitable distribution of the benefits of ICT usage (Baloch, Zhang & Ali, 2023; Tarekegn, 2022). In regions with poor internet connectivity or limited digital skills training, the potential of ICT to enhance financial inclusion may be constrained, potentially exacerbating existing inequalities (Tarekegn, 2022). Moreover, other barriers, such as high costs, limited technical support, and resistance to technology, can impede the usage process, particularly among low-income and rural populations (Oshora et al., 2021). The lack of trust in digital financial tools, fueled by concerns about cybersecurity threats such as fraud and data breaches, can also undermine their usage, potentially hindering the progress of digital financial inclusion (Sarma & Pais, 2023).

Financial Literacy and Digital Financial Inclusion

The literature extensively examines the relationship between financial literacy and digital financial inclusion, highlighting the crucial role of financial literacy in enhancing the effective use of digital financial services and fostering broader financial inclusion (Lusardi & Mitchell, 2014; Chen et al., 2023; Klapper & Zia, 2023). Defined as the knowledge and skills required on how people can make informed financial decisions that are informed (Lusardi & Mitchell, 2014), financial literacy empowers individuals to navigate the complexities of

digital financial tools, understand financial products and services, and make prudent financial choices within the digital landscape (Hastings et al., 2021; Chen et al., 2023). Research indicates that individuals with higher financial literacy are more inclined to adopt and utilize digital financial services, exhibiting increased confidence and capability in using digital platforms and conducting online transactions (Hastings et al., 2021; Chen et al., 2023). Furthermore, financial literacy equips individuals to make informed decisions about savings, investments, and credit, ultimately enhancing financial well-being and fostering greater engagement with the formal financial system (Lusardi & Mitchell, 2014; Klapper & Zia, 2023).

Lusardi and Mitchell (2014) established that individuals with elevated levels of financial literacy were more likely to maintain bank accounts, use credit wisely, and engage in retirement planning. Similarly, Hastings et al. (2021) concluded that financial training significantly heightened the likelihood of individuals utilising mobile money and other digital financial services. The research conducted by Chen et al. (2023) further corroborated this connection, demonstrating that those with greater financial literacy displayed enhanced proficiency in using digital financial tools and were more likely to participate in online financial activities. Additionally, the findings of Klapper and Zia (2023) emphasized the significance of financial literacy in advancing digital financial inclusion, especially in emerging markets where access to traditional financial services may be constrained.

However, while financial literacy is a crucial enabler of digital financial inclusion, it is not a panacea. Several studies have highlighted the potential barriers that can impede the effective utilization of digital financial services, even among financially literate individuals (Jappelli, 2022; Miller & Yeo, 2023; Klapper & Zia, 2023). Jappelli (2022) noted that complex user interfaces, a lack of adequate support, and limited digital access could hinder the usage of digital financial tools, even for those with high financial literacy.

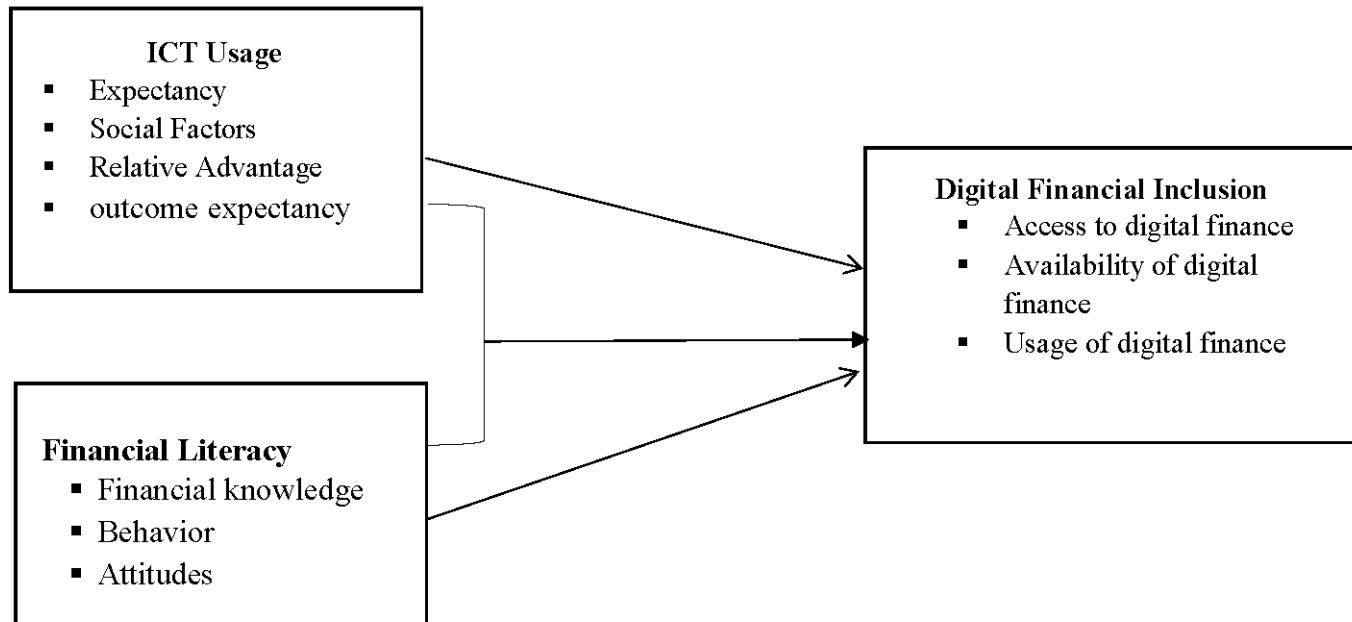
Miller and Yeo (2023) emphasized that financial literacy alone may not be sufficient to overcome structural barriers such as a lack of internet connectivity, affordability of digital devices, and digital illiteracy. Klapper and Zia (2023) emphasized the necessity of tackling disparities in digital access and infrastructure to ensure that the advantages of financial literacy are available to all population segments. In conclusion, while financial literacy plays a vital role in fostering digital financial inclusion, it is crucial to acknowledge and address the diverse barriers that may hinder the use of digital financial services. An integrated approach that combines financial education with initiatives to enhance digital access, streamline user interfaces, and provide sufficient support is essential to ensure that the benefits of digital financial inclusion are genuinely inclusive and accessible to everyone.

Explanation of the Conceptual Framework

This study's conceptual framework suggests that Digital Financial Inclusion (dependent variable) among youth in Kampala is a function of two primary determinants: ICT Usage and Financial Literacy. The framework is adapted from established theories but is contextualized for the urban Ugandan youth demographic.

In the conceptual framework above, ICT usage, measured by the constructs of the UTAUT and Technology Acceptance models, including Expectancy (effort and performance), facilitating conditions, social factors and relative advantage, is hypothesized to be related to the financial inclusion of youths in Kampala. The usage of ICTs is expected to increase access to financial services, which can reduce financial exclusion. Secondly, financial literacy, measured by people's levels

Conceptual Framework



Developed after review of literature by Bongomin, Munene, and Yourougou, (2020), Bongomin et al., (2017), Cáamara and Tuesta (2014), Davis et al., (1989; 2007), Girón, et al., (2021), Network for Financial Education (2015), Nguyen (2020), and Venkatesh et al., (2013).

of knowledge and skills in financial management, their behaviour and attitudes towards financial literacy, is also postulated to lead to higher levels of inclusion. The more people who are financially literate, the higher the possibility of these individuals becoming financially included.

Kampala District in Uganda is characterized by high mobile phone penetration, even among low-income youth. However, ICT usage does not automatically equate to financial usage. This study investigates whether the drivers of technology adoption identified in UTAUT/TAM (like Performance Expectancy, which demonstrates the belief that mobile money will help perform transactions faster) effectively predict the move from basic communication to active use of digital financial services.

Ugandan youth often operate in the informal economy and face unique financial challenges, including irregular income and high exposure to predatory lending. Therefore, financial literacy is not merely about textbook knowledge but is measured through practical financial behavior (such as budgeting daily earnings), attitudes (such as trust in formal and informal systems), and applied knowledge relevant to their context (such as understanding mobile money interest rates).

This conceptual framework was operationalized and tested empirically. Each construct was measured using a multi-item scale on the questionnaire. The framework was tested using a two-stage analytical approach that is correlation analysis and multiple regression analysis. The correlation analysis involved establishing the basic bivariate relationships between each independent variable (ICT Usage and financial literacy) and the dependent variable (Digital Financial Inclusion). Under multiple regression analysis, it involved determining the unique predictive power of ICT Usage and financial literacy on digital financial Inclusion while all other factors were held constant. This analysis verified which constructs are the most significant drivers and quantified the overall explanatory power of the model (the R^2 value of 42% mentioned in the abstract).

By taking this approach, the conceptual framework transitioned from a static diagram to a dynamic, testable model that is firmly grounded in the realities of the population being studied.

Gaps in existing literature

Several gaps exist in the literature regarding financial literacy and ICT usage as predictors of digital financial inclusion. While financial literacy is widely recognised as important, research has yet to identify which aspects of financial literacy, such as traditional concepts (interest rates, savings) versus digital-specific knowledge (mobile banking usage), most strongly influence digital financial inclusion (Lusardi & Mitchell, 2014). Additionally, many studies focus on financial literacy without sufficiently exploring the behavioural and contextual factors, such as trust in financial institutions and the accessibility of financial services, that may mediate its effectiveness (Klapper & Zia, 2023). For instance, knowing how to manage finances does not always lead to active usage of digital financial platforms if users distrust the system or cannot easily access it.

One key debate centers on the effectiveness of financial literacy in improving financial behaviors and inclusion. While many studies assert that financial literacy is crucial, some argue that it does not necessarily translate into improved financial decision-making or increased use of financial services, particularly among low-income or marginalized populations (Klapper & Zia, 2023). For instance, Baloch, Zhang & Ali, 2023) contends that overemphasizing financial literacy may overlook other structural barriers like poverty, access to credit, and high transaction costs, which play a more substantial role in financial exclusion.

On the ICT usage front, a similar debate arises. Although ICT is generally seen as a key driver of financial inclusion, some researchers argue that it tends to benefit urban, tech-savvy populations more than rural or less educated groups, thereby exacerbating existing inequalities (Ebong & Babu, 2021; Baloch, Zhang & Ali, 2023). Additionally, while mobile and digital banking platforms have expanded access, challenges such as poor network infrastructure, high smartphone

costs, and low digital literacy can limit the benefits for certain populations (Demirgüt-Kunt et al., 2018). Furthermore, some studies, such as that of Miller & Yeo (2023), raise concerns that even as ICT usage increases, it may not sufficiently address underlying issues, including financial literacy gaps and regulatory challenges, which are also crucial for DFI. These controversies highlight the complexities and limitations of relying solely on financial literacy and ICT usage to drive financial inclusion.

Similarly, the literature on ICT usage often assumes it as a universal enabler of financial inclusion, but rarely addresses how it interacts with socioeconomic factors such as income, gender, and geography (Ebong & Babu, 2021; Baloch, Zhang, & Ali, 2023). This creates a gap in understanding how certain groups, particularly in rural or low-income areas, may still struggle with digital financial access despite the increasing availability of ICT tools. Furthermore, emerging technologies such as blockchain, artificial intelligence, and fintech innovations hold potential to revolutionize financial inclusion, yet their impact remains underexplored in current research, especially in developing contexts (Ozili, 2020). This leaves a significant gap in understanding how these advanced technologies could further enhance DFI beyond traditional mobile and digital platforms.

Research Design

This study adopted a cross-sectional research design, where data on all study variables were collected at a single point in time to assess the relationships between ICT usage, financial literacy, and digital financial inclusion among youths in Kampala, Uganda. The cross-sectional approach was appropriate because it allows for simultaneous measurement of multiple variables and is cost-effective for analyzing associations within a large population.

Population of the study

According to the Uganda Bureau of Statistics (UBOS, 2019), Kampala has a total population of approximately 1,650,800, of which about 39% (644,071) are youths aged between 18 and 35 years. This population

formed the target group for the study. Using Krejcie and Morgan's (1970) sample size determination table, a representative sample of 331 youths was determined to ensure adequate statistical power and generalizability.

For the purpose of this study, 'youth' was defined as individuals between the ages of 18 and 35 years, in alignment with the African Youth Charter (2006). This range was selected as it captures the population that is legally eligible for formal financial contracts (18+) while encompassing the stage of life where individuals are typically completing education, entering the workforce, and forming financial habits. According to the Uganda Bureau of Statistics (UBOS, 2024), over 78% of Uganda's population is below the age of 30, making this demographic critically important for national financial inclusion strategies.

Sampling Technique

A purposive sampling technique was employed to select participants from the Kampala Central Division, as this area is highly urbanized and characterized by widespread ICT adoption and mobile financial activity. The purposive selection ensured that respondents were youths with basic access to mobile devices and the Internet, as these are prerequisites for digital financial participation.

Data Collection and Research Instrument

Data collection was conducted between March and May 2024, using both a paper-based questionnaire and an online-assisted questionnaire. The dual approach was adopted to maximize response rates and inclusivity. A structured questionnaire was used as the primary data collection instrument. The questionnaire consisted of closed-ended items designed to measure ICT usage, financial literacy, and digital financial inclusion. Responses were captured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), providing a standardized metric for analysis.

The paper-based questionnaire approach was administered physically to respondents in youth centers, tertiary institutions, and local community hubs, while

the online questionnaire was distributed via structured Google Forms shared through youth social media platforms such as WhatsApp, Telegram, and email.

Reliability and Validity of the research Instrument

An instrument is deemed reliable if it yields the same results when employed multiple times to assess the same traits or concepts from identical respondents, even when administered by different researchers (Amin, 2003; Field, 2009). The greater the reliability of a test, the more assurance we have that the scores obtained are consistent with those that would be derived from re-administering the test. In order to achieve the reliability of a research instrument, Cronbach's alpha served as a reliability coefficient that assessed how well the items in a set were positively correlated with one another. The calculation of Cronbach's alpha was based on the average inter-correlation among the items; a value closer to 1 indicated higher internal consistency reliability as recommended by Sekaran (2003). In this study, the researchers performed a reliability analysis on the questionnaire by adopting a cut-off point of 0.7 as acceptable. To establish validity, the instruments was subjected to evaluation, with a cut-off threshold set at 0.7. Furthermore, the researchers maintained a complete oversight of the data collection process and source documentation while conducting a reliability assessment. To adhere to recognized research standards, it was anticipated that all alpha reliability coefficients for the various scales exceeded 0.7, as indicated by Nunnally (1978).

Measurement of the Variables

The following dimensions were employed to assess the three variables of interest: ICT usage; Digital Financial Inclusion (DFI) and finally financial literacy among youth in Kampala. Each measure corresponding to these variables was subjected to a five-point Likert-Scale within a structured questionnaire. These measures were also to serve as foundational questions or statements for the interview guide.

The measures are highlighted below:

ICT usage as an independent variable that was measured by expectancy, facilitating conditions, social factors as pointed out in the review of the technology-acceptance theory by Davis (1991; 2003), Rogers (1983; 2003), and Venkatesh et al., (2003).

Financial Literacy was measured using a questionnaire of the International Network for Financial Education (INFE) (OECD-INFE, 2015) that has been widely applied around the World, and adopted in Uganda by Agabalinda and Isoh (2020), Bongomin et al. (2017), and Bongomin, Munene, and Yourougou (2020). Only three areas of measurement will be used to measure financial literacy, and these included knowledge, behaviour and attitudes.

Digital Financial Inclusion (DFI) was measured using constructs developed from Nguyen's (2020) multidimensional financial inclusion index bearing three major determinants, including access to digital financial services, the availability of digital financial services, and the usage of these services among communities.

Data Analysis Tool and Methods

Data were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) Version 25. Descriptive statistics (frequencies, percentages, and means) summarized respondents' demographic characteristics and perceptions. Reliability and validity tests were performed using Cronbach's Alpha and expert review, respectively. Pearson correlation analysis determined the strength and direction of relationships among variables, while multiple regression analysis assessed the predictive power of ICT usage and financial literacy on digital financial inclusion. The level of statistical significance was set at $p < 0.05$.

Data Analysis and the Results

Descriptive statistics

Regarding age distribution, nearly half of the respondents 49.3% were aged between 18 and 23 years, while a small proportion 3.7% were in the 23 to 27 age group. The remaining 46.9% of respondents were aged

between 27 and 30 years, reflecting a relatively balanced participation across the younger and slightly older youth in Kampala Uganda.

In terms of education level, a large portion of respondents had completed education beyond A' Level, making up 38.4% of the sample. Those who had completed A' Level constituted 36.7%, while 16.3% had

achieved an O' Level education. A smaller group of respondents, 7.8%, had a primary level of education or below. This suggests that most respondents in the study had attained secondary-A level education or higher, which has implications for their level of financial literacy and engagement with digital financial services.

Table 1: Demographic characteristics

Variable Name	Category	Frequency	Percent
Gender	Male	234	79.6
	Female	60	20.4
Age	18-23	145	49.3
	23-27	11	3.7
Education level	27-30	138	46.9
	Primary or below	23	7.8
Education level	O' level	48	16.3
	A' Level	108	36.7
	Above A' Level	113	38.4

Source: Primary data, 2024

Table 2: Factor structure for financial literacy

Code	Label	Financial Knowledge	Financial behaviour	Financial Attitude
KN5	I am informed about interest payments	.882		
KN6	I am informed about loans from financial institutions	.872		
KN4	I know the importance of being a member of a savings group	.845		
KN7	I am informed about preparing a budget for my finances	.645		
BV2	I regularly keep a record of my expenditures		.822	
BV6	I keep a record of my savings		.777	
BV5	I usually make financial contributions to social functions of friends and family		.711	
AT6	I like seeking financial information from social media platforms			.755
AT8	I enjoy news related to economics and finance			.713
AT1	I have interest in information about financial matters			.659
<i>Eigen value</i>		2.811	2.022	1.993
<i>Variance (%)</i>		28.11	20.22	19.929
<i>Cumulative variance (%)</i>		28.11	48.32	68.252

Source: Primary data, 2024

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 4 iterations.

Factor analysis

Factor analysis was executed on the variables to order their underlying structure, using the Varimax rotation method for principal components. According

to the Guttman-Kaiser rule, only factors with an Eigenvalue greater than 1 were considered significant in each study variable.

Table 3: Factor structure for Digital Financial inclusion

CODE	Label	Component		
		Access	Availability	Usage of digital finance
AC3	I am to save with my phone company am subscribed	.861		
AC1	I am eligible for loans from mobile telecommunication companies	.823		
AC4	I eligible for loans from lenders on the Internet.	.786		
AC2	I can access insurance policies offered by the phone company am subscribed.	.738		
AV5	There are agents of banks in my community		.819	
AV4	There are vendors in our local markets that allow mobile money payments like MoMo pay		.806	
AV2	I know of insurance products provided by telecommunication companies		.781	
AV1	I know of loans provided by telecommunication companies.		.764	
US9	I have ever withdrawn money from my bank using banking agents			.770
US3	I have ever taken or considered taking an insurance police provided by my phone company			.769
US5	I am subscribed for mobile banking			.762
US2	I have ever got a loan from my mobile telecommunication company			.733
Eigen value		2.769	2.648	2.469
Variance (%)		23.08	22.07	20.802
Cumulative Variance (%)		23.08	45.14	65.944

Source: Primary data, 2024

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 4 iterations.

Table 3 shows the factor analysis of digital financial inclusion, as summarized in the table above, reveals three significant components: Access, Availability, and ICT Usage, each identified based on their Eigenvalues and variance as explained.

Access (Eigenvalue = 2.769, Variance = 23.08%) emerged as the most influential factor, accounting for 23.08% of the total variation. This was followed by Availability (Eigenvalue = 2.648, Variance = 22.07%), which explained 22.07% of the variance. Lastly, ICT Usage (Eigenvalue = 2.469, Variance = 20.802%) explained 20.8% of the variance. Together, these three factors explained a cumulative variance of 65.94%.

From the indicators above, Access was measured by the statements "I am able to save with my phone company" (loading = 0.861), "I am eligible for loans from mobile telecommunication companies" (loading = 0.823), and "I am eligible for loans from lenders on the Internet" (loading = 0.786). While Availability was represented by indicators such as "There are agents of banks in my community" (loading = 0.819), "There are vendors in local markets that allow mobile money payments like MoMo Pay" (loading = 0.806), and "I know of insurance products provided by telecommunication companies" (loading = 0.781).

Lastly, Usage of digital finance showed the strongest indicators in "I have ever withdrawn money from my bank using banking agents" (loading = 0.770), "I have ever taken or considered taking an insurance policy provided by my phone company" (loading = 0.769), and "I am subscribed to mobile banking" (loading = 0.762).

From the above analysis, the high factor loadings indicate that the indicators listed are significant measures of their respective factors, with Access being the most critical dimension of digital financial inclusion.

The factor analysis of financial literacy, as summarized in Table 2 above, indicates that three significant factors were extracted based on their Eigenvalues. These factors included Financial Knowledge, Financial Behaviour, and Financial Attitude, which met the criteria for convergent and discriminant validity, making them reliable measures within the factor structure.

Financial Knowledge (Eigenvalue = 2.811, Variance = 28.11%) was identified as the most influential factor, explaining 28.1% of the variation. This was followed by Financial Behavior (Eigenvalue = 2.022, Variance = 20.22%), accounting for 20.22% of the variance. Lastly, Financial Attitude (Eigenvalue = 1.993, Variance = 19.929%) explained 19.93% of the variation. Collectively, these components explained 68.25% of the total variation.

For Financial Knowledge, the top indicators include "I am informed about interest payments" (loading = 0.882), "I am informed about loans from financial institutions" (loading = 0.872), and "I know the importance of being a member of a savings group" (loading = 0.845). While for Financial Behavior, the strongest indicators were "I regularly keep a record of my expenditures" (loading = 0.822), "I keep a record of my savings" (loading = 0.777), and "I usually make financial contributions to social functions of friends and family" (loading = 0.711). Lastly, for Financial Attitude, the key indicators were "I like seeking financial information from social media platforms" (loading = 0.755), "I enjoy news related to economics and finance" (loading = 0.713), and "I have an interest in information about financial matters" (loading = 0.659). The higher factor loadings show more significant indicators in measuring the overall construct of financial literacy.

Table 4 Factor structure for ICT Usage

CODE	Label	Relative Advantage	Component			
			Performance Expectancy	Outcome Expectancy	Social influence	
RA4	Using digital platforms for my finances improves my effectiveness on the job.	.845				
RA1	It is more convenient to transact using digital platforms than visiting the bank.	.818				
RA3	Using digital platforms for my finances improves the quality of the work I do	.796				
RA2	Using digital platforms to transact is faster than going to the bank.	.792				
RA5	Using digital platforms for my finances increases my productivity.	.671				
RA6	Using digital platforms for my finances enables me to accomplish tasks more quickly.	.617				
PE3	Using mobile phones increases my likelihood of achieving important tasks		.848			
PE2	I find mobile banking useful in my routine life		.797			
PE5	I find agent banking more convenient than visiting the bank		.753			
PE1	Performance Expectancy		.751			
PE4	I find mobile banking convenient than visiting the bank		.729			
OE2	I find it easy to transact using internet banking			.874		
OE3	Learning to transact using mobile banking would not take me a very long time.			.849		
OE4	It would not take me long to learn how to transact using internet banking			.846		
OE1	I find it easy to transact using mobile banking			.776		
SI2	I am likely to transact using digital platforms if my friends or family use it.				.903	
SI3	I use mobile banking because my friends use it.				.888	
SI1	My friends and family encourage me to use digital platforms to manage my finances				.827	
Eigen value			3.968	3.373	3.253	2.501
Variance (%)			22.05	18.74	18.070	13.892
Cumulative Variance (%)			22.05	40.79	58.857	72.749

Source: Primary data, 2024

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 5 iterations.

The factor analysis of ICT usage, as summarized in Table 4 above, reveals four significant factors: Relative Advantage, Performance Expectancy, Outcome Expectancy, and Social Influence, all based on their Eigenvalues and variance explained. Relative Advantage (Eigenvalue = 3.968, Variance = 22.05%) emerged as the most significant factor, accounting for 22.05% of the variation. This was followed by Performance Expectancy (Eigenvalue = 3.373, Variance = 18.74%), which explained 18.74% of the variance. Outcome Expectancy (Eigenvalue = 3.253, Variance = 18.07%) accounted for 18.07% of the variance, while Social Influence (Eigenvalue = 2.501, Variance = 13.89%) explained 13.89%. Together, these four factors accounted for a cumulative variance of 72.75%. The indicators for each factor, ranked by their factor loadings, from the table were as below:

Relative Advantage: Key indicators include “Using digital platforms for my finances improves my effectiveness on the job” (loading = 0.845), “It is more convenient to transact using digital platforms than visiting the bank” (loading = 0.818), and “Using digital platforms for my finances improves the quality of the work I do” (loading = 0.796), in performance expectancy; the strongest indicators were “Using mobile phones increases my likelihood of achieving important tasks” (loading = 0.848), “I find mobile banking useful in my routine life” (loading = 0.797), and “I find agent banking more convenient than visiting the bank” (loading = 0.753).

Outcome Expectancy was ranked by “I find it easy to transact using internet banking” (loading = 0.874), “Learning to transact using mobile banking would not take me a very long time” (loading = 0.849), and “It would not take me long to learn how to transact using internet banking” (loading = 0.846), and lastly social influence; “I am likely to transact using digital platforms if my friends or family use it” (loading = 0.903), “I use mobile banking because my friends use it” (loading = 0.888), and “My friends and family encourage me to use digital platforms to manage my finances” (loading = 0.827) the above high factor loadings indicate that

these indicators significantly measure their respective factors, with Relative Advantage being the most critical dimension influencing ICT usage.

Correlation of analysis

Relationships between the study variables was examined using Correlation analysis. Pearson’s correlation coefficients were used to assess the strength and direction of linear relationships between the variables in the study. This analysis explored the presence of linear associations between different pairs of the study variables.

The relationship between financial literacy and Digital financial inclusion

Findings in Table 5 above reveal that there is a significant positive relationship between financial literacy and digital financial inclusion among the youth in Kampala, Uganda ($r = 0.605, p < .01$). Additionally, digital financial inclusion was found to have significant relationships with several factors of financial literacy. These include financial knowledge ($r = 0.316, p < .01$), financial behavior ($r = 0.640, p < .01$) and financial attitude ($r = 0.418, p < .01$).

This suggests that higher levels of digital financial inclusion are strongly associated with improved financial knowledge, financial behavior, and positive financial attitudes. In other words, improved financial knowledge base, financial behavior, and a positive outlook toward financial matters are associated with higher levels of digital financial inclusion.

The relationship between ICT usage and Digital financial inclusion

The findings in the table 5 show that there is a strong positive relationship between ICT usage and digital financial inclusion among the youth in Kampala, Uganda ($r = 0.562, p < .01$). Digital financial inclusion is also significantly linked to several aspects of ICT usage, including performance expectancy ($r = 0.427, p < .01$), Outcome expectancy ($r = 0.225, p < .01$), Social expectancy ($r = 0.511, p < .01$) and relative advantage ($r = 0.384, p < .01$).

This shows that when the youth in Kampala,

Table 5: correlation matrix

Variable	1	2	3	4	5	6	7	8	9	10
Financial Literacy (1)	1									
Financial Knowledge (2)	.694**	1								
Financial behaviour (3)	.805**	.266**	1							
Financial attitude (4)	.812**	.425**	.491**	1						
ICT usage (5)	.631**	.455**	.478**	.536**	1					
Performance expectancy (6)	.440**	.374**	.309**	.349**	.667**	1				
outcome expectancy (7)	.419**	.423**	.183**	.404**	.708**	.365**	1			
Social expectancy (8)	.488**	.138*	.560**	.382**	.678**	.223**	.210**	1		
Relative Advantage (9)	.404**	.400**	.214**	.355**	.743**	.452**	.443**	.262**	1	
Digital financial inclusion (10)	.605**	.316**	.640**	.418**	.562**	.427**	.225**	.511**	.384**	1

Source: Primary data, 2024

Correlation is significant at the 0.01 level (2-tailed).

Correlation is significant at the 0.05 level (2-tailed).

Uganda adopt more ICT tools and services, such as mobile banking and digital financial platforms, their level of Digital financial inclusion increases. Thus, this finding suggests that as youths' access to and utilization of ICT tools such as smartphones, mobile money apps, and online banking platforms increase, their participation in digital financial services also improves.

Regression Analysis

In order to determine whether the characteristics of financial literacy and ICT usage have significant predictive power on Digital financial inclusion among the youth in Kampala, a regression analysis was employed, as summarized in Table 6.

The extent of the effect of financial inclusion and ICT usage on Digital financial inclusion

Table 6: Regression model

	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
(Constant)	.703	.205			3.431	.001
Financial Literacy	.420	.058	.417		7.244	.000
ICT usage	.343	.066	.298		5.185	.000
R Square	.420				F statistic	105.421
Adjusted R Square	.416				Sig.	.000

Source: Primary data, 2024

The regression model summarized in the table 6 above shows that the model was well specified ($F=105.421$, $p<.01$), implying that the regression model was statistically significant. Financial Literacy (beta = .417, $p < .01$) and ICT Usage (beta = .298, $p < .01$), have statistically significant positive effects on digital financial inclusion among the youth in Kampala. This indicates that improvements in financial literacy and greater usage of ICT tools lead to increased digital financial inclusion, hence achieving objective three of the study. The Adjusted R Square value of .416 suggests that 41.6% of the variation in Digital financial inclusion is explained by Financial Literacy and ICT Usage.

Discussion of the Findings

ICT Usage and Digital Financial Inclusion

The findings of this study reveal a strong positive relationship between ICT usage and digital financial inclusion among the youth in Kampala, Uganda ($r = 0.562$, $p < .01$). This correlation aligns with the assertions of Demirgüç-Kunt et al. (2021) and Klapper et al. (2023), who recognize ICT usage as a significant driver of digital financial inclusion by expanding access to various financial services. The increased use of ICT tools and services, such as mobile banking and digital financial platforms, enables youths to access and benefit from financial services more effectively, particularly in areas with inadequate traditional banking infrastructure (Demirgüç-Kunt et al., 2021; Klapper et al., 2023). Besides, the utilization of ICT tools such as mobile

banking applications and digital financial platforms enables youths to manage their finances more efficiently and access financial services more conveniently, supporting the assumptions by Systems Theory of Financial Inclusion proposed by Ozili (2024). This theory conceptualizes financial inclusion as a process where the financial system provides affordable and accessible services to everyone, which is facilitated by the usage of ICT. This supports the notion that ICT can serve as a viable alternative for financial transactions in underserved regions, contributing to the financial empowerment of individuals (Garg & Singh, 2022; Miller & Yeo, 2023).

Furthermore, the study identifies significant links between digital financial inclusion and several aspects of ICT usage, including performance expectancy ($r = 0.427$, $p < .01$), outcome expectancy ($r = 0.225$, $p < .01$), social expectancy ($r = 0.511$, $p < .01$), and relative advantage ($r = 0.384$, $p < .01$). These findings are consistent with the Technology Acceptance Model (TAM) developed by Davis (1989). According to TAM, perceived usefulness and ease of use are critical factors influencing technology usage. The positive correlations suggest that when youths perceive digital financial services as advantageous and expect positive outcomes, they are more likely to adopt these technologies. The strong association with social expectancy highlights the role of social factors and community norms in influencing ICT usage among youths, echoing Garg and Singh's (2022) observations on the social dimensions of financial empowerment. Additionally, the significance

of performance and outcome expectancy highlights the impact of individuals' beliefs about the efficiency and benefits of ICT tools in managing finances, aligning with Klapper et al.'s (2023) insights on the improvement of financial management practices through digital tools.

Nonetheless, while the positive relationship is evident, the findings also suggest potential challenges that may hinder the equitable distribution of ICT benefits. The relatively lower correlation with outcome expectancy ($r = 0.225, p < .01$) may indicate barriers such as unequal access to technology and limited digital literacy, which are characteristic of the digital divide discussed by Baloch, Zhang & Ali (2023) and Tarekegn (2022). These barriers can constrain the potential of ICT to enhance financial inclusion, particularly if issues like poor internet connectivity and insufficient digital skills training persist (Tarekegn, 2022). Moreover, factors such as high costs, limited technical support, and resistance to technology usage, as noted by Oshora et al (2021), alongside concerns about cybersecurity threats (Sarma & Pais, 2023), may impede the usage process among certain segments of the youth population. Addressing these challenges is crucial to prevent exacerbating existing inequalities and to fully realize the potential of ICT in promoting digital financial inclusion.

Financial Literacy and Digital Financial Inclusion

The study's findings indicate a significant positive relationship between financial literacy and digital financial inclusion among the youth in Kampala, Uganda. This explains the pivotal role that financial education plays in enhancing youths' ability to access and effectively use digital financial services. This strong correlation aligns with the Human Capital Theory proposed by Becker (1964), which posits that investments in knowledge and skills enhance individuals' capabilities and productivity. Financial literacy, defined by Lusardi and Mitchell (2014) as the knowledge and skills required for making informed financial decisions, empowers youths to navigate digital financial tools

efficiently. The study's findings support the assertions of Hastings et al. (2021) and Chen et al. (2023) that higher financial literacy levels increase the likelihood of adopting and utilizing digital financial services, thereby fostering greater engagement with the formal financial system. This enhanced engagement not only facilitates better financial management and decision-making but also contributes to overall financial well-being and inclusion, emphasizing the necessity of integrating financial education into initiatives aimed at promoting digital financial inclusion among young populations.

In addition, strong relationships between digital financial inclusion and the specific components of financial literacy namely financial knowledge ($r = 0.316, p < .01$), financial behaviour ($r = 0.640, p < .01$), and financial attitude ($r = 0.418, p < .01$) highlight the multifaceted impact that financial literacy has on enhancing financial inclusion among youths. These findings align with Klapper and Zia (2023), who emphasized that financial literacy equips individuals with the ability to make informed decisions regarding savings, investments, and credit, thereby facilitating greater engagement with digital financial platforms. The strong correlation with financial behavior suggests that practical financial actions, such as budgeting and responsible spending, significantly enhance youths' participation in digital financial services. This observation is consistent with the Technology Acceptance Model proposed by Davis (1989), which posits that positive attitudes towards technology and perceived usefulness are critical factors influencing the usage of new technologies. Therefore, the positive financial attitudes among youths not only foster a willingness to engage with digital financial tools but also reinforce the perceived benefits of these technologies, ultimately contributing to higher levels of digital financial inclusion.

However, while the positive relationship between financial literacy and digital financial inclusion is evident, it is important to recognize that financial literacy alone may not be sufficient to overcome all barriers to effective utilization of digital financial services. The literature

highlights potential impediments such as complex user interfaces, inadequate support, limited digital access, and structural challenges like internet connectivity and affordability issues (Jappelli, 2022; Miller & Yeo, 2023; Klapper & Zia, 2023). These barriers can hinder the adoption and usage of digital financial tools even among financially literate individuals. Klapper and Zia (2023) emphasize the necessity of addressing disparities in digital access and infrastructure to ensure that the advantages of financial literacy translate into tangible outcomes in digital financial inclusion. Therefore, while the study's findings affirm the vital role of financial literacy, they also highlight the need for integrated approaches that combine financial education with efforts to enhance digital accessibility and support. Such comprehensive strategies are essential to ensure that the benefits of digital financial inclusion are genuinely inclusive and accessible to all youths in Kampala.

The influence of ICT usage and financial literacy on digital financial inclusion

The study's findings demonstrate the significant influence of both financial literacy and ICT usage on digital financial inclusion among youth in Kampala, Uganda. The regression analysis revealed that financial literacy ($\beta = 0.417$, $p < .01$) and ICT usage ($\beta = 0.298$, $p < .01$) have statistically significant positive effects on digital financial inclusion, accounting for 42% of the model's variation. This empirical result aligns with the theoretical perspectives outlined in the literature, such as Lusardi and Mitchell's (2014) view that financial literacy enhances individuals' capacity to comprehend and utilize digital financial tools. The role of ICT, as highlighted by Demirgüç-Kunt et al. (2021), also supports the notion that adopting digital technologies, such as mobile banking applications and online financial platforms, extends access to financial services, particularly in areas with limited traditional banking infrastructure. These findings explain the interrelationship between knowledge of financial systems and the technological means to access these systems, reinforcing the literature's assertion that financial literacy and ICT usage are

mutually reinforcing drivers of digital financial inclusion.

The study's results further corroborate the Systems Theory of Financial Inclusion (Ozili, 2024), which conceptualizes financial inclusion as a systemic process whereby financial services are made accessible and affordable to all, facilitated by the financial system's regulatory frameworks. This is particularly relevant to youth in Kampala, who, as the study shows, benefit from both financial education and ICT availability in accessing digital financial services. According to the Technology Acceptance Model (Davis, 1989), the perceived ease of use and usefulness of digital financial tools further influence youths' usage behaviors, suggesting that when these tools are both accessible and user-friendly, digital financial inclusion is significantly enhanced. The empirical findings from this study, thus, provide support for the combined utility of these models, as they demonstrate how financial literacy and ICT usage work in tandem to promote youth engagement with digital financial services, consistent with the theoretical review (Baloch, Zhang & Ali, 2023).

Despite the promising findings, the literature and the study acknowledge that barriers remain. Challenges such as the digital divide, uneven access to technology, and digital literacy disparities continue to pose significant impediments to widespread digital financial inclusion (Baloch, Zhang, & Ali, 2023; Tarekegn, 2022). Additionally, the literature by Sarma and Pais (2023) emphasizes that cybersecurity concerns, particularly around data privacy and fraud, also contribute to a lack of trust in digital financial platforms, which may limit their usage. The study's findings align with these concerns, underscoring the need for policies that bridge the digital access gap and strengthen security measures to foster trust. Therefore, while financial literacy and ICT usage are essential drivers, an integrated approach is necessary to address infrastructural and social barriers, ensuring that digital financial inclusion is both equitable and sustainable for all youths in Kampala.

Conclusion

The study aimed at investigating the relationship

between ICT usage, financial literacy, and digital financial inclusion among the youth in Kampala, Uganda. It sought to address the existing gap in understanding how these two variables, ICT usage and financial literacy, serve as predictors of digital financial inclusion, especially among young populations who are often financially excluded. The investigation employed a cross-sectional research design, utilizing primary data collected through structured questionnaires from 294 youths in Kampala. Descriptives, correlation, and regression analyses were used to assess the relationships between ICT usage, financial literacy, and digital financial inclusion.

The key findings of the study revealed that both ICT usage and financial literacy have significant positive effects on digital financial inclusion. Specifically, ICT usage ($\beta = 0.298, p < .01$) and financial literacy ($\beta = 0.417, p < .01$) were found to explain 42% of the variation in digital financial inclusion. These findings suggest that the more youths adopt digital financial tools, such as mobile banking applications and digital wallets, and the more financially literate they are, the higher their likelihood of being digitally financially included. The results further support the Technology Acceptance Model and Systems Theory of Financial Inclusion, which emphasize the importance of technology and financial education in enhancing access to financial services.

The findings pose significant implications for policymakers and stakeholders involved in financial inclusion initiatives. The study highlights the critical role that ICT plays in extending financial services to previously underserved populations, particularly in regions with limited access to traditional banking infrastructure. Moreover, the findings underscore the need to integrate financial literacy programs into digital financial inclusion strategies. This approach would not only enhance youths' capacity to use digital financial tools but also improve their financial well-being by fostering better financial decision-making, saving, and investment behaviors.

Nonetheless, the study acknowledges the existence of barriers to achieving fully digital financial inclusion, including the digital divide, unequal access to

technology, and cybersecurity concerns. These barriers suggest that while ICT usage and financial literacy are essential, addressing infrastructural challenges and promoting digital literacy will be crucial to ensuring that the benefits of digital financial inclusion are equitably distributed. Future efforts should focus on developing integrated approaches that combine financial education, improved digital access, and secure financial technologies to foster sustainable financial inclusion for all youths in Kampala.

Recommendations

Based on the findings of the study, several recommendations are proposed to enhance digital financial inclusion among youths in Kampala, Uganda, as follows:

The study findings revealed a significant positive relationship between financial literacy and digital financial inclusion. Therefore, the government of Uganda, through the Ministry of Education and Sports, should integrate comprehensive financial literacy programs into national education systems and community outreach efforts. These programs should target youth, equipping them with practical financial knowledge and skills that enable them to make informed decisions when using digital financial tools. Initiatives should focus on improving financial behaviors such as budgeting, saving, and responsible spending to enhance their engagement with digital financial services. It shows the need for integrating financial literacy programs into national education systems and community outreach by the Ministry of Education and Sports. Such programs can equip youth with practical skills for informed decision-making when using digital financial tools, fostering behaviors like budgeting, saving, and responsible spending. This research supports policy development, highlighting that enhancing financial literacy can lead to greater engagement with digital financial services, promoting financial stability and inclusive growth among young populations in developing regions.

The study highlights the pivotal role of ICT usage in fostering digital financial inclusion. To enhance access to

digital financial tools, the government and private sector should collaborate to improve ICT infrastructure, particularly in underserved areas. Expanding internet access, reducing the cost of digital devices, and enhancing the reliability of mobile networks will enable more youth to adopt and benefit from digital financial platforms, thereby reducing the digital divide.

While ICT usage is a critical enabler of digital financial inclusion, the study noted barriers such as cybersecurity concerns and a lack of trust in digital platforms. To address this challenge, financial institutions should tailor their digital financial products and services to meet the specific needs and preferences of young people. These products should emphasize ease of use, convenience, and affordability, as youths are more likely to adopt technologies they perceive as beneficial and user-friendly. Mobile banking applications, online savings platforms, and other digital financial services should incorporate features that address the financial behaviors and expectations of young users.

Areas of Future Research

While this study established that ICT usage and financial literacy significantly influence digital financial inclusion among youths in Kampala-Uganda, future research should go beyond these initial findings by adopting longitudinal and comparative approaches to capture dynamic changes over time. For instance, a longitudinal study could examine how consistent exposure to digital literacy and financial education impacts youths' financial habits and inclusion over several years, thereby providing insights into the sustainability of digital inclusion outcomes.

Furthermore, future studies could explore moderating and mediating factors that shape the relationship between ICT usage, financial literacy, and digital financial inclusion, such as trust in digital platforms, perceived risk, regulatory support, and access to digital infrastructure. Understanding these mechanisms would deepen the theoretical grounding of digital inclusion models within developing country contexts.

There is also a need for gender-disaggregated and regional comparative analyses to understand how socio-economic and cultural differences affect digital financial behavior among youths. Such research could inform more inclusive digital finance policies tailored to the realities of marginalized groups, including rural youth, young women, and persons with disabilities.

Finally, as technology evolves, future research should investigate how emerging financial technologies such as blockchain, artificial intelligence (AI), and mobile-based microcredit systems can be leveraged to overcome existing challenges like cybersecurity concerns, high transaction costs, and limited financial literacy. Experimental or case-based designs could be employed to evaluate the practical impacts of these innovations on digital inclusion and youth empowerment in Uganda and across Sub-Saharan Africa.

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Retracted Publications in Indian Science: Reasons and Institutions

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ABSTRACT

The study analyzes repeated offenders of scientific misconduct among authors affiliated with Indian institutions. To do so, we searched the SCOPUS database for retraction notices of articles written or co-written by such authors. Broad categories of reasons for retractions, institutions, and the types of retracted publications were discussed. Most retractions (12.5% out of 239 retractions analysed) were from authors affiliated with S.V. University. The main reasons behind retractions were ethical misconduct (139, 58.2%) and scientific distortion (43, 18%). About one in ten authors who have at least one article retracted had more than one retracted publication.

Introduction

Retraction is used by journal publishers and editors to withdraw a publication from among the journal's publications, a process undertaken for a variety of reasons. Among them, plagiarism stands out as the most significant one [Rubbo et al. 2019, Chauvin et al. 2019, Elango et al. 2019], but it is not the only one. Others include ethical issues, data-related concerns, and problems with informed consent [Kocyigit et al., 2023]. Another significant reason is the compromised (including fake) peer review processes [Vuong et al., 2020].

According to many authors, the increase in retractions in the scientific community reflects the severe disease that has been spreading all over the scientific world [Aspura et al. 2018, Lei and Zhang 2018, Moradi and Janavi 2018, Elango et al. 2019]. Fanelli [2013], however, offers a different perspective: This increase is actually a positive sign for science, as it results from the improved skills of researchers and journal editors in identifying fraudulent publications. Most likely, the truth is in between—more and more authors choose to be unfair, and more and more of them are caught doing so. We should also normalize this increase by the number of publications: A great increase in retractions is accompanied by a great increase in publications. Considering these three aspects, retractions reflect the changing science world: more researchers, more pressure to publish, more publications, and more misconduct; but also more awareness and more skills in detecting fraud.

As we demonstrated in our recent paper [Elango et al., 2019], Indian science has not been exempt from the misconduct problem. Among the 239 retractions we studied, most were by journals, two-thirds were issued between 2011 and 2018, and almost half were due to plagiarism. In this paper, we present a different

perspective on the phenomenon: from the authors' viewpoint. To err is human, so should the scientific community discredit a colleague who has made a mistake? This issue and this question depend on a particular situation and its various aspects, perhaps the most important being the severity of the misconduct. A serious one should not be forgotten; a light one—maybe? One face of scientific misconduct—a moral one—is cheating peers, the whole scientific community, and society. But another face is wasting public money invested in research (<http://scienzenordic.com/scientific-misconduct-bigger-problem-we-think>). So, even a minor misconduct can seldom be taken lightly; for instance, stealing a chocolate candy is still stealing, and purposefully breaking someone's bike is still damaging someone's property. Hence, no single instance of scientific misconduct should be swept under the rug ("He's young, he has to learn such things", "She's such a promising researcher that we should not publish her for such a small thing", and so on) but should be carefully investigated. We do not mean that everyone who has misbehaved that way must be punished—but that every case should be fairly investigated. What's more, the more experienced a scientist, the more we should expect from him or her: What might be forgotten in the case of a researcher just starting a career should often be considered a serious misbehavior in the case of an experienced scientist.

Indian science has been undergoing significant development in recent decades. It was ranked 8th in R&D funding among the forty countries based on 2014 R&D funding statistics [Resnik et al. 2015]. However, India lacks a national policy for research misconduct, like the US's Office of Research Integrity [Juyal et al. 2015]. But there is an independent Indian body of scientists—the Society of Scientific Values—whose

primary goal is upholding ethics among the Indian scientific community [Jayaraman 2011]. Hesselmann et al. [2017] estimated that ten authors were responsible for 20% of retractions in the RetractionWatch database. This suggests that some authors choose misconduct as a path to their career in science: It did not just happen, it was not just a mistake, and it was not just a misunderstanding—it was a calculated decision.

We are not aware of any research dedicated to repetitive misconduct in science. Nevertheless, while analyzing various aspects of retractions, Steen [2011] as well as Fang, Steen & Cadadevall [2012] did find multiple offenders. This paper is the first attempt to analyze the phenomenon of multiple offenders in scientific literature, and we do it in an Indian context.

Building on the work of Elango et al. [2019], this research sheds light on scientific misconduct in Indian science, specifically examining the individuals who engage in it. In particular, we will analyze whether there are multiple offenders of scientific misconduct among Indian authors; and if so, we will analyze their publication behavior in terms of retracted publications. In so doing, we will use the same data set of Indian retractions we analyzed in our previous publication [Elango et al. 2019]. Restricting our analysis to this very data set will make the two sister studies one large analysis. Knowledge of multiple offenders in science is important for us to understand this unpleasant side of research. From vast research, we know that unethical behavior is more common than we would like to admit, but the main disease of science is caused by those for whom unethical practices are the main or the only way to pursue their academic careers. Therefore, the knowledge such research can provide can significantly extend our knowledge on unethical behavior in science.

To analyze repeated offenders, we have chosen the following relevant parameters: broad categories of reasons for retraction, repeated offenders, recidivist groups, institutions hiring repeated offenders. Further, this study aims to answer the following questions: (1) Are the majority of retraction notices due to misconduct? (2) Are multiple offenders junior researchers? (3) Are most retraction notices issued to research from higher educational institutions?

Methods

Data

The data were drawn from the SCOPUS database. On 3 August 2018, we downloaded the data for the keyword (“retract*”) search in titles and limited the country affiliation to “India”. A total of 239 retraction notices issued between 2005 and 3 August 2018 for Indian

authored or co-authored publications were considered for this study. We described all the details of data collection in our previous article [Elango et al. 2019].

Analysis

In our earlier paper [Elango et al. 2019], we categorized the reasons for the retractions into 10 groups. In this study, however, we do not need so many of them: We prefer more general groups. So, we will use the following four broad categories [Bar-Ilan & Halevi 2018]:

- (i) Ethical Misconduct: plagiarism (including self-plagiarism), authorship disputes, duplicate publication, copyright issues, inappropriate citations, and fake review processes.
- (ii) Scientific Distortion: fake data, errors/mistakes, experiments not conducted, etc.
- (iii) Others: reasons that do not fit any of the two categories above, such as contrary statements, similar research work already published.
- (iv) Unknown: no reason provided.

The research covered a whole group of studies, meaning that we analyzed all the articles from the data source we used. Therefore, the only statistical methods we needed to use were basic summary statistics.

Results

Most retraction notices we analyzed were due to ethical misconduct (58.2%) (Table 1). Only 18% of the retractions were due to scientific distortion, such as the manipulation of data and images, while 5% were due to other reasons, such as administrative errors, experiments not conducted, and similar work already published. For the remaining nearly one-fifth of the retractions, we could not detect the reason. Almost 60% of retractions were due to misconduct, and it clearly shows the prevalence of misconduct among Indian scientists.

Table 1 – Broad Category of Reasons for Retraction

Broad category of reasons	No. of retractions	Share among 239 retractions
Ethical misconduct	139	58.2
Scientific distortion	43	18.0
Others	12	5.0
Unknown	45	18.8
Total	239	100

A total of 878 Indian authorships were responsible for the 239 retracted publications with 742 unique authors. Among the 878 authorships, there were 742 unique authors who affiliated to 296 different institutions both in India and abroad. In total, authors from 50 foreign institutions were involved in 38 (15.9%) retracted publications.

Table 2 provides the information about the number of retractions per author. Nearly 10% of the authors have more than one retracted publication, accounting for a quarter of the authorships. Moreover, almost 10% of the authors had two or more retracted publications.

There are different types of academic institutions in India. For example, the primary objective of colleges is to teach in their respective areas, such as science, engineering, and pharmacy. Universities have two main aims: to conduct research in the frontier areas of the arts, sciences, humanities, and technology; and to impart advanced knowledge in these fields. Institutes of national importance offer world-class education in the fields of science, engineering, and technology. Not regulated by any higher education regulating body, such as UGC, AICTE, or MCI, institutes of national importance are fully autonomous and come under the Ministry of Human Resource Development, the Government of India.

We classified the Indian academic institutions involved in the retracted publications according to their type (Table 3). The most frequent type was college: In 77 out of 239 (32%) retractions, at least one author was affiliated to a college. However, since in India there are almost forty thousand colleges, those 77 constitute only 0.2% of them. In this context, universities and institutes of national importance were more frequent (Table 3). Authors from Indian academic institutions are involved in majority of the retractions.

Table 2 – The number of retractions per author.

No. of retractions	No. of authors	Total authorship	Share among authors	Share among authorships
11	1	11	0.1	1.3
9	1	9	0.1	1.0
8	1	8	0.1	0.9
6	1	6	0.1	0.7
5	4	20	0.5	2.3
4	1	4	0.1	0.5
3	17	51	2.3	5.8
2	53	106	7.1	12.1
1	663	663	89.4	75.5
Total	742	878	100%	100%

Table 3 – Repeated misconduct in authors affiliated to various types of Indian institutions.

Type	No. of institutions involved in 239 retractions	Total no. of such institutions in India [#]	Share among institutions involved in the retractions
Academic	188		
College	77	39071	0.2
Private University	3	305	1.0
State University	53	385	13.7
Central University	10	46	21.7
Deemed University—Private	17	80	21.2
Deemed University—Govt. Aided	1	10	10.0
Institute of National Importance	27	127	21.2
Others	58		
CSIR Laboratories	12	38	31.5
ICAR Institutes	9	102	8.8
Research Institutes	4		
Corporates like Microsoft	6		

[#] The data come from the AISHE (2018-19), All India Survey on Higher Education, established by the Indian government to conduct annual surveys on higher education (<http://aishe.nic.in/aishe/viewDocument.action?documentId=263>).

Table 4 – Top Indian institutions involved in the retractions studied.

Affiliation	Country	Type of affiliation	No. of retractions	Share in 239 retractions
S.V. University	India	State University	12	5.0
Indian Institute of Technology Delhi	India	Institute of National Importance	7	2.9
Bhabha Atomic Research Centre	India	Research Organization	6	2.5
University of Delhi	India	Central University	6	2.5
Indian Institute of Technology Dhanbad	India	Institute of National Importance	5	2.1
Kalasalingam University	India	Deemed University—Private	4	1.7
Annamalai University	India	State University	4	1.7
Banaras Hindu University	India	Central University	4	1.7
Bharathidasan University	India	State University	4	1.7

Table 4 lists the institutes for which we detected at least four retracted publications. There are three state universities, two are institutes of national importance, and two are central universities. Among these institutions, the Bhabha Atomic Research Centre, the University of Delhi, and Banaras Hindu University are among the top Indian institutions in terms of highly cited papers [Elango & Ho 2017]. The Indian Institute of Technology Delhi is among the leading institutions of Indian highly cited papers in the field of computer science [Gupta & Dhawan 2017] and materials science [Gupta, Dhawan & Gupta 2015].

Discussion and conclusion

In terms of intentions, scientific misconduct has two main faces. Most of the time, it is either planned “in cold blood” or committed because of a lack of knowledge or awareness. Sometimes, it can be something in between, like the first attempt to abuse the weaknesses of the publication system, or determination to use an unsuccessful experiment (accompanied by thoughts like “So much work for nothing? I won’t let it go that easy!”).

When misconduct occurs due to a lack of awareness, the community can play a role in helping to prevent it. This situation is quite often, actually. Mason [2009] stresses poor awareness among scientists, especially non-native English ones, on how to correctly use other people’s work. Since scientific research is the appreciation and continuation of the current state of knowledge, he claims, avoiding plagiarism is not an easy job. Horback and Halfman [2019] provided guidance for journal editors and publishers on how to improve the ability of their review processes to detect forms of problematic research, particularly image manipulation (so-called “imagipulation”, Kozak 2009) or issues related to authorship. The problem, however, lies not in the lack of knowledge in the community, but in the lack of knowledge among its particular members, young researchers in particular.

The only means we can use to alleviate the consequences of misconduct committed with intent, without remorse, and with a clear conscience is to catch, retract, and punish. Among the three, catching is the most difficult, but with the development of devoted software, this is getting simpler and more efficient. Retraction should follow every single time when the misconduct is serious, but the community should develop clear recommendations on which offences should be retracted, which do not have to, and which should not be retracted whatsoever. For the moment, journals and publishers seem to be following their own judgment, and since they can differ in these terms, one

publisher may retract a publication that would not be retracted in another. A retraction notice should contain valid and logical reasons for retracting the article. From our study, it follows that this is not always the case: Almost 20% of the retraction notices did not mention the reason.

Furthermore, as mentioned above, retraction should not be used every time something is wrong, especially when the mistake is unintentional and minor, of too little importance to justify retraction. In such instances, whenever possible, a corrigendum or erratum may be issued for such publications. For example, in 2011, Medicinal Research Reviews retracted the article “Tetraoxanes: Synthetic and medicinal chemistry perspective” due to an inappropriate citation of a previously published work. The authors agreed to this retraction. While we do not have sufficient knowledge to decide whether or not this mistake was serious enough to justify retraction, a reason like this suggests an erratum might suffice.

A related issue is journalistic ethics. We know that some journals are *so* predatory that they would unlikely retract *anything* they have published. We suppose that some of them actually assume that most of what they publish results from this or that type of unethical behavior, so they do not care: What really counts is the money. Therefore, perhaps the community requires an independent international body to handle retractions. Such retractions would actually be something different from actual retractions done by the journals themselves. For the moment, the idea seems out of reach, at least for the simple reason that such a body would have a tremendous amount of work to do. It could actually deal with retraction suggestions from the community. Say, someone detects an unethical publication and decides to let the journal know about the problem. The journal does not react. So, the person can submit the case to the body. Another crucial question is: How should such a body cooperate with scientific journals, especially those that simply do not care or even do not wish to be subject to the interests of such a body? That the idea seems unrealistic does not mean it is so, however—it just requires serious thought.

RetractionWatch is a body that currently plays a significant role in the retraction issue in the scientific environment. It informs society about various issues related to retractions, so it serves part of the function we discussed above. As of August 2019, the blog contains 20,820 items on publications with various issues related to scientific fraud (https://en.wikipedia.org/wiki/Retraction_Watch#cite_note-why-7).

Punishing unethical offenders is yet another topic

that we do not cover in this paper. The only thing that must be stressed is that every single instance of unethical behavior should be carefully analyzed from various points of view. Purposeful misconduct should always be punished, although each case should be considered independently, and the punishment should be proportional to the guilt's seriousness. The first purposeful misconduct, especially when committed by a young researcher, should not be treated the same as repeated misconduct.

We have known that the research community is not free of misconduct for quite some time. Everyone has heard of quasi-scientists who became famous based on falsified data, like Andrew Wakefield, Shinichi Fujimura, or Hwang Woo-suk; some developed their whole careers based on repeated misconduct, sometimes from its very beginning to the very end, like Diederik Stapel. As we have shown, there are many more such Andrews and Diederiks, though maybe not that famous—at least not yet. And we are talking only about those who were caught... It is high time for the scientific community to do something about the increasing problem of misconduct. We hope that our research will initiate similar analyses, because we have studied only an Indian drop in the global ocean.

The study deals with Indian science only, so it is obviously limited by its geographical scope. In order to shed more light on the topic, similar studies need to be conducted in broader contexts, focusing on other countries. Equally interesting would be studies dealing with multiple offenders analyzed across different scientific disciplines, as it is likely that in some disciplines the problem can be greater than in others.

Looking at the situation the way we did, we examined only the surface of the problem. While this is the first and necessary step to observe the issue, the next step should be to explore its causes and, eventually, solutions. This study, thus, can be considered one of the first steps in wide-scale research on dealing with multiple offenders in science and ways of solving the problem. Next steps should be taken from various points of view, such as ethical, institutional, educational, and publishing perspectives.

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Conditions for Managing Social Communication by Sports Clubs

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ABSTRACT

Sport has long been a prominent element of social life, carrying educational, ethical, economic and health-related functions, and shaping lifestyles, fashion and cultural norms. Within this field, sports marketing relies on communication tools directed at key stakeholder groups – fans, sponsors, media and local authorities – in order to build the image of clubs and players, convey positive information and support high attendance as well as a favourable atmosphere during competitions. The present article reports an empirical study of communication structures in top-tier Polish football clubs, focusing on the role of press officers as central actors in club–stakeholder relations. Using a 38-item semi-structured online questionnaire, data were collected from press officers of all 15 Ekstraklasa clubs between August 2023 and February 2024, and analysed with descriptive statistics and logical reasoning. The study examined how organisational and technological arrangements within communication departments relate to the perceived effectiveness of contact with external audiences.

The results indicate that dedicated fan-service points, proactive dialogue on social media, and systematic cross-department coordination are jointly associated with a substantial share of the variance in self-reported quality of service, pointing to the need for continuous adaptation of strategies, methods, and communication techniques. The findings underline that enhancing and regularly updating the content and formats of messages addressed to stakeholders is a key route to improving service quality and strengthening the club's image. Consequently, a thorough understanding of the principles of effective communication, as well as of the specific tools shaping its course in contemporary media environments, emerges as a necessary condition for the professional functioning of football clubs at the highest level of competition.

Introduction

From its very beginnings, sport has been an area of human activity that particularly easily spoke to the consciousness of both its direct participants and its spectators. In the history of sport (as a field of study), spectating is considered a form of participation in the spectacle as a whole, creating a kind of coexistence that, in contemporary terminology, could be called a specific relationship between athletes and fans. The sports historian C. Diem wrote about the traditions of sport: „*sport is the grandchild of the Renaissance and the child of the French Revolution.*” *The roots of physical activity with autotelic or spectator characteristics, however, lie deep within human nature. Most contemporary sports disciplines originate from play, everyday activities, and those of a military nature* (Godlewski, Sajek, 2018).

Not without significance, often overlooked, is its political role and the consequences of sports' involvement in politics (the so-called football war, or the 100-hour war lasting until July 18, 1969, between Honduras and El Salvador). R. Kapuściński, who was a correspondent for Polish Radio in Latin America (Kapuściński, 2019) at the time, and other sources

(Merwiński, 2016, Opryszek, 2014) wrote about it. Some sports philosophers even claim that sport is a cultural substitute for war (Mizejewski, 2023). The ancient Greeks already said: *if there are games, there is no war*. In modern times, this rule has evolved into the statement: „*If there is war, there are no games.*” In the context of a kind of advertising for individual political narratives, sport appears as a field of often unjustified interference by political actors who try to smuggle their ideas using broad access to the mass audience and widespread interest in sporting events (The Olympic Games in Sochi, Beijing, Moscow, etc.).

„*Contemporary sports, especially at the highest league level or events of the rank of world championships or the Olympic Games, are dominated by economy paired with utilitarianism.*” (Grabowski, 2019). In the economic literature, various theories and types of enterprises have been highlighted, among them football clubs and sports enterprises (Noga, 2011). Sport – according to various estimates – accounts for 2% of the world's GDP and 3.7% of the European Union's GDP (Gancarczyk,

2016). It influences a range of industries, from media and advertising markets to clothing and equipment production, and from infrastructure investments and construction to tourism, transport, and hospitality.

Over the past few decades, it has also become, through significant commercialization, an important element influencing the shaping of the image of companies operating not only in industries directly related to it but also in others, in their activities sometimes polar oppositely distant from sport in the strict sense. In 2022, 24 billion PLN of Poland's GDP came from revenues generated by the sports industry (PAP, 2022). In the Polish context, the most recognizable sports sponsors are the corporations: PKN Orlen, Adidas, Nike, and Plus. Other companies that are sports sponsors in Poland include PGE in the energy sector, Lotto in gaming, and PKO BP in the financial sector.

As reported by Nielsen Sports, the global leader in sponsorship analytics and fan insights, sports sponsorship grew by 107% in 2021, and by analyzing 100 sponsorships across seven markets in 20 industries, Nielsen found that sports sponsorship resulted in an average 10% increase in purchase interest among fans. Nielsen's 2021 Trust in Advertising study also found that 81% of global respondents completely or somewhat trust brand sponsorship during sporting events (Nowicka, 2024).

In the Polish context after the systemic transformation, which also affected sports organizations, they were transformed into fully-fledged economic entities. It seems that sports in Poland are still undergoing a period of transformation, as (which is probably worth noting) formal and legal solutions alone are not the only factors guaranteeing actual and desired changes. It is people—their motivations, habits, experiences, and finally, practical actions—that are the main driving force capable of transforming the existing state of reality.

The role of sports in the economy is continuously increasing, and the functions it is beginning to perform are becoming significant not only from a commercial perspective. Alongside the purely business environment, which provides employment and income to thousands of people (infrastructure, stadiums, fields, equipment, medical care, advertising, etc.), sport also plays a cultural role. In the era of the erosion of traditional cultural values, which were previously conveyed through information channels with limited reach (home, family, press, books, or even a given country), most people today have access

to global media, where athletes become transmitters of the ideas of fair play, respect for others, and cultural diversity, shaping the attitudes of people who identify with their idols. The educational influences on younger generations are also significant, as they promote various fields of physical activity through education and sports, supporting health, developing desirable personality traits, and promoting an active (also physical) lifestyle.

The aforementioned commercialisation of sports has led to increased investment in this area of social life, both material and immaterial, as well as other organisational resources, including strategic and human resources (Business Insider Polska, 2022). Because contemporary focus is particularly on building intangible and human resources, this aspect of the enterprise, which is currently a sports club, served as the main axis around which this work was concentrated. Football, as a discipline known and popular in many corners of the world, also attracts relatively the largest capital. Also in Poland, after the period of a centrally planned economy, where sports funding was linked to political goals, the time of slowly entering market realities began. Other sports disciplines (including football) are becoming a battleground not only for sports but also for business. In both cases, achieving success requires professional preparation, wise resource management, and prudent planning. It is not easy, especially in a situation where past habits still persist, the lack of management traditions for an enterprise like a sports club, and a series of other factors that can affect its existence and functioning.

Building and maintaining an image is one of the most important factors influencing a professional sports club's financial results in contemporary economic and social realities.

Sport - its role and functions

„Sport is currently one of the most popular, and perhaps the most important, phenomena in human life.” It began to exist alongside humanity, whose history also includes a long, rich, and astonishing record of sports achievements. From the moment of its existence, humanity began to improve itself and the surrounding world, and this improvement also encompassed the field of sports. With the advancement of civilization, sports have developed into their current form, and their rank and significance continue to grow.” (Pytlak, 1997).

The ancient Greeks aspired to the ideal: *mens sana in corpore sano*, meaning: a healthy mind in a healthy body.

They believed that physical activity is essential for the development of the mind's virtues. In this perspective, one cannot overlook the influence of physical culture on a person's moral sphere. Ethical norms should serve as a guide and a test when undertaking various actions in sports life.

The European origin of sport is most emphatically highlighted by the etymology of the very name „sport.” The word originates from Vulgar Latin used at the end of the Roman Empire. In its French form, „disport” meant engaging in recreational activities and was brought to England during the Norman invasion of 1066. During the 18th century, sport began to expand across Europe and encompassed all forms of physical competition of a playful nature (Lipoński, 2002).

In the Polish language, this word was first documented in 1856 by the prose writer and poet Konstanty Gaszyński in the one-act comedy „Horse Racing in Warsaw”:

*„Poland is advancing swiftly on the road to progress.
We have stood on par with England and Paris
We have horse racing, the sport is growing everywhere
And if the government allows, the Jockey Club will be.”* (Gaszyński, 1858).

The Act of June 25, 2010, on Sport states that: „*sport encompasses all forms of physical activity that, through occasional or organized participation, contribute to the development or improvement of physical and mental condition, the development of social relations, or the achievement of sports results at all levels.*” Sport is also considered to be „*competition based on intellectual activity, aimed at achieving a sports result. Sport, along with physical education and movement rehabilitation, constitutes physical culture.*” (Act of 25 June 2010 on Sport, 2010).

Sport, as part of the cultural heritage of humanity, its history, and traditions, has become the subject of research for historians and experts in other humanities disciplines (Lipoński, 1974). They describe various aspects of sports, often mentioned in literature, art, theatre, film, etc., which attest to their resources and humanistic values. Sport can be viewed from both a philosophical (metaphysical, essential) and a non-philosophical perspective. (descriptive, phenomenological, non-essential). „*The phenomenological aspect definitely prevails today, it is visible and seems obvious to everyone.*” (Mylik, 1997).

Sports activity from a social perspective fosters the

creation of groups that organize themselves in the form of associations or other organizational units, bound together by the practiced discipline, the organization of competitions, and the establishment of interpersonal contacts. This also translates into strengthened interpersonal bonds and the construction of identity, a community of engaged individuals. The emergence of communities focused on sports strengthens social competencies, builds social trust, and establishes clear, consensus-based rules acceptable to the community. Strong local structures and bonds connecting people in the immediate neighborhood, municipality, and city serve as resources for building national sports potential, which has its roots in strong local units that can organize themselves.

„It is precisely the social role of sports that provides the opportunity to strengthen bonds among residents, amateur and professional structures both within the European Union and beyond. Therefore, both public entities in the EU and in each country, from central authorities to local governments, bear a great responsibility for supporting sports.” (Jedel, Kończak, 2019).

„The society of the 21st century faces many opportunities, but also socio-cultural threats. It therefore requires actions aimed at creating a tolerant civilization that provides the foundations for existence in the spirit of friendship, dialogue, respect for others, and adherence to and respect for norms defining the principles of social life. Sports activity is currently perceived as a common social phenomenon and a source of many emotions, influencing the value system and behavior of individuals.” (Kaźmierczak, 2018).

The concept of the pedagogical values of physical activity has been represented over the centuries by Plato, Aristotle, John Locke, Sebastian Petrycy, Jędrzej Śniadecki, Pierre de Coubertin, Władysław Osmolski, and Eugeniusz Piasecki. All of them perceived the practice of physical exercise and sports not only as a system of hygienic and health treatments shaping physical fitness, but also as an important element of social life, particularly highlighting its broader educational values. The educational values of sports periodically emerge in the consciousness of those responsible for education amid a crisis in upbringing, in academic environments, and in the absence of authority figures. The proper attitude in sports activity constitutes an essential manifestation of education, to which ancient kalokagathia canons are attributed: health, fitness, beauty, grace, peace, honesty,

and wisdom (PWN, 2025).

Communication of a sports club with its environment

Communication, derived from the Latin words *communicare* and *communicatio* (transmission of information, interaction), generally means a two-way flow of information (Kruk, 2004). T. Goban-Klas notes that „communication is a complex category, one can speak of forms of knowledge about communication, because: „in essence, there is no universal „science of communication,” but various planes and ways of practising it.”” (Goban-Klas, 2004).

„Communication is a symbolic, social process, it is a reciprocal relationship, but it is based on the individual interpretation of the message, and thus assumes a community of meanings attributed to specific messages, takes place in a specific context, is a conscious and purposeful action, and consists of continuous and alternating verbal and non-verbal interactions (Sobkowiak, 1998).” One of the shortest and oldest definitions of communication states that: „communication is a transactional process of creating meanings.” (Dobek-Ostrowska, 2004, Terry, 1956).

Communication has a specific context. It depends on the situations in which the communication process occurs. In the literature on the subject, four functions of communication are distinguished:

1. informational,
2. motivational,
3. monitoring,
4. emotional.

Thanks to the informational function, information necessary for making decisions regulating social interactions, achieving goals, etc., is obtained. The motivational function is an element of communication that conveys incentives for achieving various types of goals. The control function ensures that the content of social communication includes information about the sphere of duties and responsibilities of people, groups, organizations, and societies towards each other, defining subjects, norms, and the scope of social control. The emotive function allows for the expression of emotions and feelings, thereby satisfying essential psychosocial human needs (Aldag, Stearns, 1987).

The interdependence between the sender's and receiver's actions is called interaction. Communication is always an interaction because the sender's action always elicits a response from the receiver.

Building on Roman Jakobson's classic linguistic-communication model, any act of communicating involves four indispensable components: context, addresser (sender), message and contact (channel). Later theorists extended the scheme. Kowalik (2007), for example, emphasised two further elements — noise (disturbances that distort the message) and feedback (the receiver's response) — to capture features of modern, bidirectional communication processes. The context of the discussed process is the entirety of the conditions (the specific environment) in which the communication process takes place. One can talk about various aspects of it here, such as psychological or physical. The channel is all the possible paths through which the message can reach the recipient(s). In the era of tremendous increases in the number and variety of information channels, this is particularly an interesting area of activity for, for example, sports clubs. Noise is another element of the communication process that indicates the presence of „additional” or unnecessary stimuli and signals, which disrupt the smooth course of communication and impede the transmission and reception of information. Feedback is information from the receiver to the sender that can influence future messages.

Communication is a social, creative, symbolic, and interactive process. It is generally purposeful and conscious, as well as irreversible; it cannot be undone, repeated in the same situation, or altered in its course. As Kowalski writes: „The main element that differentiates the marketing communication model in sports clubs from other companies is the inclusion of not one, but four basic groups of recipients, between which there is also an exchange of messages.” In this way, the sports club is forced to control the flow of information about itself on many levels, as each group can be equally crucial to the club (Chłodnicki, Zeller, 2004). The main stakeholders and at the same time the recipients of sports clubs' messages are: fans, sponsors, media, and local authorities. Characteristic tools of communication in sports marketing are:

- „sports sponsorship,
- personal endorsement, meaning the use of an athlete's image in the company's promotional activities,
- licensing a sports brand.” (Waśkowski, 2007).

Sponsoring, broadly speaking, is the support of socially beneficial activities, including sponsoring clubs, athletes, events, or sports competitions. Personal

endorsement is taking advantage of an athlete's popularity and success. In such a situation, it is easier for sponsoring companies to gain the trust of individual fans who see that the company is using the player's image. Licensing, on the other hand, is the purchase by a company of the rights to use the name and/or logo that distinguishes a given sports entity.

M. Chłodnicki and P. Zeller, in relation to the values shaped by a sports club, identified six groups of entities. The primary groups of stakeholders, according to this trend analysis, are:

1. Media.
2. Sponsors.
3. Fans.
4. Local, national, and football authorities.
5. Financial institutions.
6. Public services and transportation (Chłodnicki, Zeller, 2004).

The role of the communication system is to build the club's and players' image, convey positive information, and undertake all actions to ensure high attendance and a good atmosphere during competitions. The effectiveness of its application will depend on the work of the people involved in its implementation, on the practical implementation of the rules and procedures aimed at orderly operation. At the core of such a system lies the awareness that, today, information has virtually unlimited reach and that full control over the relationships between stakeholders is not possible.

In the division of media, the essential role is played not so much by ownership as by the ability to manage information and shape its form. Such understood means of communication can be divided into:

- own media
- foreign media

Own media are:

- club website,
- official profile on social media platforms,
- pages and profiles of fan groups permanently associated with the sports club,
- bulletins,
- informational materials issued by the club,
- posters,
- announcements,
- information on billboards, light boards belonging to the club, etc.

Foreign media, on the other hand, are means of communication through which the information is not managed by the sports club conveying the message. These are primarily media of an informational nature:

- paper and electronic,
- fan club pages,
- local and regional press,
- internet editions of press titles,
- foreign pages on social media,
- television, radio, etc.

The encoded message reaches recipients through various communication channels. Regardless of the medium used, it reaches various stakeholder groups. Subsequently, stakeholders, without any further intervention from the club, also share information, thus creating communication systems among themselves. The efficiency, effectiveness, and intensity of the messages will depend on the level of development of the internal systems and their own activity (Kowalski, 2000).

As Kowalski (2000) postulates, for the practical functioning of the communication system between the club, whose task is the effective transmission and reception of information important to the club's activities, and the environment, several basic conditions must be met. They are meant to support the club's image and influence marketing. These conditions include:

- Having a website as well as a profile on a social media platform is an essential element of the communication system with the environment.
- At the level of contacts with sponsors, it is necessary to develop methods for acquiring sponsors, maintaining regular contact with them, analyzing the effects of their cooperation with the club, as well as building connections between them (relationship marketing).
- In contacts with fans, it is essential to create a communication platform, co-create or collaborate with the club's supporter pages. Such a role is mainly fulfilled by the profile on the social media platform and the fanpage.
- Cooperation with the media should be based on elements such as:
 - o information policy
 - o organization of club conferences,
 - o designation of individuals responsible for maintaining media contacts and their oversight
 - o determination of the role of local and regional

media in shaping the club's image and conveying information.

- Cooperation with local authorities is conditioned by the degree of dependence on local government units, the media strength of the club, and its role in building the foundations of territorial marketing. In this case, the mutual relationships between the club and the authorities at many levels of communication are important.

The most effective use of the communication system can occur when the club is organized in such a way that all the mentioned elements are developed, organized, and active. Researchers note that, in the Polish context, particularly for clubs from lower leagues, meeting the above conditions leaves much to be desired.

The British PR Institute proposes the following definition of public relations: „*a conscious, planned and ongoing effort to establish and maintain mutual understanding between an organisation and its environment.*” (Chrisford 1974).

International scholarship likewise stresses the strategic role of communication management in sport — see Pedersen & Thibault (2014) on organisational alignment, Schwarz & Hunter (2018) on digital fan engagement, and Skinner, Smith & Swanson (2021) on revenue impacts. Juxtaposing these global perspectives with Polish studies provides a more balanced analytical backdrop.

Communication and cooperation with the environment - research results

Materials and Methods

Research objective. Identify organisational and technological determinants of effective social communication by Polish Ekstraklasa football clubs.

Research questions.

RQ1: Which structural features of club media offices are associated with higher self-rated communication effectiveness?

RQ2: How do fan-oriented service points influence perceived service quality and revenue?

Hypotheses.

H1: Clubs that operate a dedicated fan-service point report higher service-quality ratings.

H2: Clubs that publish interactive social-media content ≥ 5 times per match-week report higher sponsorship-revenue shares.

Method. Semi-structured online questionnaire (32 closed-ended and 6 open-ended items).

Data-collection window. August 2023 – February 2024.

Sample. N = 15 press officers (1 per Polish Ekstraklasa club; 11 male, 4 female; mean tenure = 5.3 years).

Ethics. Participation is voluntary and anonymous; informed consent is obtained.

The following section presents the empirical results of that survey. The study was carried out by the authors between August 2023 and February 2024 and encompassed 15 press officers – one from every Polish Ekstraklasa club.

The relationships between the structures responsible for communicating with the media in top-tier football clubs in Poland were examined in the context of their interactions with the surrounding environment.

The study examined the media environments of 15 football clubs in the Polish Ekstraklasa. Research material was collected between August 2023 and February 2024. The scope of the research also included the clubs' interactions with the external environment, aiming to provide an additional cognitive component that describes potential differences among the clubs studied.

The main research questions were formulated as follows:

1. How is the role of the press officer positioned within the operational framework of Polish Ekstraklasa football clubs?
2. What is the process of communication between press officers and internal and external audiences?
3. How does the practical dimension of press officers' and clubs' activities manifest in terms of marketing strategies, evaluation of work outcomes, and responses to crises?

Given the observed professionalization of communication processes in the media space of sports clubs and athletes in many countries, and the necessity of developing effective communication methods, addressing this topic can provide additional insights into the relationships between clubs and their environment within the studied context.

The collected research material underwent preliminary processing, including coding responses from the questionnaire according to a predefined response schema. The coded responses were entered into a database, and subsequent steps included summarization and analysis.

Open-ended questions were structured so their responses could be quantified. Once all the questionnaires were collected, the responses were categorized.

The responses to both closed- and open-ended questions served as the basis for comparisons and presentations using appropriate scales. The summarized results were presented in the form of tables, figures, and charts. In addition to the methods mentioned above, other research methods such as analysis, deduction, and logical reasoning were employed. These were essential for verifying, evaluating, and classifying both quantitative and qualitative data, as well as for synthesizing them at various levels of organization and structuring.

The primary research tool was a questionnaire (Stupnicki, 2003), containing 53 research questions (p. 269, Interview Questionnaire with Press Officers). It included closed questions with categorical responses, closed questions with quantitative responses, and open-ended questions. Due to the limited number of cases studied (determined by the number of clubs), the questionnaire was relatively extensive, allowing a detailed exploration of the issues and enabling a deeper analysis of the results. To collect, graphically present, and process the data, the MS Excel spreadsheet was used. The theoretical considerations were based on an exploration of available literature, publications, and other accessible sources. Methods such as logical and substantive analysis of texts, as well as quantitative and qualitative data, were also employed. Deduction was used to make comparisons and formulate conclusions.

Due to the small sample size, limited by the number of teams (clubs) in the league, an exhaustive research method was used. The study was conducted through direct meetings (in two cases) or via electronic communication channels (telephone, video conference, chat). The research material was collected between August 2023 and February 2024. The study included 15 representatives from Polish football league clubs responsible for media relations (so-called press officers). A quantitative breakdown by age, gender, and years of work experience is presented as follows:

Table 1. Quantitative summary of the studied cases in the categories of gender, age and length of

Sex	Age (years)				Length of service as a spokesperson (years)				
	Up to 25	25-36	36-45	45+	Up to 3	3-5	5-10	11-20	20+
M	10	1	5	3	1	2	3	4	1
W	5	0	3	1	1	2	2	0	1
Total	15	1	8	4	2	4	5	4	0

The analysis of various aspects of communication and cooperation with the environment began with questions about the structure and functioning of the fan service point. In the majority of cases, this point is connected to the ticket office, which seems to be a logical solution given cost savings, and for most clubs, this is a significant factor. In 1 out of 5 cases, respondents indicated that three or more people were employed at the fan service points. Such information may indirectly indicate the percentage of clubs that, on the one hand, have the appropriate financial resources and, on the other hand, are aware of this type of marketing activity and invest in it. The remaining small percentages (after 2 cases) answer indicating one or two people employed at the customer service point close the pool of responses on the discussed issue.

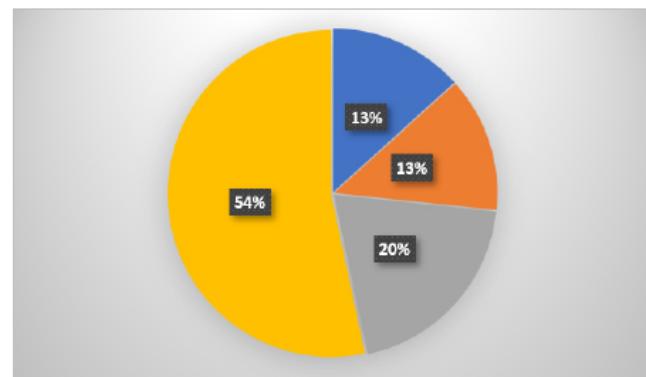


Figure 1. Organizational structure of the fan service point - frequency analysis. Own study.

In the open-ended question about formal subordination within the customer service club, three categories of responses were identified. They were:

- Marketing and Advertising Department – 11 indications
- Director – 3 indications
- Organization Department – 1 indication

As can be seen, in the vast majority of clubs, the marketing and advertising departments were responsible for this aspect of communication and cooperation with the environment, indicating that most clubs use the organisational structures of enterprises operating in economic conditions, with organizationally distinct structures responsible for individual areas of activity.

The next piece of information, which takes on practical value in the context of external relations, is a set of characteristics of a press spokesperson, extracted from responses to an open-ended question that asked respondents to identify five such characteristics.

Characteristics of a press spokesperson according to the respondents:

Listed features	Number of occurrences
eloquence	10
communicativeness	8
ability to work in a team	6
openness	6
flexibility	5
creativity	4
intelligence	3
sharpness	3
assertiveness	3
loyalty	3
mastery	2
care for image	2
responsibility	2
conscientiousness	2
the ability to persuade and negotiate	2
stress resistance	2
media presence, independence, availability, consistency, ease of establishing contacts, engagement	Each 1

Table 2. Desired characteristics of a press spokesperson by the number of mentions. Own study.

The collected information was sorted into four groups distinguished by the number of occurrences throughout the entire material. The most frequently mentioned desired trait among respondents was eloquence (2/3 of cases), which, alongside the almost equally frequent communicativeness, is undoubtedly an important trait in the field of communication, especially in interactions with the external environment. It is difficult to determine whether the aforementioned frequently mentioned traits are associated with conscious goals worth working on, or if they belong to the resources that the respondents utilize. The second most frequently mentioned group of traits in the survey sheet is led by the ability to work in a team, accompanied by openness, flexibility, and creativity. The mentioned traits somewhat harmonize with each other, and the fact that they were mentioned a similar number of times may indicate a similar perception of communication and conveying messages among the surveyed representatives. The next group of traits is more varied in terms of meaning and emotional connotation. A similar number of citations connects them. Finally, in the last group, the remaining traits were included, but mentioned only once. These „undervalued” traits, by almost all spokespersons, include, for example, independence, commitment, and consistency. These traits were mentioned by two men whose experience as spokesmen ranged from 3 to 5 years, and there was a significant age difference between them (one in the „under 25” group, the other in the „36-45” group).

The area of media relations, specifically its technical side, was the subject of a question that asked respondents to list the tools spokespersons use in their daily work. As in the previous case, a summary of the number of occurrences for each tool was prepared. Most often, spokespersons used the phone and email in their work. Slightly less frequently, they used the acredito system and social media. Definitely less frequently, various types of messengers were used, and in rare cases, video conferences and electronic press offices were conducted. In the latter case (electronic press office), the acredito system can be used; however, the respondent did not explicitly mention this form of contact, so it remained unchanged.

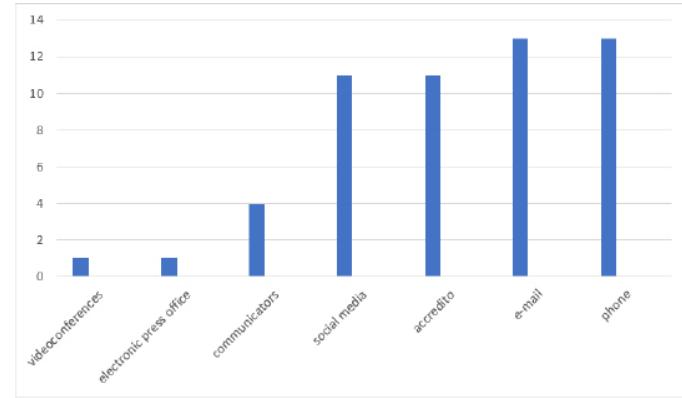


Figure 2. Communication tools most frequently used in media relations. Own work.

The justifications for the conferences called by the spokespersons present a range of possibilities, likely dependent on several factors, such as the clubs' media policy or the quantity and intensity of media events. Responses describing the reasons for convening press conferences have been summarized and grouped into the following categories:

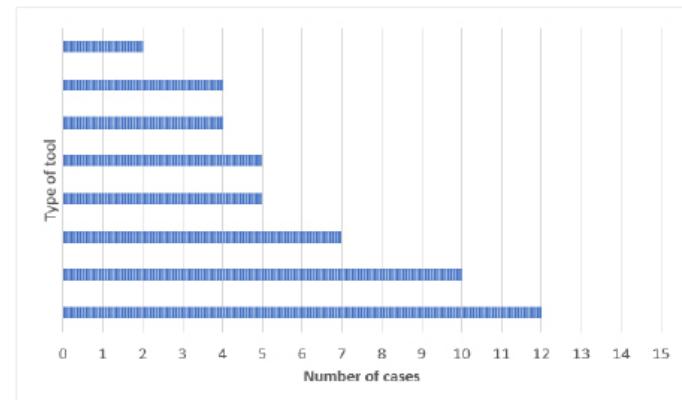


Figure 3. Justifications for convening press conferences by spokespersons. Own work.

Important events in the club's operations (as the respondents phrased it) were the most frequently recurring reasons for convening conferences, and, alongside sponsorship agreements or the acquisition of new sponsors, they accounted for 2/3 of the cases. Half of the respondents justified convening the conferences with issues related to the coach's work, his changes, etc. Pre- and post-match conferences were organized by 1/3 of the respondents. The same number of people at the convened conferences presented various changes in the club. A characteristic in the context of the club's functioning as a business was the approach to players. In fact, press conferences were held in only a few cases directly related to players, and this mainly occurred for major transfers (Figure 3).

The spokespersons included informing the public and cooperating with the media as the goals of the convened press conferences. 1/4 of the respondents indicated that the goal was to facilitate contact with the media. In individual cases, other goals were indicated. An average of 16-17 journalists participated in the conferences. (8-25). The varying number and range of conference participants could have depended on factors such as the team's ranking position, the club's media activity, the popularity of the players, the presence of so-called stars, and additional bonuses and attractions prepared for the „media world.”

According to 2/3 of those surveyed, the perception of the journalistic environment was positive. 1/3 rated it as „varied” (sometimes good, sometimes not), with the rating depending on the type of event. The respondents did not specify in what situations they encounter negative reception by journalists.

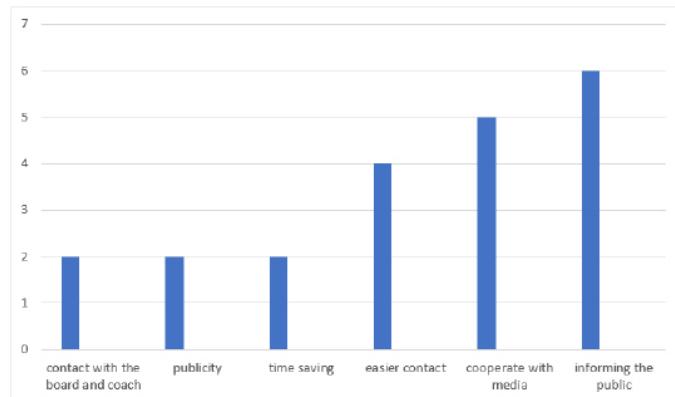


Figure 4. Purposes of convening press conferences. Own work.

The number of conferences (besides the obligatory pre- and post-match ones) ranged between 3 and 10 and concerned important club events, as the respondents

put it. The total number ranged from 30 to 50.

„Does the press office apply online office management principles?” is the following question in the group, focusing on the technical aspects of spokesperson work. Among the available responses, everyone except one case has and applies such rules. Regarding the forms clubs use to manage their online offices, the most frequently mentioned were photo galleries for journalists and online conferences. The response „other” was supplemented with actions related to accreditation processes. They undoubtedly concern everyone, but in only two cases were they mentioned within the discussed category.

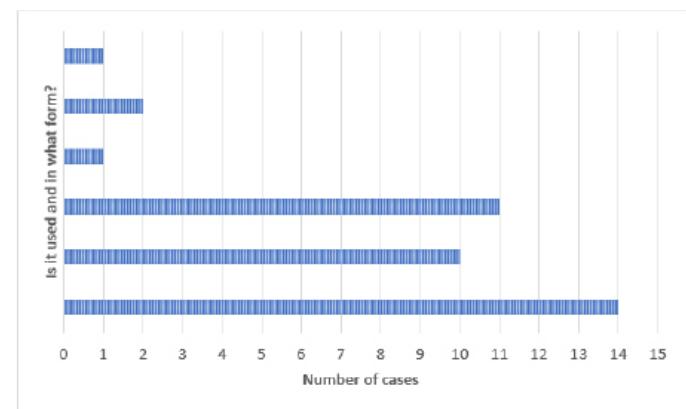


Figure 5. Application of online office management principles. Own work.

Spokespersons edited press articles for the media, mostly a few times a month (8 responses); in 6 cases, once a month; and in 1 case, once a quarter. As can be seen, the range of activities in this area was quite large, similar to the form of the edited materials. The most frequently mentioned were the article and the interview. Besides the mentioned ones, there was also a note, but no other forms of materials edited by the respondents (apart from those covered by the survey question) were recorded.

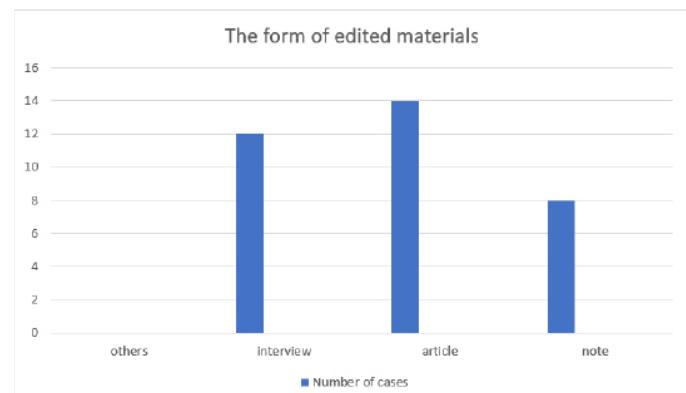


Figure 6. Format of press materials edited by spokespersons. Own work.

When asked about the most common reasons for preparing such press materials, spokespersons most frequently mentioned *important club events* (10 cases), followed by *increasing the media value/reach of the club* (5 cases) and transfers (4 cases). Other reasons include: crisis situations, on-field situations, issues not directly related to the regular schedule, youth matches, first team training, unofficial meetings with journalists, and player injuries (each 1 case).

In the question about respondents' opinions on how the spokesperson's contacts with journalists should look, the answers mainly fell into one category. The vast majority of respondents supported regular contact. 1/5 stated that they should be limited solely to conveying interesting information. However, one was mentioned.

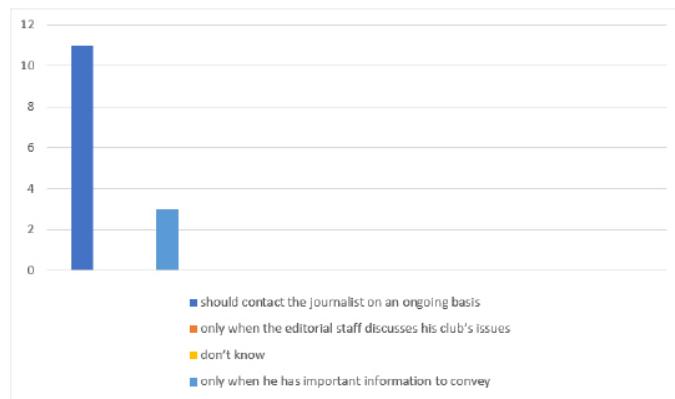


Figure 7. Responses to the question „What should the spokesperson's contacts with journalists look like, in your opinion?” Own work.

A response stating that the spokesperson should wait for contact from the interested journalist. In this case, the spokesperson had less than 3 years of experience in this position, believed that he was fully independent in his actions, did not need to consult his actions with superiors, did not need their approval, and indicated that the main purpose of calling press conferences was to save time. He believed that the reception of the press conferences he organized was positive.

Analyzing the relationship between the obligation to consult on one's actions and the conditions of contacts with journalists, no significant differences were observed in the responses given by those who consult and those who do not consult their actions (Figure 8).

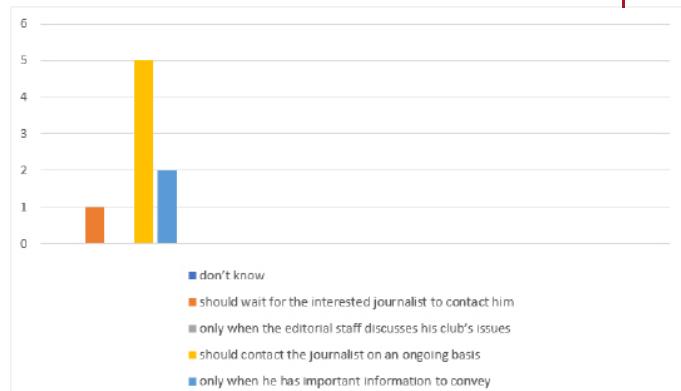


Figure 8. Dependencies between the obligation to consult actions and the conditions of contacts with journalists. Own study.

The most frequently mentioned obstacles in contacts with journalists included: sensationalism, exaggeration of the problem, bias, unreliability, and selectivity in publishing materials. When asked whether there are attempts to inspire, coerce, or refrain from publication by journalists, in 12 cases, the spokespersons answered yes, and in 3 cases, they answered no.

The individuals responsible for social media and preparing materials for the media in the studied clubs are press officers and press offices. In some cases, additional positions such as image director or social media manager. In one case, a separate marketing and communications department operating alongside the press office was indicated.

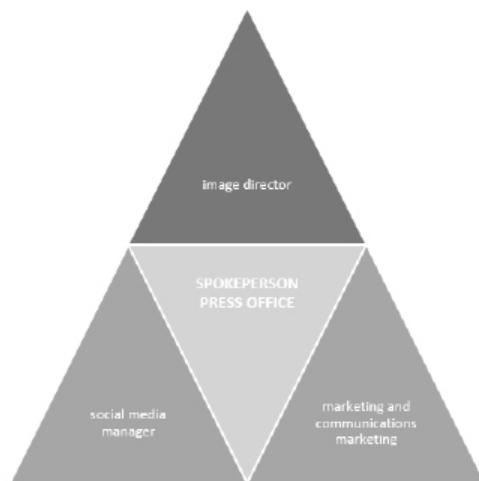


Figure 9. Responsible for social media and preparing photographs, videos, articles, etc. in football clubs. Own study.

The diversity of activities carried out by clubs for various communities turned out to be interesting. To enhance readability, these activities were divided into several categories: children and youth, adults and seniors, people with disabilities, and general. The spokespersons mentioned many diverse forms, most of which were aimed at children and youth. This is a special group to which clubs devote a lot of attention in both marketing and training activities. After all, it is from hundreds of thousands of children, through selection and sports training, that future champions emerge, who then become role models for future generations. But for this to happen, the younger generation must somehow be encouraged to make an effort. (both physical and mental). The natural need for movement in a young organism, supported by specific actions aimed at directing natural motor predispositions, can, in a relatively short time, more than repay the investments made in encouragement, recruitment, and sports training. This part of young people, who did not reach a master level in the sports selection process, becomes a valuable social resource, in the form of strong, healthy, and mentally resilient individuals, as practising sports at an amateur level not only strengthens physical fitness but also, and especially today, mental resilience. It is worth noting that the increasingly frequent offerings of activities for people with disabilities may indicate the recognition (at least by some clubs) of this segment of the audience, which, with appropriate support and infrastructural investment, could become a desirable group of clients both in terms of image and market. When asked about the role of a spokesperson in activities aimed at children and youth, they provided the following responses:

- raises awareness about the positive aspects of engaging in physical activity,
- takes actions to encourage the local community to support the club on various levels,
- informs the media about initiated events,
- encourages participation,
- consults with the marketing department on matters related to activities aimed at children,
- informs the public about such activities,
- is present during the event,
- takes photos and publishes them. In three cases, the spokespersons did not participate in such activities, and in two cases, they were coordinated in a different way (e.g., within a football academy or by individuals specifically responsible for organizing the so-called „events”).

Children and youth

- Football academies
- Children's entertainment animators
- Attractions during the games
- Activity for children- free organization of physical activities
- Supporting, Integrating, helping the foundation
- Free entries for groups to games
- Footballers read to children;
- „Tropem wilczym” Run
- Stadium tours
- Organization of trips for children to games;
- Christmas Eve for children from orphanages
- Picnics
- Tournaments;
- Visits to schools, municipalities, hospitals
- Actions promoting cultural doping
- Passing on shirts, autographs, balls

Adults and seniors

- Free organization of physical activities for people aged 60 and over
- Amateur running
- „Słodka Polska” games
- Family sectors

People with disabilities

- Free tickets for the disabled
- „Legia bez barier” Program
- Separate sectors with facilities;
- Audio description for blind and visually impaired fans ;
- Disabled Supporters Club;
- Blind Football Section;

General

- Charity events
- Collections for those in need;
- Honorary Blood Donors Club;
- Patriotic runs;
- Cooperation with local governments

Table 3. Examples of football clubs' activities in interactions with their environment. Own work.

Conclusion

Concrete practice directions emerge from the findings. Three priority improvements are recommended:

1. Diversify real-time fan-engagement channels – e.g., launch moderated match-day group chats and interactive Instagram “story” polls managed by the press-office team.
2. Formalise sponsor-content calendars – task the club's marketing director and press officer with producing, each quarter, a co-branded social-media plan that pairs match highlights with sponsor storytelling to maximise revenue visibility.
3. Introduce a cloud-based media asset hub – assign the club's communications IT specialist to create a password-protected repository where journalists can instantly download match photos, video snippets and

press notes, cutting response times and broadening media reach.

Survey data underscore these priorities: clubs with a permanent fan-service point scored $M = 4.3/5$ on service-quality metrics versus $M = 3.1$ for those without, while teams posting interactive content ≥ 5 times per match-week reported an average of €0.73 million higher annual sponsorship revenue. These quantitative gains illustrate how the recommended improvements translate directly into both fan satisfaction and financial performance.

Available examples and case analyses, which provide an insight into specific situations illustrating the functioning of sports clubs and their representatives, demonstrate the need for continuous adjustment of strategies, forms, methods, and communication techniques with the environment. Especially in the so-called new media (internet platforms, social media, online games, the Internet of Things, etc.), improving and updating content and communication formats seems to be a way to enhance service quality or increase revenue. All these forms and new technologies are obviously related to communication processes. In this regard, a thorough understanding of both the principles that facilitate effective communication and the specific tools that shape its course can provide a basis for meeting the demands of improving operational quality and efficiency.

Available examples and case studies demonstrate the need for continuous adaptation of communication strategies, forms, methods, and techniques to the environment. Especially in the area of so-called new media (internet platforms, social media, online games, etc.), improving and updating content and communication formats seems to be the way to enhance service quality. All these forms and new technologies are obviously related to communication processes. Therefore, a thorough knowledge of both the principles of efficient communication and the specific tools that influence its course can lead to fulfilling the postulates for improving the quality and effectiveness of action. In the area of communication and cooperation with the environment, more than half of the clubs combined the activities of customer service points with those of the ticket department, and in 20% of cases, they employed 3 or more people. The most frequently used tools for communicating with the environment were e-mail and the telephone. The least frequently used were videoconferencing and the electronic press

office. The most common justification for convening press conferences was an important event in the club's life or activities related to sponsors. According to the spokespersons, the most important goals for convening press conferences were: informing the public and cooperating with the media. Among the forms of statements edited by the spokespersons, the most popular were: articles, interviews and notes. Therefore, given the limited number of communication tools used by spokespersons, it seems advisable to increase their diversity, which may improve communication quality and expand its reach.

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Voices that Resonate: The Role of Social Media Influencers in Shaping Mental Health Awareness Among Urban Youth in Vietnam

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Vietnam, social media influencers, mental health awareness, youth engagement, digital health communication

ABSTRACT

This study examines the influence of social media influencers in promoting mental health awareness among urban youth in Vietnam, focusing on cities such as Hanoi and Ho Chi Minh City. Using a qualitative approach based on 20 in-depth interviews with young adults aged 18 to 30, the research explores how influencer credibility, cultural framing, and engagement patterns shape perceptions and behaviors related to mental health. Guided by the Elaboration Likelihood Model and Source Credibility Theory, the findings reveal that influencers who demonstrate authenticity, emotional transparency, and cultural sensitivity are perceived as more credible and effective. Participants identified strongly with influencers who shared relatable experiences, used familiar language, and addressed common pressures in Vietnamese youth life. While many respondents reported shifts in attitude and increased willingness to engage in mental health conversations, structural barriers such as stigma and limited access to services continued to constrain action. The study concludes that social media influencers can serve as powerful communicators of mental health messages when their content aligns with the cultural values and emotional realities of Vietnamese youth.

Introduction

In recent years, mental health has gained increased visibility in Vietnam, particularly among urban youth navigating the social, academic, and emotional pressures of a rapidly modernizing society. Cities like Hanoi and Ho Chi Minh City, marked by high rates of internet penetration and digital connectivity, have become critical sites for mental health discourse, primarily through social media platforms. However, despite growing awareness, stigma surrounding mental illness remains deeply embedded in Vietnamese culture. Traditional norms that prioritize emotional restraint, family honor, and social harmony often discourage individuals from seeking professional help or speaking openly about psychological distress (Le & Bui, 2020; Pham et al., 2021). As a result, young people in Vietnam are turning to alternative sources of information and support, including social media influencers (SMIs), who are increasingly shaping public conversations around mental health. Social media influencers have become prominent figures in Vietnam's digital landscape, particularly

among young adults aged 18 to 30. These individuals are often followed not just for their entertainment value, but also for their perceived authenticity and relatability. Influencers who share personal experiences with anxiety, depression, or burnout can disrupt cultural taboos and reframe mental health in ways that resonate with their audience's lived experiences (Nguyen & Dang, 2023). Their influence is not limited to content creation, but extends to shaping emotional norms, offering informal peer support, and initiating discourse on topics traditionally considered private or shameful. As previous studies have shown, audiences often attribute trust and credibility to influencers based not on formal expertise, but on perceived sincerity, consistency, and emotional transparency (Freberg et al., 2011; Lou & Yuan, 2019).

Existing research on health communication has emphasized the role of credibility and identification in shaping message effectiveness. The Source Credibility Theory suggests that audiences are more likely to be persuaded by communicators they perceive as

trustworthy and competent (Hovland & Weiss, 1951). In the context of social media, this credibility is often rooted in lived experience rather than institutional affiliation. Similarly, the Elaboration Likelihood Model (Petty & Cacioppo, 1986) highlights how individuals process persuasive messages through either a central or peripheral route, depending on their level of involvement, prior knowledge, and the nature of the message. Both models are highly relevant to understanding how Vietnamese youth engage with mental health content from influencers, particularly in a context where traditional forms of authority may be viewed with skepticism or remain inaccessible. While the influence of social media on public health has been widely studied in global contexts, there is limited empirical research focusing specifically on Vietnam. Much of the existing literature tends to adopt Western frameworks without accounting for the socio-cultural specificities of Southeast Asian societies. This gap is particularly significant in Vietnam, where cultural expectations regarding mental health are intertwined with family roles, spiritual beliefs, and social conformity. Influencers who speak openly about therapy or emotional vulnerability do so in a delicate social context, where public discussions of mental illness may be perceived as disruptive or inappropriate (Vu & Tran, 2022).

This study aims to examine how Vietnamese social media influencers shape mental health awareness among urban youth. It focuses on three core aspects: the credibility of influencers as perceived by their audience, the cultural framing of mental health content, and the behavioral and attitudinal responses of young viewers. Using a qualitative approach grounded in in-depth interviews, the research investigates how youth interpret and respond to mental health messaging within their digital and cultural environments. The findings will contribute to a deeper understanding of influencer-led health communication in Vietnam and offer insights for practitioners and policymakers seeking to address mental health challenges in culturally sensitive ways.

Literature Review

Mental health awareness among youth is a growing public health concern worldwide, and Vietnam is no exception. In recent years, the rapid digitalization of Vietnamese society, especially in urban areas such as Hanoi and Ho Chi Minh City, has shifted much of

the public discourse, including health communication, to digital platforms. With a large proportion of the Vietnamese population under 30 and more than 70 percent using social media daily (Statista, 2023), social media influencers (SMIs) have emerged as powerful agents of health messaging. This literature review explores the current state of research on the intersections between mental health communication, social media influence, and cultural dynamics in Vietnam. Vietnamese youth face unique psychological challenges associated with academic stress, family expectations, economic pressure, and urbanization (Nguyen et al., 2021). Despite growing mental health needs, seeking professional help remains limited due to cultural stigma. Mental illness is often perceived as a sign of personal weakness or familial dishonor, rooted in Confucian norms emphasizing emotional restraint and social harmony (Le & Bui, 2020). A study by Pham et al. (2021) on Hanoi-based students revealed that only 23% of respondents felt comfortable discussing mental health with their families, while more than half reported feeling misunderstood or dismissed.

These cultural barriers contribute to a significant treatment gap. According to the World Health Organization (2022), more than 80% of people in Vietnam with mental health disorders receive no formal care. Consequently, informal channels, such as online forums and social media, have become essential for youth to explore mental health topics. Nguyen and Dang (2023) note that digital platforms allow young people to anonymously access information and engage with mental health content outside traditional social structures. Social media influencers are defined as individuals who have built a sizable online following and can shape audience attitudes through perceived authenticity and credibility (Lou & Yuan, 2019). Health researchers have increasingly studied how influencers contribute to public health education, particularly in areas such as diet, fitness, vaccination, and mental health (Southwell & Thorson, 2015; Abidin, 2020). Unlike traditional health campaigns, influencer-led communication often relies on personal narratives and parasocial interaction, which can lower resistance to sensitive topics like mental illness (Casaló et al., 2020).

In the Vietnamese context, influencers have taken up mental health advocacy in culturally adaptive ways. Influencers such as Nguyễn Ngọc Thạch and Lê Minh

Quốc regularly share their own experiences with stress, anxiety, and therapy. These disclosures have been met with high engagement from urban youth, who see influencers as relatable figures navigating similar pressures. This aligns with findings from Charoensukmongkol (2020), who emphasized that influencers who reveal personal struggles generate more empathy and trust, leading to higher message acceptance. Credibility plays a central role in shaping the effectiveness of health messaging. According to the Source Credibility Theory (Hovland & Weiss, 1951), perceived expertise, trustworthiness, and attractiveness influence how audiences interpret messages. In social media contexts, authenticity and consistency are often stronger predictors of credibility than professional credentials (Djafarova & Rushworth, 2017).

Vietnamese urban youth tend to engage more with influencers who exhibit emotional transparency and cultural sensitivity. Research by Vu and Tran (2022) shows that influencers who incorporate Vietnamese idioms, family dynamics, and spiritual references when discussing mental health receive more positive reactions compared to those who adopt Westernized clinical language. This highlights the importance of cultural adaptation in health communication, especially when addressing topics that remain taboo in public discourse. Moreover, engagement is not measured solely by likes or shares, but also by the depth of interaction. A content analysis by Nguyen et al. (2023) on Vietnamese TikTok mental health content found that videos with comment threads involving emotional disclosures and peer support had higher sustained reach over time. These findings suggest that influencer-driven content has the potential to catalyze peer-to-peer communication, which can be critical in shaping social norms around mental health.

The Vietnamese government and NGOs have recently collaborated with influencers in targeted mental health campaigns. One such initiative is the “Hiểu để yêu thương” (Understand to Love) campaign, which engaged popular Vietnamese influencers to share accurate information about depression, anxiety, and available support services. The campaign led to a 40% increase in traffic to mental health resource pages, according to data from VietHealth (2023). However, challenges remain. First, there is limited regulation of health information shared on social media. Influencers may unintentionally disseminate inaccurate or oversimplified

content, potentially misleading vulnerable users (Tran & Nguyen, 2021). Second, influencer engagement is often concentrated in major cities, neglecting the needs of marginalized or rural youth. As Phan and Bui (2022) argue, digital health campaigns must incorporate inclusive strategies to bridge the digital divide and ensure equitable access to mental health education. Recent research in South Asia has also emphasized the growing significance of digital platforms in facilitating accessible and effective health communication. For example, Ferdous (2023) found that mHealth apps in Bangladesh played a vital role during the COVID-19 pandemic by enabling convenient, efficient, and user-preferred communication between doctors and patients, highlighting the broader relevance of digital tools in health engagement strategies.

The literature reviewed in this section was identified through a structured search of databases including Scopus, Web of Science, and Google Scholar using keywords such as Vietnam, mental health, youth, influencers, digital communication, and cultural framing. Articles published between 2010 and 2023 were included. Priority was given to peer-reviewed studies, and reports focused on Southeast Asia. This process ensured that the review covered both international theories and locally relevant empirical findings.

Research Gap

While international literature offers robust models for understanding influencer effectiveness, such as the Elaboration Likelihood Model (Petty & Cacioppo, 1986) and Social Cognitive Theory (Bandura, 2001), few studies have localized these theories within Southeast Asian cultural frameworks. There is a clear need for empirical research that integrates Vietnamese cultural constructs, such as mặt mũi (face) and tình cảm (emotional connectedness), into existing theories of health communication. Moreover, existing research has often focused on influencers as individual actors. Future studies should explore the ecosystem of digital mental health communication, including platform algorithms, government policy, and audience agency. The unique socio-cultural environment of Vietnam offers a rich context for such multidisciplinary inquiry. To clarify the specific gaps, existing studies have not examined how credibility cues from influencers operate together with cultural norms such as saving face and emotional

restraint. Prior Vietnamese research has focused mainly on stigma, access barriers, or general attitudes rather than influencer-driven mental health communication. There is also limited evidence on how youth interpret emotional disclosures from influencers within the context of local cultural values. Later studies, such as Suryani (2024), confirm rising interest in digital mental health support but do not examine the mechanisms of credibility, cultural framing, and behavioral influence analyzed in our data.

Theoretical Framework

The rapid growth of social media and its integration into the everyday lives of Vietnamese urban youth have transformed how mental health messages are produced, disseminated, and interpreted. In understanding the influence of social media influencers (SMIs) on youth perceptions and engagement with mental health content, it is essential to ground the analysis in a robust theoretical framework that captures the interplay between media effects, message reception, and cultural context. This study draws upon two interrelated theories: the Elaboration Likelihood Model (ELM) and the Source Credibility Theory (SCT). These frameworks are widely applied in health communication and digital persuasion research and are well-suited to analyze the mechanisms through which SMIs impact awareness and attitudes toward mental health among young adults in cities like Hanoi and Ho Chi Minh City.

Elaboration Likelihood Model (ELM)

The Elaboration Likelihood Model, first proposed by Petty and Cacioppo (1986), is a dual-process theory that explains how individuals process persuasive messages through two primary routes: the central route and the peripheral route. The central route involves careful, thoughtful consideration of message content, typically activated when the individual is motivated and able to process it. In contrast, the peripheral route relies on superficial cues such as the attractiveness, likability, or popularity of the source rather than the content itself. In the context of Vietnam, where mental health remains a sensitive topic and public understanding is still evolving, urban youth often approach mental health content through both routes, depending on their level of involvement and prior knowledge. When SMIs share personal stories or credible resources, those youth

with higher issue involvement may process the content via the central route. Others, less familiar with mental health discourse, may rely on peripheral cues such as the influencer's appearance, follower count, or emotional tone. This distinction aligns with recent findings by Hoang and Le (2022), who argue that dual-processing is particularly relevant in Southeast Asian digital cultures where image-based communication and emotional appeals are prevalent.

Importantly, the ELM highlights that message effectiveness is not solely dependent on content quality but also on how the audience interprets it. For instance, a message about seeking therapy may be processed centrally by a university student actively researching mental health. In contrast, the same message may be processed peripherally by another youth who merely admires the influencer's charisma. The implications of this model are significant for campaign designers and policymakers seeking to leverage influencers for public health communication. Tailoring message complexity and modality based on the audience's readiness to engage critically can enhance persuasive outcomes (Kitchen et al., 2014).

Source Credibility Theory (SCT)

While the ELM addresses message processing, the Source Credibility Theory (Hovland & Weiss, 1951) focuses on the perceived trustworthiness, expertise, and attractiveness of the message source. SCT suggests that audience acceptance of a message is highly influenced by their evaluation of the communicator. In digital spaces, credibility is often conferred not through formal qualifications but through perceived authenticity, consistency, and social capital (Freberg et al., 2011). Vietnamese youth, particularly in metropolitan areas, tend to follow influencers who share content aligned with local cultural values and social realities. For example, influencers who integrate Vietnamese language, family metaphors, or Buddhist perspectives into their mental health narratives often appear more trustworthy to local audiences. This is consistent with Nguyen and Pham (2020), who found that urban Vietnamese youth attribute greater credibility to influencers who express vulnerability and humility, as opposed to those who adopt overly clinical or Westernized tones.

SCT also helps explain why some influencers succeed in shaping attitudes while others fail.

Influencers perceived as sincere and relatable, rather than commercialized or elitist, are more likely to build parasocial relationships with their followers. These relationships, although one-sided, can foster emotional intimacy and behavioral imitation (Yuan & Lou, 2020). In the Vietnamese context, this is particularly important due to the collectivist orientation of the society, where group belonging and social approval are key motivators of behavioral change (Hofstede Insights, 2022). In addition, SCT emphasizes the dynamic and evolving nature of credibility. A previously trusted influencer can lose credibility quickly if they are seen to violate community norms or promote conflicting information. Therefore, sustained influence requires consistency, ethical messaging, and responsiveness to audience feedback. This observation is crucial for understanding the limitations of influencer-based mental health campaigns and reinforces the need for institutional partnerships and content oversight.

Integration and Cultural Adaptation

Although both ELM and SCT were initially developed in Western contexts, they are adaptable to the Vietnamese digital landscape when complemented with cultural insights. Vietnam is a society undergoing rapid modernization while retaining deep-rooted traditions. Mental health remains culturally sensitive, and youth attitudes are shaped by both global trends and local values. As Vu and Tran (2022) have emphasized, the success of mental health communication in Vietnam depends not only on message logic or source credibility but also on cultural consonance. Integrating ELM and SCT enables this study to explore how Vietnamese youth evaluate influencer content, either through systematic reasoning or affective cues, and how the perceived credibility of influencers modulates these processes. For instance, an SMI with high perceived credibility may prompt youth to engage more deeply with complex mental health topics, triggering central route processing. Conversely, youth with lower mental health literacy may still develop positive attitudes through peripheral processing if the influencer's identity and presentation align with trusted norms.

Furthermore, the influence of collectivist values such as harmony, filial piety, and saving face must be considered. These values often discourage direct confrontation of psychological issues, but influencers

can strategically address them by using culturally appropriate metaphors or storytelling techniques. Therefore, the theoretical model applied here not only captures cognitive and affective mechanisms of persuasion but also acknowledges the socio-cultural filters through which mental health messages are received in Vietnamese society.

Relevance to Research Objectives

This study aims to examine how Vietnamese SMIs shape urban youth perceptions and engagement with mental health content. The combined application of the elaboration likelihood model and source credibility theory provides a comprehensive framework for addressing the study's core objectives. Specifically, the model allows for the investigation of how urban youth cognitively and emotionally respond to influencer-led mental health content. The extent to which message processing routes (central or peripheral) are influenced by personal relevance and influencer characteristics. How perceived source credibility shapes acceptance, trust, and potential behavior change regarding mental health awareness. By situating the study within these theoretical parameters, the analysis can move beyond surface-level assessments of engagement metrics and focus on the deeper psychological and cultural processes that drive youth responses to mental health messaging in Vietnam. Based on these theories, the author expects that youth will judge influencer messages more favorably when they perceive the influencer as authentic and culturally aligned with their lived experiences. The author also expects that cultural framing will influence whether messages are processed through the central or peripheral route and that higher perceived credibility will be linked with stronger attitudinal or behavioral change.

Research Questions

This study seeks to explore how social media influencers contribute to shaping mental health awareness, perceptions, and behaviors among urban youth in Vietnam. Grounded in the Elaboration Likelihood Model (Petty & Cacioppo, 1986) and Source Credibility Theory (Hovland & Weiss, 1951), the research addresses the following core questions:

RQ 1: How do urban Vietnamese youth evaluate the credibility of social media

influencers who discuss mental health issues?

RQ 2: In what ways does cultural framing in influencer content affect the reception and interpretation of mental health messages?

RQ 3: How do Vietnamese youth engage with mental health content shared by influencers, and what forms of interaction are most common?

RQ 4: To what extent does influencer-driven mental health content contribute to changes in attitudes or behaviors among urban youth in Vietnam?

These research questions are designed to guide an in-depth analysis of how digital communication intersects with cultural norms and individual experiences. They aim to provide a comprehensive understanding of the mechanisms through which social media influencers influence mental health discourse in contemporary Vietnamese society.

Methodology

This study adopts a qualitative research design using semi-structured in-depth interviews to explore how social media influencers shape mental health awareness among urban Vietnamese youth. The qualitative approach is appropriate given the study's focus on subjective meaning-making, cultural interpretation, and the psychological and social mechanisms involved in influencer-audience interactions (Denzin & Lincoln, 2018). The goal is not to generalize statistically but to understand the depth and complexity of youth engagement with mental health content in Vietnam's rapidly evolving digital environment. The study was conducted in two major urban centers in Vietnam: Hanoi and Ho Chi Minh City. These cities were selected because of their high internet penetration, strong presence of social media influencers, and concentration of youth populations (General Statistics Office of Vietnam, 2022). The target population included young adults aged 18 to 30 who regularly follow Vietnamese social media influencers and have encountered mental health-related content online.

A purposive sampling technique was employed to recruit 20 participants (10 from each city) who met the inclusion criteria. Data saturation was reached when no new themes appeared in the final three interviews. The research team confirmed that additional interviews

were unlikely to generate new insights, which supported the decision to stop at 20 participants. The final sample included 11 women and 9 men. Participants represented a mix of education levels, including 14 university students, 4 recent graduates, and 2 employed professionals. The most commonly used platforms were TikTok and Facebook, followed by YouTube. Nine potential participants declined due to lack of time or privacy concerns, indicating a small degree of selection bias that is common in qualitative mental health research. Participants were selected to ensure diversity in gender, education level, and platform usage (e.g., TikTok, Facebook, YouTube). Recruitment was facilitated through university bulletin boards, online forums, and social media groups. Prior to participation, all respondents received informed consent forms in accordance with ethical guidelines approved by the institutional review board at [Name of Institution]. Ethical approval was obtained from the Institutional Review Board (IRB) at Vietnam National University. Interviews were conducted in Vietnamese, either face-to-face or via secure online video platforms, depending on the participant's location and COVID-19-related restrictions at the time of the study. Each interview lasted approximately 15 to 30 minutes and was audio-recorded with participant consent. The interview guide consisted of open-ended questions addressing:

1. Perceptions of mental health content on social media
2. Trust in and identification with influencers discussing mental health
3. Reactions to specific influencer posts or campaigns
4. Cultural values influencing mental health attitudes

Participants were also asked to describe any behavior changes, such as seeking help, talking to peers, or changing attitudes toward mental health after exposure to influencer content. All interviews were transcribed verbatim and analyzed using thematic analysis following Braun and Clarke's (2006) six-step framework. NVivo software was used to assist in organizing and coding the data. Initial codes were developed inductively and later clustered into broader themes aligned with the study's theoretical framework. To ensure credibility, two researchers independently coded a subset of transcripts, and discrepancies were discussed until consensus was

reached. To enhance the trustworthiness of the findings, the study incorporated member checking, in which participants reviewed a summary of the interpreted themes to confirm their accuracy. Reflexive memos were also maintained throughout the research process to document the researchers' positionality and potential biases. Additionally, thick description was used to contextualize findings within the cultural and social realities of urban Vietnam, providing readers with a clear understanding of the phenomenon.

Findings

Thematic analysis generated five major themes: (1) Influencer credibility and trust, (2) Personal identification with influencers, (3) Cultural framing and message reception, (4) Engagement and interaction patterns, and (5) Behavioral influence and attitude change. These themes are discussed below, with illustrative quotes from participants and analytic insights grounded in the data.

Influencer Credibility and Trust

Credibility emerged as a fundamental determinant in shaping how urban Vietnamese youth engaged with mental health content disseminated by social media influencers. Across interviews, participants repeatedly emphasized that authenticity and perceived sincerity mattered more than formal qualifications or professional expertise. Rather than seeking information from credentialed mental health professionals, most participants were drawn to influencers who shared personal narratives, demonstrated emotional openness, and maintained consistent communication over time. Terms such as “genuine,” “humble,” and “brave” frequently surfaced in descriptions of trusted influencers. A common belief was that those who disclosed their own struggles with anxiety, depression, or burnout without dramatization were seen as more relatable and trustworthy. One participant from Hanoi shared:

“I believe her because she always shares her struggles and never pretends to be perfect. She feels real.”

Trust was closely tied to perceptions of vulnerability and emotional transparency, suggesting that authenticity is not merely a stylistic preference but a moral standard in influencer–follower relationships. Participants noted that credible influencers often engage in long-term mental

health advocacy rather than posting sporadically or in response to popular trends. In contrast, commercialized content, especially sponsored posts for supplements, wellness apps, or affiliate products, provoked skepticism. Several participants expressed disillusionment with influencers who appeared to exploit mental health discourse for visibility or profit. The appearance of insincerity, whether intentional or not, was enough for some to disengage. As one participant remarked,

“If I feel like it’s just to get views or sell something, I unfollow immediately.”

It is important to highlight that none of the influencers mentioned by participants were licensed mental health professionals. However, their lived experience was often described as more meaningful than institutional expertise. This aligns with previous research suggesting that emotional resonance and perceived honesty can outweigh technical authority in digital health communication (Freberg et al., 2011; Lou & Yuan, 2019). These findings suggest that in Vietnam’s social media landscape, relational trust, rather than professional status, underpins influencer credibility. This dynamic positions influencers as powerful but vulnerable actors in health communication, whose perceived authenticity determines their capacity to shape attitudes and behaviors regarding mental health.

Personal Identification with Influencers

Personal identification with social media influencers played a critical role in shaping participants’ engagement with mental health messages. Many interviewees expressed a strong emotional connection to specific influencers who shared similar life experiences, social backgrounds, or communication styles. This identification was not superficial but was rooted in a perceived alignment of values, struggles, and everyday realities. Participants described influencers as „relatable” or „like a friend,” emphasizing that the most impactful voices were those who spoke in a tone that resonated with local cultural experiences. A 23-year-old university student from Ho Chi Minh City said:

“He talks about anxiety in a way I can relate to. It’s like he’s speaking directly to my life.”

This sense of familiarity and resonance encouraged participants to listen more attentively and to take the

message seriously. Identification was often built on shared challenges commonly faced by urban Vietnamese youth, including academic stress, job insecurity, romantic relationships, and expectations from parents. Influencers who openly addressed these themes in a candid and culturally appropriate manner were more likely to foster trust and emotional engagement. In contrast, participants were less receptive to influencers who presented mental health content in highly technical or Westernized terms. Some felt alienated by content that seemed distant from the Vietnamese social context or was too focused on clinical diagnosis and treatment. This disconnect was particularly evident when influencers used English-language terminology or referenced therapy models unfamiliar to local audiences. As one participant noted,

“If I don’t see myself in their story, I scroll past.”

Importantly, personal identification also influenced how the youth interpreted the intentions behind the message. Influencers who appeared to share stories from a place of empathy, rather than authority, were viewed as more trustworthy. This relational dynamic underlines the importance of perceived similarity in digital health communication and suggests that authenticity is not only about content, but also about the alignment between the speaker’s identity and the audience’s lived experience. These findings underscore the need for culturally grounded communication strategies that center the voices of influencers who understand and reflect the everyday realities of Vietnamese youth.

Cultural Framing and Message Reception

Social media influencers culturally framed the way mental health content played a crucial role in how participants received and processed the messages. While awareness about mental health has grown among Vietnamese urban youth, many participants shared that traditional values continue to shape their interpretations of emotional well-being. Influencers who acknowledged and integrated these cultural values were viewed as more effective in reducing stigma and encouraging engagement. Participants expressed appreciation for influencers who used familiar stories, idioms, and social norms to make mental health concepts more accessible. One participant shared:

“When she used the story of her family to

explain mental health, it made sense. It’s not too Western.”

This quote reflects a broader preference for messages that resonate with Vietnamese cultural contexts rather than those perceived as foreign or clinical. The inclusion of family narratives, Buddhist teachings, and Vietnamese proverbs helped participants understand mental health as something shared, holistic, and emotionally rooted. For example, several mentioned that the concept of “tâm an,” or peace of mind, was more relatable than the Western diagnostic labels such as depression or anxiety disorder. Participants also noted that discussions around mental illness must be handled with sensitivity to prevailing social norms. In Vietnamese society, emotional restraint and family honor are deeply valued. Open conversations about mental distress can be perceived as disruptive or shameful. Influencers who recognized this tension, and addressed it without directly challenging core cultural beliefs, were described as thoughtful and persuasive. One participant noted that when an influencer discussed emotional healing through compassion toward one’s parents, it felt both respectful and empowering.

In contrast, influencers who appeared to ignore or criticize Vietnamese traditions were often seen as culturally disconnected. These messages were more likely to be dismissed, even if they were factually accurate or well-intentioned. These findings suggest that cultural framing is not just a matter of language or symbolism. It fundamentally shapes the perceived legitimacy and emotional relevance of mental health communication. Effective framing must reflect not only individual experiences but also the collective values and emotional vocabulary of Vietnamese society.

Engagement and Interaction Patterns

Participant narratives revealed diverse forms of interaction with mental health content shared by social media influencers. Engagement was not limited to passive consumption but often included active and intentional behaviors. Common activities included liking, sharing, commenting, saving posts, and tagging others in relevant content. These acts served not only as expressions of support for the influencer but also as mechanisms for opening discussions with peers and family members. A 26-year-old participant from Hanoi illustrated this dynamic clearly:

“I shared his post with my friends, and we had a long conversation about going to therapy.”

Such examples show how influencer content functioned as a catalyst for deeper offline conversations. Sharing a mental health post could be a subtle and non-confrontational way to introduce sensitive topics into daily social interactions. Several participants noted that they used influencer content to signal empathy or concern for others, especially when direct discussion felt too personal or risky. Engagement also extended into more immersive experiences. Some participants described sending private messages to influencers, participating in live Q&A sessions, or joining comment threads where followers exchanged support and advice. These interactions helped foster a sense of belonging and reduced feelings of isolation. Many described these online spaces as more comfortable and accessible than formal settings like clinics or school counseling services.

Despite this openness, participants were careful about how and where they engaged. Concerns about stigma and privacy were common, particularly among those with conservative families or professional aspirations. Some avoided commenting publicly on mental health posts to prevent unwanted attention or misunderstanding. Others preferred to share posts in private group chats or use platforms that allowed anonymity.

This selective engagement underscores the complex balance Vietnamese youth navigate between public visibility and private vulnerability. Influencer content offers valuable entry points into mental health discourse, but the choice to engage remains shaped by personal

risk perception, platform design, and broader societal attitudes toward mental illness. These findings suggest that while social media fosters dynamic interaction around mental health, such engagement is often strategic and deeply contextual.

Behavioral Influence and Attitude Change

The influence of social media influencers on the mental health behaviors and attitudes of Vietnamese urban youth was evident in multiple interview accounts. Although not every participant reported taking direct action such as attending therapy or contacting a mental health professional, many described a gradual but meaningful shift in how they perceived mental health, processed emotions, and supported others. One respondent explained:

“After watching her video, I searched for mental health services in my city. It made me think differently.”

This statement reflects the capacity of influencer content to prompt reflection and motivate new behaviors, even when those behaviors are exploratory rather than definitive. Several participants reported that they had started to think more critically about their emotional well-being, including recognizing symptoms of stress, identifying unhealthy coping mechanisms, and acknowledging the value of seeking support. Empathy toward others also emerged as a key theme. Influencer stories helped participants relate to peers facing mental health challenges and encouraged them to be more attentive and supportive in their social circles. A number

Table 1: Key Themes and Illustrative Quotes

Theme	Illustrative Quote
Influencer Credibility and Trust	“I believe her because she always shares her struggles and never pretends to be perfect. She feels real.”
Personal Identification with Influencers	“He talks about anxiety in a way I can relate to. It’s like he’s speaking directly to my life.”
Cultural Framing and Message Reception	“When she used the story of her family to explain mental health, it made sense. It’s not too Western.”
Engagement and Interaction Patterns	“I shared his post with my friends, and we had a long conversation about going to therapy.”

of interviewees reported initiating conversations with friends, siblings, or even parents, despite the discomfort associated with such discussions in Vietnamese cultural settings.

At the same time, participants were aware of the limitations of influencer content as a pathway to action. Structural barriers such as the cost of therapy, limited access to qualified professionals, and cultural stigma remained significant obstacles. As one participant from Ho Chi Minh City stated,

“Even if I want to get help, it’s hard to explain to my parents. They think mental illness means you’re weak.”

This tension illustrates that while influencers can inspire reflection and reduce internalized stigma, they cannot substitute for systemic reforms or institutional support. Many participants viewed influencers as an important first step in their journey toward self-awareness and emotional literacy. The content served as a low-pressure introduction to mental health topics, helping them build confidence before taking more formal steps. The findings suggest that social media influencers can play a transformative role in shaping attitudes and initiating behavioral change, even if their impact is uneven and contingent on broader social and structural factors.

The table below summarizes the five key themes along with illustrative quotes drawn from the interview data.

Discussion

This study explored the role of social media influencers (SMIs) in promoting mental health awareness among urban youth in Vietnam, focusing on how message credibility, cultural framing, and engagement patterns shape perceptions and behaviors. Drawing on in-depth interviews with 20 young adults from Hanoi and Ho Chi Minh City, the findings provide a nuanced understanding of how influencer-based communication operates within a complex socio-cultural and digital environment. Guided by the Elaboration Likelihood Model (Petty & Cacioppo, 1986) and Source Credibility Theory (Hovland & Weiss, 1951), this discussion integrates the empirical themes with theoretical and contextual implications. The first key finding of the study highlights the

centrality of influencer credibility and trust. Unlike traditional mental health communication that often relies on professional authority, participants in this study evaluated credibility through perceived authenticity and emotional transparency. This observation aligns with the Source Credibility Theory, where trustworthiness and perceived expertise are crucial, although in the social media context, expertise is often interpreted through lived experience rather than institutional credentials (Freberg et al., 2011). Participants responded more positively to influencers who consistently shared personal challenges, demonstrated vulnerability, and refrained from overt commercialization of their content. This reinforces previous claims that authenticity is a core driver of digital influence (Lou & Yuan, 2019), and extends the literature by showing how Vietnamese youth, despite traditional respect for authority, now prioritize relatability and consistency in assessing credible voices.

The data also suggest that identification with influencers plays a critical mediating role in shaping message reception. Influencers who shared similar life experiences, linguistic styles, or emotional struggles were perceived as more relatable and therefore more persuasive. This reflects the central route of the Elaboration Likelihood Model, in which message processing occurs more deeply when the receiver finds the content personally relevant (Kitchen et al., 2014). However, for many participants, identification functioned more as a socio-emotional filter than a purely cognitive process. Youth responded to influencers who mirrored their own struggles with academic pressure, career uncertainty, and intergenerational tension. These experiences, rooted in the rapidly changing urban landscape of Vietnam, gave the influencers symbolic authority even without formal mental health training. Cultural framing emerged as another critical factor in enhancing message effectiveness. The way influencers embedded mental health discourse within culturally familiar narratives had a direct impact on how participants interpreted and internalized the content. Messages that referenced Buddhist values, familial obligations, or the Vietnamese concept of „tâm an” (inner peace) were considered more respectful and meaningful. In contrast, messages that adopted Western clinical language or diagnostic labels were often dismissed as irrelevant or difficult to relate to. This supports Vu and Tran’s (2022) argument that culturally congruent framing increases

message acceptance and reduces perceived stigma. By incorporating traditional values while still encouraging openness, successful influencers were able to strike a delicate balance between challenging stigma and preserving social harmony, a key priority in Vietnamese society.

Another important insight relates to how participants engaged with influencer content. Their interaction was not limited to liking or following, but also included sharing content with peers, joining online discussions, and even initiating offline conversations about mental health. This pattern reflects the participatory logic of social media platforms and the growing normalization of digital health discourse in informal networks. As Nguyen and Dang (2023) note, online spaces provide Vietnamese youth with a low-risk environment to explore sensitive topics that might otherwise be silenced in public or family settings. The findings from this study confirm that SMIs are not simply content creators but also facilitators of micro-level dialogue, enabling peer support and collective reflection. Despite this, engagement was often strategic and selective. Several participants mentioned avoiding public comments or likes due to fears of judgment from family members, colleagues, or supervisors. Instead, they engaged in more private ways, such as sharing posts in group chats or bookmarking content for personal reflection. These behaviors highlight the enduring presence of stigma and the social risks associated with mental health visibility in Vietnam. They also underscore the relevance of the peripheral route in the Elaboration Likelihood Model, where individuals may be influenced by cues such as influencer relatability or tone without deeply processing the content. This dual processing route may explain the wide variance in how influencer content affects behavior, ranging from passive awareness to more active behavior change.

Behavioral influence and attitude change represented the most significant but uneven impact of influencer messaging. Several participants described changes in how they thought about emotional well-being, talked to others, or considered seeking help. Others, however, remained hesitant due to financial constraints, limited access to mental health services, or cultural taboos. This variability demonstrates that while SMIs can serve as catalysts, they are not sufficient to overcome structural and societal barriers. The idea of

influencers as a “first step” toward longer-term change was a recurring theme, echoing Pham et al. (2021), who found that internal shifts in attitude often precede help-seeking behavior in Vietnamese youth. The credibility of influencers also contributed to shaping behavioral intention. Influencers who were seen as consistent and trustworthy helped participants reconsider their assumptions about mental illness and recognize early signs of emotional distress in themselves and others. This aligns with findings by Nguyen and Pham (2020), who noted that the perceived sincerity of an influencer enhances the likelihood of message acceptance. However, the presence of commercial sponsorship, particularly involving health products, was often met with skepticism. This reinforces the argument by Djafarova and Rushworth (2017) that perceived authenticity is easily undermined by signs of financial motivation.

The findings also contribute to a more contextualized understanding of the digital mental health ecosystem in Vietnam. Urban youth operate within a landscape shaped by modern pressures, high social media penetration, and limited mental health infrastructure. Influencers serve as intermediaries, helping translate global mental health narratives into locally resonant forms. However, the sustainability and ethical implications of this role require careful consideration. As noted by Southwell and Thorson (2015), health communication in digital spaces must be grounded in long-term strategies rather than individual persuasion. While SMIs offer unique advantages in reach and relatability, they cannot replace formal systems of care, especially for youth who face more serious mental health challenges. The combined application of the Elaboration Likelihood Model and Source Credibility Theory has proven valuable for understanding the mechanisms behind influencer effectiveness in the Vietnamese context. ELM helps explain the dual pathways through which participants processed content, depending on their prior knowledge, emotional readiness, and platform context. SCT clarifies how trust in the message source, rather than the message alone, influences behavior. The two theories, when applied in tandem, offer a more complete picture of how Vietnamese youth engage with digital mental health communication. Finally, the cultural specificity of this study’s findings offers important insights for designing more effective mental health interventions in Vietnam.

Strategies that leverage influencers should prioritize emotional transparency, cultural grounding, and ethical consistency. These principles are particularly critical in a society where mental health remains highly stigmatized, and where youth must navigate competing expectations from traditional norms and modern aspirations.

Limitations and Future Research

This study has several limitations. First, the sample size was small and limited to two large cities, which may not reflect the experiences of youth in rural provinces. Second, self-reported data may be influenced by recall bias or social desirability. Third, the study focuses on influencers who openly discuss mental health, which may exclude perspectives from youth who follow different types of content. Finally, the findings reflect the period in which the data were collected and may not capture rapid changes in digital behavior among Vietnamese youth.” Future studies should expand to rural regions and include a wider diversity of influencer types. Quantitative or mixed methods designs could examine the strength of associations between credibility cues and behavioral outcomes. More research is also needed on how algorithms, platform design, and government policies shape access to mental health content. Comparative studies across Southeast Asia could further clarify the cultural factors that influence how youth engage with influencer-driven mental health communication.

Conclusion

This study has examined how social media influencers shape mental health awareness and engagement among urban Vietnamese youth, with a particular focus on message credibility, cultural framing, and behavioral influence. The findings demonstrate that authenticity, emotional relatability, and cultural sensitivity are central to the effectiveness of mental health communication in digital environments. Influencers who are perceived as trustworthy and personally relatable foster deeper engagement and reflection, even when lacking formal clinical expertise (Freberg et al., 2011; Lou & Yuan, 2019). The study confirms the relevance of the Elaboration Likelihood Model (Petty & Cacioppo, 1986) and Source Credibility Theory (Hovland & Weiss, 1951) in understanding how Vietnamese youth process influencer content through

both central and peripheral routes. It also emphasises the importance of culturally grounded messaging that respects local values and emotional vocabularies (Vu & Tran, 2022). While influencers cannot replace structural interventions, they can act as meaningful catalysts for shifting attitudes and encouraging dialogue in a society where mental illness remains stigmatized. Ultimately, this research highlights the potential of leveraging influencer-driven communication as part of a broader, integrated approach to mental health promotion in Vietnam. Such efforts must be sensitive to the social and cultural dynamics that shape youth behavior and should aim to complement, rather than substitute, institutional forms of mental health support.

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The Labor Theory Of Property Does Not Mandate Easements

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Blockian proviso, property rights, easements by necessity, labor, forestalling.

ABSTRACT

Some libertarian theorists advocate for recognizing easements by necessity. In specific circumstances they would guarantee the right of passage through the land that is already owned. One popular argument in favor of such easements concerns a situation where landowners' exercise of their property rights prevents others from entering non homesteaded areas and taking them into ownership. The argument holds that a firstcomer who mixed labor with some parcel that blocks access to unowned land *de facto* owns that land as well. It is argued that such a property right is self-contradictory because the only legitimate method of original appropriation is labor mixing and the firstcomer actually acquires the virgin land without doing so. Easements of necessity are then postulated as a means to rectify this alleged contradiction. In the present paper this argument in favor of easements is examined and refuted.

Introduction

Certain theoretical controversies are subject to vigorous discussions among libertarian scholars. One such debate concerns *forestalling*, that is a situation where landowners exercise their property rights in a way that prevents others from using some resources or accessing some places. The point of contention is whether those other individuals have the right to pass undisturbed through landowner's parcel for the purpose of homesteading unowned land, entering their own estate, leaving it, or accessing movable property left somewhere. The problem may appear to be of little importance in most contemporary societies where political authorities tend to grant such rights in order to fulfil various public policy objectives.¹ However justifying them in a stateless society that is governed solely by private property rights according to libertarian principles is a uniquely challenging endeavor. After all, in the absence of monopolistic central authority that would (at least nominally) guarantee safety, self-defense becomes the responsibility of individual landowners and their representatives. Crossing borders of someone else's property then becomes a particularly meaningful act, that may potentially bring serious consequences. This distinguishes a libertarian society from other orders, limiting the applicability of institutions or precedents developed in statist contexts.

In this paper I shall investigate a frequently discussed case of *forestalled homesteading*. This is a situation where some piece of land remains unappropriated, but the access to it is blocked by another already owned parcel. If there is no possibility of digging tunnels, building bridges, helicopter flights and other means of traveling over or under that parcel, then its owner indirectly controls the access to the unowned virgin area. Such a situation is interpreted in various ways by libertarian scholars. Some of them consider it acceptable. This is reflected by the words of Kinsella (2007):

I see no special status of the unowned property; it's just property someone would like to go homestead. If they can't reach it, it's not the fault of those who have this resource surrounded.

Other theorists feel uncomfortable with the possibility of forestalling. Long (2007) maintains that "one cannot legitimately use one's own property to interfere with the liberty and property of others". Block (2004) states that libertarian homesteading theory "abhors" land which cannot be claimed. Block (2008) describes exceptions from "the ideal of homesteading every square inch of territory" as a "horror" and a "veritable contradiction". Block (2010b) complains about "untoward advantage", while Block and Butt (2016) declare that the "state of non-ownership" is "anathema to the libertarian ideal that all of the earth's surface should come under private ownership". Moreover, Dominiak (2017a, 2019, 2021) insists that the system of property rights which admits forestalling is selfcontradictory, and that easements must be recognized in order to make it coherent.

The following investigation focuses on one argument in favor of easements that has gained certain popularity. It seems to be first raised by Block (2010b) and restated by Block and Butt (2016). Its latest formulation is presented by Dominiak (2019). In short, the argument exploits the inconsistency between the requirement that every appropriation must be carried out by labor-mixing, and the alleged appropriation of virgin terrain by a forestalling individual who does not labor on it. In what follows the merits of this argument are evaluated. The study is structured as follows. In the second section Dominiak's argument is briefly presented. In the third section some preliminary remarks are offered. The fourth section distinguishes between individual and joint forestalling and demonstrates that

the latter is not problematic. In the fifth section three necessary preconditions of individual forestalling are identified. In the following five sections the possibilities of rendering them unfulfilled are investigated. It turns out that these preconditions may be neutralised, which implies that forestalling situation is not equivalent to owning the virgin land. This undermines Dominiak's argument. The last section summarizes the findings.

The No-Property-Without-Labor Argument

Dominiak's reasoning presumes the *labor theory of property*. Proponents of this theory maintain that human labor is the source of property rights. Dominiak insists on a very strict version of this theory which holds that scarce physical objects are appropriated *only by laboring on them* and that no other ways of initial appropriation are possible. He introduces the argument as follows:

Imagine that person B homesteads a virgin piece of land in such a way that he leaves a parcel of it unappropriated and that other people can only access it by traversing B's property. If person C subsequently wants to homestead the unowned parcel, may B preclude C from traversing B's property and, thereby, from homesteading the parcel? This question seems to pose a vexing problem for the libertarian theory of justice in first acquisition according to which the process of homesteading vests the owner of the homesteaded land with the absolute right to exclude others from his property. For, if such an absolute right were granted in the case currently under consideration, then another right, also, would necessarily be recognized. It would be B's right to control the unappropriated parcel, specifically, to exclude potential homesteaders from the unowned land. However, the unappropriated land is by definition a land to which no one has yet acquired any rights. Hence, the recognition of B's right to control the unowned parcel would contradict the assumption that the parcel has been left unappropriated. To avoid the contradiction, B's right to exclude C from the homesteaded land cannot be absolute and C's easement over B's land must be recognized for the purpose of homesteading the unowned parcel.²

Dominiak further explains that by mixing labor with a parcel the firstcomer B takes that parcel into ownership.

But at the same time B is also at liberty to use, abuse or enjoy the landlocked virgin land and fruits thereof. More importantly, B can exclude others from it by not agreeing to their passage through the homesteaded parcel. In Dominiak's eyes this satisfies the definition of a property right, that is "an exclusive right to control a scarce resource". He declares that B thereby acquires an actual property right in the virgin plot of land without mixing labor with it. This contradicts the presumption that the original appropriation may only be carried out through labor-mixing. In order to eliminate the contradiction, Dominiak proposes to recognize easements by necessity. He describes them as follows:

An easement by necessity is a right to traverse another person's estate in order to access some other land, that is recognized by the law due to the fact that passing through the other party's property is the only way to gain such an access. It therefore does not require a contract or a custom to establish itself but is implied in specific circumstances and spatial relations between parcels of land.

Dominiak maintains that this extenuation of landowners' property rights in favor of travelers is necessary for the contradiction to be avoided. He insists that their rights are restricted "only to a minimal degree", because the proposed easement is to be valid only when there is no other possibility of getting to the desired destination and it is to be extinguished as soon as an alternative access possibility appears.³

Preliminary Remarks

The argument is built on the contradiction of the following two propositions:

P1. Initial appropriation may only be carried out by laboring on the object in question

P2. The forestalling individual becomes an actual owner of the virgin untouched land without laboring on it.

Dominiak sees the conflict between them as a rationale to introduce easements. He believes that such a move would avert the contradiction, because with easements there would be no virgin parcels controlled by those who did not mix labor with them. This reasoning may be undermined by showing that either one of the two contradictory propositions is false in the absence of easements.

The proposition P1 instantly draws attention. The labor theory of property is not universally accepted in the literature. Several libertarian scholars consider original appropriation by actions other than labor. In particular, some of them declare that unowned objects are appropriated by being first to take them into possession or to use them.⁴ Under the possessory theory the role of labor subtly changes. Instead of being a necessary condition of appropriation it becomes a sufficient condition: laboring on an unowned object is a way of demonstrating first possession, but it is not the only possible way. Consequently, it may be argued that in many cases forestalling is just a form of “embordering” or taking possession (Kinsella 2024, p. 22) and hence it counts as legitimate appropriation. Notwithstanding these controversies I shall refrain from questioning P1. Instead, I shall demonstrate that in the absence of easements P2 is false.

Individual And Joint Forestalling

Forestalling may be performed unilaterally, or in cooperation with others. Individual forestalling is possible when the virgin land is enveloped completely by a single parcel homesteaded by a landowner B or when all passable roads to the virgin land cross that parcel. Property rights in the parcel let B unilaterally prevent any latecomer from reaching the virgin area. But it may also happen that the virgin area adjoins several plots owned by multiple individuals $B_1, B_2, B_3, \dots, B_N$, so that accessing it requires traversing at least one of these plots. An example of such a situation for $N=4$ is shown in Figure 1. Latecomers cannot appropriate the virgin land when none of the landowners agrees to their passage. This is also recognized as a forestalling. Dominiak (2017a) argues that such a situation requires introducing easements, to avoid contradictions just like individual forestalling does.

Let us begin the investigation with a closer look at multiple forestalling. Landowners may prevent appropriation of the virgin area by latecomers. But does it mean that anyone owns the virgin land? At this point we need to recall that property rights are by definition *erga omnes* rights. They are supposed to be valid against everyone. For that to be true, the purported owner of the virgin land must be able to exclude *everyone else* from it. However, all parcel owners are able to reach the virgin land from their own plots. Each of them can start laboring on this land and homestead it. Each of them may also be overtaken by others. In this spatial configuration none of them is in a position to exclude everyone else without further labor mixing and consequently none of them enjoys an *erga omnes* right. Hence we have to conclude that none of these individuals owns the virgin land yet.⁵ This means that in the multiple forestaller

case the proposition P2 is false. Consequently there is no contradiction between P1 and P2 that would require recognizing easements. If Dominiak’s argument is correct at all, then it is only valid when the access to a virgin land depends on a single individual. For this reason I shall ignore the case of multiple forestallers, and focus on a single forestalling landowner B.

Does Individual Forestalling Extend Ownership?

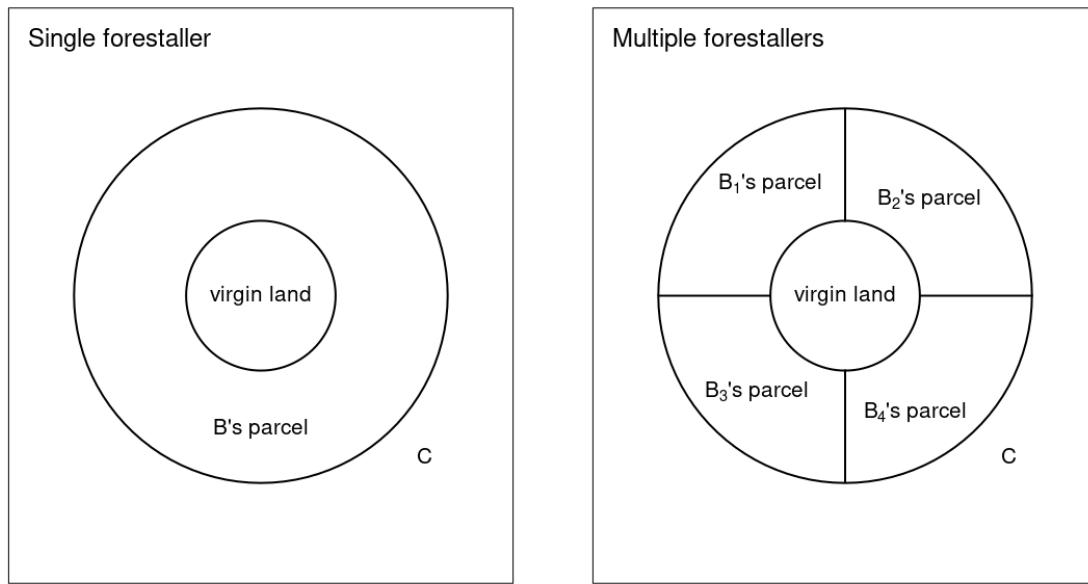
At a first glance, the individual forestalling situation appears to exhaust the marks of a property right to the landlocked virgin land. Dominiak’s view of ownership as “the exclusive right to control a scarce resource” seems to perfectly reflect the position of the forestaller. However, before drawing hasty conclusions, let us note that there are other situations that seem to fit this bill as well. When some landlord (say L) rents an apartment to a tenant (say T) then T temporarily enjoys an exclusive right to control that apartment. But T is not the owner. The apartment is still L’s property. Various other individuals including borrowers, custodians, security guards and postmen may also legitimately exclude others from some objects. For all of them the constellation of rights and other factual circumstances that legitimizes the exclusion is *transitory*. It may dissolve after some prescribed time (e.g. when apartment rental contract expires) or when some prescribed condition is satisfied (e.g. when security guards are dismissed, the shipment is delivered, jewels are removed from a deposit box, or the actual owner of a given object is identified). None of these roles amounts to ownership. Keeping that in mind, we shall reexamine the situation where B forestalls C from homesteading the virgin land. There are reasons to think that it is also transitory.

Essentially, B’s ability to prevent C from homesteading the virgin land depends on actual legal, technical and spatial conditions, that imply C’s inability to enter that land. Specifically, it depends on:

- (a) B’s plot blocking access to the virgin area
- (b) unavailability of tunnels, bridges, helicopters and the like
- (c) C being on the wrong side of B’s plot.

Forestalling is possible only when all the three conditions are jointly satisfied. At the moment any of them becomes false, B’s ability to exclude others from the virgin land instantly evaporates. In what follows I shall investigate the state of these conditions.

Figure 1. A single forestaller situation and four forestallers situation



Spatial Conditions

Let us begin with the condition (a). In general, the homesteaded plot may hinder access to the virgin land in two ways. It may completely envelop it, or it may merely block all passable roads to it, while the features of unowned surrounding terrain (swamps, quicksand, vertical cliffs, and similar obstacles) prevent the passage. In the latter case, geographical features preventing access will usually be possible to remove or overcome. Swamps may be drained. Quicksand may be pumped out. Cliffs may be blown up. With enough effort and resources, geographical obstacles are usually passable. Such an undertaking may be unprofitable. It may also be unaffordable for most individuals. But someone with sufficient means might overcome them, get to the virgin area and homestead it, demonstrating that the alleged property right of the forestaller B is not a property right at all. In such cases P2 false. It does not contradict P1 and it does not justify easements to the incompletely encircled virgin area. Therefore, in what follows I will concentrate on the more solid case of complete envelopment.

Technical Conditions

Let us now turn attention to the condition (b). Can the parcel homesteaded by B be circumvented by technical means? That depends on the size, location, geographic features of the virgin area and its surroundings, and most importantly on the current state of technological knowledge. For a bypass to be strictly impossible without violating B's rights one has to concoct very exotic scenarios such as a threedimensional dome maliciously built by B over and under the virgin area (Block & Block 1996, Block 2008, Van Dun 2009). In

general, technological advancements progress with time, and when they become feasible, B cannot legitimately prevent others from reaching the virgin land. This means that B's ability to legally exclude others from it depends on the actions of third parties - inventors, designers and investors - who construct tunnel drilling machines, cranes, helicopters and other devices. Therefore, when developing suitable means of transport is possible, the exclusion is transitive and B has no property right to a landlocked virgin land. P2 does not contradict P1. Easements by necessity are not justified.

Now, a predictable objection to this finding would be that all technical means of bypassing B's homestead were defined out of the problem when it was stated by Block (2010b) and then by Dominik (2019). While this is nominally true, the resort to such an escape route comes with a cost. If defended this way, a theory of easements will only apply in the absence of any cranes, drones and helicopters. Dominik and Block may be reminded of this radical limitation every time they try to bring their easement postulates to a world where suitable means of transport are available or can be developed.

Notwithstanding all the reservations concerning the conditions (a) and (b), in the following sections I shall explore the status of the condition (c).

Getting From There To Here: Contract

Let us first consider a possibility that the two parties contractually agree on a permission to travel (which is simply an easement based on a voluntary contract). This is illustrated by the example 1:

EXAMPLE 1. B and C voluntarily sign a contract that authorizes C to cross the homesteaded parcel of B, in

exchange for some gratification.

In this example C legally acquires the right of passage through the homesteaded parcel. But the contract says nothing about C's entry into the virgin area, C's presence there, or C's rights to anything there. This exposes the gap between Dominiak's allegations and B's legal situation. If Dominiak's claims that B actually owns the virgin land were true, then this contract would not be sufficient to let C legally enter it. Another separate permission from B would be required to do so. However, having traversed B's homesteaded plot, C is perfectly free to enter the virgin land and settle there. This is because B has not mixed labor with that land and has no title to it. Any libertarian judge who shares Dominiak's view that labor is the only legitimate way of appropriation would dismiss B's eventual complaints on precisely those grounds. This demonstrates that, contrary to Dominiak's allegations, B is not the owner of the virgin land. Consequently P2 is false, it does not contradict P1 and Dominiak's justification of easements collapses. As a supplement let us also consider example 2.

EXAMPLE 2. C is going to deliver goods to B's residence. To make the delivery possible, B grants to C a short-term permission to move freely over all B's estate. C delivers the goods as ordered. But when the permission expires C remains in the virgin land.

In this example the contract is slightly different. The contractual deadline refers to all of B's territory. However the ultimate outcome is the same. B cannot complain that C remains in the virgin land because B has not mixed labor with it and hence B does not own it. P2 is false. The contradiction between P1 and P2 is a groundless mirage. It cannot justify easements. It is important to note here, that a contractual easement does not need to actually be granted for Dominiak's argument to be invalid. The contract does not change the legal status of the virgin terrain. It simply demonstrates that the land is unowned from the beginning. Hence

a mere possibility that such a contract *could* be signed suffices to derail Dominiak's justification of easements.

Getting From There To Here: Unintended Trespass

In addition to contractual scenarios illustrated by examples 1-2, it is also possible that C gets to the virgin area without any contract, simply violating B's property rights in the homesteaded parcel. The violation may be unintended or deliberate. Let us start with examples 3-4 illustrating some accidental traversings.

EXAMPLE 3. Lost in a blizzard C unintentionally passes through the homesteaded area to the virgin land, without being disturbed by B who does not notice anything due to poor visibility.

EXAMPLE 4. C is mistakenly recognized by B's guards as B's employee, relative, or friend and invited to enter the homesteaded area. Somewhat surprised, C enters it. Before anyone discovers the mistake, C has already wandered to the virgin land.

In these examples C has no permission to traverse B's parcel. Hence B's property right is violated. In the first case the violation may perhaps be considered C's fault. In the second, it results from a negligence committed by a third party. No damage is inflicted on the homesteaded parcel. It remains open to a discussion, whether C will be punished for the violation in these situations.⁶ Even if so, C will likely end up paying some minor fine. Regardless of eventual punishment, the final outcome is the same. There is nothing in the strict labor theory of property presumed by Dominiak that would require questioning C's presence in the virgin land or removing C from it. Therefore C may appropriate it, demonstrating again that B's alleged right to the virgin land was just a hollow rhetorical trick. In fact C does not even need to get there. The mere possibility that this could happen is sufficient to defeat Dominiak's argument.

¹ This may for example include encouraging the effective use of land (see e.g. *Kellogg v. Garcia* (2002) 102 Cal.App.4th 796; *Hewitt v Meaney* (1986) 181 Cal.App.3d 361., rulings in the United States of America).

² Unless otherwise stated, all the presented quotes refer to Dominiak (2019). However it should also be noted that the argument considered here is not the main one advanced in that paper. It supplements a more general theory of easements, which deserves separate treatment and will be dissected in another study.

³ Occasionally, Dominiak refers to his argument as a defense of the *Blockian proviso*, referring to similar, but less precise postulates of Block (2010a), but I shall not use this term in order to avoid any ambiguities.

⁴ See. e.g. Epstein (1979), Kinsella (2009:187), Slenzok (2024, p. 105). Even Dominiak (2017b) initially supported the first possession theory, only to adopt the labor theory later (Dominiak 2023). Meanwhile the views of Hoppe (2010, p. 23, 151; 2015, p. 107) tend to be interpreted as gradually deemphasizing labor - see Slenzok (2022; 2024, p. 103), and Juszcak (2023, p. 111).

⁵ In the libertarian system there is no place for a collective entity that might be said to jointly "own" the virgin area. The group of forestallers resembles a cartel. By its very nature it is unstable, as the exclusion of latecomers depends on cooperation of all owners and each of them has an incentive to appropriate, or sell access to latecomers before others do so (Rothbard, 1962, pp. 636-702). Interestingly, the legitimacy of cartels is also explicitly admitted by Block (2010b).

Getting from there to here: deliberate trespass

Let us now consider the possibility that C violates B's property rights consciously. This may happen in many ways as illustrated by examples 5-8.

EXAMPLE 5. C deliberately sneaks through the parcel homesteaded by B and passes to the virgin land unnoticed and undisturbed by B.

EXAMPLE 6. C passes to the virgin land by bribing or deceiving B's guards

EXAMPLE 7. C traverses B's property so quickly and suddenly that B fails to react

EXAMPLE 8. C uses explosives or lasers to blast a hole in the huge iron dome built by B around an unappropriated virgin planet and gets inside before B reacts.⁷

All these acts violate B's property rights. C may expect punishment if recognized as a perpetrator. The penalty may be harsher than in the case of unintended trespass. It will depend on the material damage caused and perhaps on other factors. However, if the libertarian judge respects the proportionality principle,⁸ then it is still likely that C will end up merely paying some fine. It may also happen that C is not punished at all, if the passage is not detected, or no one recognizes C as the trespasser (in that case C may pretend to have settled in the virgin area before B's appropriation). In all these scenarios the ultimate outcome is the same. C gets to the virgin area and can settle there, disproving the claim that B owned it. P2 is false. Dominiak's argument fails.

Conclusions

Under the strict labor theory of property adopted by Dominiak, the firstcomer does not appropriate unowned land by merely blocking access to it. What

Dominiak interprets as a *de facto* property right is merely a transitional inability on the part of latecomers to reach that land. It stems from a superposition of three factors: spatial distribution of homesteaded parcels, limited technological capabilities and individuals being located in disadvantageous places. Latecomers may terminate such a state by altering any one of these conditions. They may do so by developing new technical means of travel, transforming the terrain, signing contracts regarding the owned parcel or committing trespasses. The forestalling firstcomer cannot remove others from the virgin land when they get there, regardless of whether their passage was legitimate or not. This demonstrates that forestalling does not extend property rights to the unowned area. Hence the alleged contradiction on which Dominiak builds his argument is not a contradiction at all. His case for recognizing easements falls apart.

Presented refutation applies to both movables and immovables. The fact that an ownerless physical object is more or less difficult to transfer does not affect the reasoning. However, the analysis is limited in scope. It only concerns the specific case of forestalled homesteading, putting aside other related problems which are also important for the libertarian theory. They include an eventual admissibility of traversing or occupying someone else's landed property for the purposes of defending, salvaging, recovering, accessing, or using one's own property, helping others in need, investigating possible crimes, preventing crimes or extracting restitution. It does not address the problem of hostile encirclement. Presented results may eventually turn out to be helpful in the investigation of these issues but their adaptability requires further careful study. Presented refutation is also limited in a different sense: it applies to just one of the arguments in favor of easements by necessity formulated by Dominiak (2019), following earlier writings of Block and Butt (2016) and Block (2010b). Its eventual extension against other arguments - and in particular against a general theory of easements advanced by Dominiak (2019) - exceeds the scope of this study, and needs to be dealt with separately.

⁶Contemporary statist legislation also tends to punish only conscious trespasses. See for example Kentucky Revised Statutes §§ 511.060, 511.070, 511.080.

⁷This last futuristic example addresses the case of a three-dimensional dome invoked by Block (2008) and Van Dun (2009).

⁸The principle is discussed by numerous authors including Rothbard (1998, p. 85), Kinsella (1996; 1997), Block (2011), Wójtowicz (2021), Dominiak & Wysocki (2023), Dominiak et al (2023).

⁹Does a narrow, steep, potholed path suffice or is the four-lane highway mandatory?

¹⁰Could the traveler choose the path freely? Should privacy, safety or other interests of the landowner be accounted for? If so, then how? To what extent can the landowner eventually interfere with the passage? Can he spray his parcel with water in freezing temperatures? How should eventual conflicts between travelers be resolved?

¹¹Could it be closed for repairs, maintenance or other reasons? Should anyone be held responsible for the maintenance? Who sets up driving rules?

¹²In that respect, involuntary easements resemble intellectual property regulation - which Dominiak (2014) actually opposes - and mentioned conundrums are similar to the individuation problem (Attas 2008; Gamrot 2021, 2022, 2025).

Finally, it should be emphasized, that what Dominiak postulates are *involuntary* easements, supposed to be unconditionally recognized whenever forestalling situation materializes. But easements may also be voluntary. They may be agreed upon between parties on a purely contractual basis, and grounded in the freedom of contract. As such, they would not require any special justification. This eliminates theoretical difficulties which would inevitably haunt any attempt at refining Dominiak's vague postulates. Contractual easements do not require formulating additional theories to explain when exactly should the access be considered blocked,⁹ what is the "just" scope of the easement,¹⁰ or what is the "just" way of upkeep and managing the access path.¹¹ Such conundrums are irrelevant when interested parties freely negotiate conditions of the passage on the grounds of existing property in land and specify any relevant detail of the contract accounting for their own subjective preferences. In particular, contracts may safeguard important interests of landowners, such as privacy, security and compensation for nuisances or upkeep costs. But this flexible mechanism of balancing interests vanishes when Dominiak deprives landowners of their critical bargaining chip: property rights in the land they mixed labor with. If his postulates were adopted, then collisions of interests would have to be resolved by some courts or judges on the basis of complex external theories, yet to be formulated and justified.¹² Any such arrangement would lack key advantages of the pure property system: clarity, simplicity and flexibility. The rejection of Dominiak's failed argument is a step towards preserving these advantages.

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Beyond Function And Aesthetics: The Ethical Implications Of AI-Driven Interior Design For Enhancing Human Experience

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Artificial Intelligence, Ethical Design, Human Consciousness

ABSTRACT

With a focus on its philosophical and practical consequences for human awareness, this paper explores how artificial intelligence (AI) is revolutionizing interior design. It makes the case that artificial intelligence (AI) can strengthen the emotional bonds that exist between people and their surroundings by defining consciousness as awareness of one's existence and surroundings. AI may produce individualized design solutions that support residents' ideals and promote self-expression and well-being by examining user interactions and preferences. However, there are ethical issues with AI incorporation, including the possibility of design homogenization and the possible loss of personal autonomy. The essay promotes a well-rounded strategy that embraces technological advancement while maintaining human agency. It demonstrates through case studies how AI-driven design can represent individual stories and feelings, ultimately adding to the conversation on moral design in the technological sphere.

Introduction

The swift development of artificial intelligence (AI) has spurred a revolution in a number of industries, including education, healthcare, and finance. AI technologies have revolutionized the way services are provided and experienced by enabling notable gains in productivity, decision-making, and personalization. For example, machine learning models in finance assess market trends to guide investment strategies, and AI algorithms are used in healthcare to forecast patient outcomes and customize treatment approaches. With AI-powered technologies offering individualized learning experiences that adjust to each student's needs and learning preferences, education has also undergone a transformation. The use of AI in interior design is one of these revolutionary applications that offers very exciting potential to revolutionize the way rooms are imagined, experienced, and used. AI makes it possible to take a more data-driven approach to design than traditional methods, which frequently rely largely on the designer's aesthetic judgment and intuition. Large volumes of user data can be analyzed by this technology to find trends in behaviors, preferences, and emotional reactions to different spatial arrangements. Because of this, designers are able to produce spaces that are not only aesthetically pleasing but also precisely match the psychological and emotional requirements of the people who inhabit them while occasionally introducing novel elements that challenge habitual preferences. For instance, AI might leverage cross-cultural design databases or generative adversarial networks (GANs) to propose layouts that blend a user's documented tastes with globally inspired materials or unconventional spatial

configurations (Gür et al., 2024). This balance between personalization and exposure to new trends aligns with what Rendell (Rendell, 2006) describes as 'critical spatial practice,' where design acts as both a mirror and a window reflecting identity while expanding horizons.

This article explores the relationship between artificial intelligence (AI) and interior design, emphasizing the improvement of personal experiences and the replication of elements of human cognition. The essay seeks to investigate the possibility of using AI to design environments that have a deeper emotional resonance by looking at how it can help us comprehend human emotions and preferences. Whether AI can accurately mimic the subtleties of human awareness and how these technologies can deepen our emotional ties to the places we live are among the issues raised by this investigation. In order to shed light on how technology might enhance our lived experiences and promote a sense of identity and belonging in the spaces we occupy; the article also discusses the consequences of AI-driven design not just on utility and aesthetics but also on the whole experience of space.

Literature Review

A paradigm shift in the way surroundings are planned and implemented is represented by the convergence of AI and interior design. Interior design has historically been a field that is deeply rooted in aesthetics, functionality, and cultural context. Designers draw on their intuition, extensive knowledge, and life experiences to create environments that captivate the eye and enhance occupants' sense of well-being. Designers may

build spaces that reflect their clients' ideals and lifestyles thanks to this artistic approach, which has been defined by a thorough study of materials, color theory, spatial arrangements, and human psychology (Dwiek & Bast, 2024). This conventional paradigm is undergoing major change as a result of the incorporation of AI technology. AI offers sophisticated data-driven approaches that enable designers to examine a broad range of user inclinations, actions, and feelings. This capacity enables a more sophisticated comprehension of how people engage with their environment. Designers can more accurately customize places to match the individual wants and identities of their occupants by using AI to derive meaningful insights from behavioral data. Importantly, AI can also identify and mitigate harmful behavioral patterns such as poor ergonomic habits by integrating evidence-based well-being principles into its recommendations. This dual approach ensures spaces reflect user identities while promoting physical and psychological health. AI, for instance, can examine how people use various parts of a room, finding trends that help designers make decisions about lighting, furniture, and layout that improve usability and comfort (S. Wu & Han, 2023). Furthermore, AI improves the design process itself by simulating different design situations in real time. Designers may swiftly create many design iterations using AI-powered visualization tools, evaluating the effects of various configurations on user experience and emotional reactions. In addition to expediting decision-making, this iterative process creates a cooperative atmosphere where clients may actively influence the design of their spaces. Designers can produce spaces that more profoundly link with personal experiences and give residents a sense of connection to their surroundings by integrating feedback into the design process (Dwiek & Bast, 2024). Furthermore, the use of AI in interior design creates new opportunities for designing settings that are adaptable. When incorporated into places, smart technology may learn from user interactions and instantly modify lighting, temperature, and even layout to improve comfort and wellbeing. Because of its flexibility, environments can change to meet the demands of their users, encouraging dynamic engagement that was previously impossible with conventional design methods (S. Wu & Han, 2023). In the end, incorporating AI improves the emotional and psychological components of the places we live in in addition to the technical parts of design. AI has the ability to transform interior design from a static art form into a dynamic and interactive experience that really represents the identities and preferences of its users by enabling a more responsive and personalized

design approach. This development represents a major turning point in the search for settings that uphold and improve the human experience, increasing the complexity and satisfaction of the designer's job.

The idea of consciousness, which is the awareness of one's existence, thoughts, and surroundings, is central to this investigation (Chalmers, 1998). When it comes to design, consciousness refers to how people view and interact with their surroundings. This perception entails an active interaction with space, where memories, emotions, and personal stories combine to form an individual's experience, rather than just a passive reception of inputs. AI-powered consciousness restoration entails building systems that comprehend and react to human emotions and preferences in order to create environments that profoundly connect. This poses interesting queries, such as: Is it possible for AI to accurately mimic the subtleties of human consciousness? In what ways may these technologies strengthen our emotional bonds with the places we live in?

The process by which people form a sense of self and individual identity is known as "individuation." This idea is essential to interior design since places frequently mirror our values, goals, and memories, acting as extensions of who we are (Rendell, 2006). AI integration can improve individuation by creating surroundings that are tailored to each person's tastes and emotional requirements. AI enables designers to create environments that fulfill practical requirements and evoke positive emotional responses through the analysis of user data. With the development of AI, environments may be dynamically adjusted in real-time in response to user activities, guaranteeing that they are in line with changing identities and emotional states. Static areas become dynamic ecosystems that encourage individual expression and development as a result of this change. The combination of AI and design upends conventional wisdom and opens the door to incredibly meaningful, human-centered spaces.

AI presents ethical questions about autonomy, authenticity, and uniformity even though it has promising uses in interior design. Because AI-driven design runs the potential of turning occupants into passive recipients rather than active participants, maintaining user agency is a major concern. Furthermore, AI-generated designs might not be as creative as human ones, which could result in generic environments that ignore individual and cultural variety. Human-centered AI solutions that improve individual choice, leverage a variety of datasets, and guarantee algorithmic transparency must be given top priority by designers in order to address this. The field can produce meaningful,

customized settings without compromising authentic design by striking a balance between AI's capabilities and human ideals (Van den Hoven et al., 2015).

This article examines how artificial intelligence (AI) can replicate consciousness to improve interior design by enhancing emotional connections and customizing settings. It looks into AI's capacity to evaluate user input and preferences and provide designs that promote wellbeing and individuality. The necessity of maintaining user agency is emphasized in the discussion of ethical issues including autonomy, authenticity, and homogenization. The conversation highlights AI's revolutionary potential by fusing theoretical understanding with practical AI applications in design. AI's function in personalization is demonstrated through case examples, while ethical analysis draws attention to potential hazards such as manipulation and loss of transparency. The article's conclusion promotes a fair integration of AI that gives human values and creativity first priority. This article seeks to stimulate further discussion about the future of AI-driven design among designers, technologists, and ethicists by outlining both potential and problems.

Philosophical Underpinnings Of Consciousness In AI

Artificial consciousness, often known as machine consciousness or synthetic consciousness, explores the theoretical underpinnings of the possibility that machines could be sentient. The nature of consciousness itself and the ramifications of building machines that could theoretically have human-like awareness are both seriously called into question by this idea. Investigating artificial consciousness is not only a theoretical endeavor; it has real-world applications in domains like interior design, where AI is being utilized more and more to build spaces that speak to human experiences.

Theoretical Foundations Of Artificial Consciousness

Philosophical investigations into the nature of consciousness have a significant impact on the discussion of artificial consciousness. In his groundbreaking work, David Chalmers makes a distinction between the "hard problem," which deals with the reasons and mechanisms by which subjective experiences result from physical processes, and the "simple difficulties" of consciousness, which include comprehending cognitive processes (Hildt, 2019). This distinction is crucial when examining

whether robots may develop consciousness since it implies that although they could be able to mimic cognitive processes, they might not be subjectively conscious. In this perspective, it is equally critical to distinguish between weak and strong AI. Systems built to carry out particular tasks without true comprehension or consciousness are referred to as weak AI, these systems effectively mimic human behavior through preprogrammed reactions. Strong artificial intelligence, on the other hand, suggests that computers might be capable of actual consciousness and comprehension, similar to human cognitive experiences (Hildt, 2019). The design and application of AI technologies are influenced by this philosophical discussion, especially in domains like interior design where the objective is to create spaces that are relatable to human experiences.

The study of machine consciousness has benefited greatly from the work of philosophers like Daniel Dennett. According to Dennett's functionalist viewpoint, consciousness is not the result of a single, cohesive experience but rather of intricate interactions between cognitive processes (Taylor, 2024). This point of view backs up the notion that, even though machines' experiences are essentially different from those of humans, they could be regarded as conscious in a functional sense if they are able to successfully mimic certain cognitive processes.

Implications For Design And Interaction

Designers who want to construct environments that improve human experiences must comprehend the subtleties of artificial intelligence. Designers may produce environments that feel more responsive and intuitive by utilizing AI's ability to evaluate human preferences and habits. But it is important to understand that although AI can mimic some parts of consciousness, it lacks the subjective experience and inherent emotional depth that define human interactions (Searle, 1980). Concerns about how to treat robots and the effects of integrating them into society are also brought up by the possibility that they could be sentient. It would be necessary to reevaluate machines' rights, and the moral obligations humans have to them if they were to develop awareness. Philosophers like Kate Darling, who advocates for a more compassionate approach to interfacing with robots and AI systems and suggests that our social ideals should influence how we treat these entities, echo this conversation in their writings (Darling, 2016).

Future Directions

The investigation of artificial consciousness will increase as AI develops, necessitating rigorous ethical thought on the part of designers and researchers. AI development must respect human values and improve rather than lessen living experiences. AI could create emotionally responsive adaptable spaces in domains like interior design, improving productivity and well-being, but this needs to be tempered with ethical and philosophical considerations. The intricate relationship between AI, consciousness, and design necessitates understanding from the fields of philosophy, cognitive science, and the arts. Although AI has the potential to revolutionize human-centered places, its use must be constrained by moral standards and a profound regard for both artificial and human consciousness. This careful balancing act between innovation and responsibility is critical to the future of AI.

The Impact Of AI On Human Individuation In Interior Design

Understanding Human Individuation In Interior Design

Individuals create a unique sense of self through the intricate psychological process of "individuation," which is impacted by their cultural backgrounds, values, beliefs, and personal experiences. Our general well-being is greatly influenced by the way our surroundings are created, which can reflect our personalities, goals, and emotional states.

Personal preferences, attitudes, and lifestyles are revealed through design decisions including color schemes, materials, and layouts. A vivid, varied decor can reflect innovation, while a minimalist setting might show a penchant for order. These decisions reinforce authenticity and self-perception in ways that go beyond aesthetics. This bond is further strengthened by cultural influences, as traditional themes or materials can bolster a feeling of inclusion. For instance, inclusive multicultural designs strengthen ties throughout the community, while culturally relevant textiles or artwork can encourage pride and continuity in one's identity. Furthermore, well-designed environments have a direct effect on mental health. According to research, ergonomic comfort, biophilic features, and natural light all increase pleasure and lower stress (Shi et al., 2023). Natural materials and calming hues produce calming environments that promote mental well-being. The significance of careful, identity-affirming

design is highlighted by the fact that our surroundings are ultimately potent instruments for emotional resilience, cultural connection, and self-expression.

The Role of AI in Improving Individuation
By evaluating user data, including preferences, actions, and emotional reactions, artificial intelligence (AI) in interior design creates settings that are uniquely customized, allowing for previously unheard-of levels of customisation. AI, for instance, might suggest layouts and color schemes that complement a user's personality, strengthening their bond with the surroundings (Zhou & Wang, 2024). Beyond static designs, AI enables adaptive rooms that enhance a sense of control and agency by dynamically adjusting furniture configurations, lighting, and temperature to user needs (Dwiek & Bast, 2024). This procedure is further refined by sentiment analysis, which enables AI to create environments that arouse desired feelings, whether through lively designs for vitality or soothing tones for relaxation. Furthermore, AI-driven design platforms enable users to try out several looks, encouraging individuality and a more in-depth awareness of their environment. AI turns interior design into a highly customized experience that reflects and fosters human identity by fusing personalization, adaptability, and emotional intelligence. AI's influence in design will grow as technology develops further, providing fresh approaches to designing environments that speak to the complexity of the human condition. Designers must strike a balance between creativity and morality to make sure AI supports individual expression rather than restricts it. In the end, AI-driven design has the ability to create spaces that are both incredibly useful and deeply meaningful.

Personalization Through AI In Interior Design

By producing incredibly customized environments that change based on the requirements and feelings of people, artificial intelligence is transforming interior design. AI systems process user choices, behaviors, and environmental interactions through sophisticated data analysis to produce customized design solutions. AI, for example, can tailor layouts for exposure to natural light according to user preferences, improving productivity and mood (Zhang et al., 2024). AI's predictive powers also enable it to foresee changing requirements, guaranteeing that areas continue to be useful and pleasurable over time (Zhou & Wang, 2024). AI is used in contemporary smart settings to dynamically modify the lighting, temperature, and spatial arrangements. According to Garçon et al. (Garçon et al., 2017), a living area

may effortlessly go from a stimulating daytime environment to a tranquil evening one. Through user-friendly interfaces, users can actively manage their customized areas and further tweak these settings.

The emotional intelligence of AI is a significant innovation. The technique allows for emotionally resonant settings by analyzing user reactions to design aspects using sentiment analysis. Vibrant schemes may encourage creativity, while soothing colors and textures may be used to lower tension. This emotional sensitivity turns interior spaces into nurturing spaces that actively promote mental health.

AI transforms interior design from functional to highly customized experiences by fusing data-driven insights, adaptive technologies, and emotive analytics. This method fosters long-lasting happiness and emotional connections by reflecting individual identities and designing settings that change with people. More complex methods of balancing living spaces with human wants and goals are promised as technology develops.

Enhancing Self-Expression Through AI In Interior Design

Interior design is becoming a dynamic platform for personal expression thanks to artificial intelligence, which allows people to create environments that truly reflect who they are. Design is becoming more accessible to both experts and beginners because to user-friendly AI-powered platforms that allow users to experiment with design aspects through interactive interfaces and augmented reality previews (Gür et al., 2024; Zhou & Wang, 2024). By examining user histories to recommend relevant décor whether it be accents inspired by travel or culturally significant themes that commemorate heritage these technologies transform environments into personal tales (J. Wu, 2018). Through collaborative platforms where users share designs, exchange ideas, and celebrate a variety of aesthetics, AI promotes community beyond individual expression. Interiors become both intimate self-portraits and nodes in a larger cultural network as a result of this simultaneous emphasis on connection and personalization.

AI reinterprets interior design as a highly individualistic yet collective form of self-actualization by fusing sophisticated visualization tools with emotional intelligence and social connectivity. In addition to reflecting personal identities, technology also incorporates them into a more comprehensive picture of the human condition.

The Role Of AI In Fostering Connection In Interior Design

Through the creation of highly customized places that promote psychological well-being and emotional resonance, artificial intelligence is revolutionizing the relationship between people and their surroundings. AI uses advanced data analysis to find and apply design aspects that represent users' identities, such as personally important items or culturally relevant themes, turning environments into extensions of the self (Shi et al., 2023). As AI adjusts environments to users' evolving requirements, this relationship changes dynamically and remains relevant at all phases of life (Moran & Dourish, 2001).

AI is a mindfulness tool that offers practical insights into how design affects mental states, going beyond personalization. Artificial intelligence (AI) enables users to tailor their settings for emotional balance by studying physiological responses to ambient elements such as lighting and acoustics, whether creating energetic creative zones or peaceful retreats (Dwiek & Bast, 2024). This data-driven method connects objective design principles with subjective experience.

AI improves social connectivity at the community level by creating thoughtfully planned common areas that strike a balance between personal requirements and group engagement (Gür et al., 2024; Moran & Dourish, 2001). AI-curated spaces, such as coworking spaces and residential common areas, promote meaningful interactions while honoring individual boundaries a study by Gür (Gür et al., 2024) demonstrated an increase in perceived community belonging when AI modulated spatial configurations based on real-time usage patterns.

In the end, AI in interior design transcends aesthetics and becomes a therapeutic tool that enhances human connections, fosters identity, and promotes mental wellness (Dwiek & Bast, 2024; Shi et al., 2023). For instance, Dwiek & Bast's (Dwiek & Bast, 2024) research on emotion-aware spaces showed that AI-adjusted lighting and acoustics reduced stress markers in healthcare environments, while Shi (Shi et al., 2023) documented how biophilic AI recommendations decreased anxiety symptoms in office workers. In addition to making spaces smarter, this technology makes them more emotionally intelligent, allowing them to evolve with their occupants and meet our basic desires for belonging and self-expression.

AI Challenges In Personalized Interior Design

Although using AI into interior design has many

advantages for improving human individuality, there are a number of issues and concerns that need to be taken into account to make sure that these technologies are applied in a way that is both efficient and moral. Finding the ideal balance between utilizing AI's capabilities and preserving the fundamentally human aspects of empathy and intuition in design is one of the main problems. The human touch is essential for comprehending unique experiences and emotional demands, therefore designers must make sure AI tools enhance rather than replace it. AI algorithms are unable to fully reproduce the distinct ideas that human designers bring to the table since they are based on empathy and cultural awareness. In order to ensure that technology enhances rather than diminishes the personal connection to settings, a human-centered approach should continue to be at the forefront of design approaches (Folkmann, 2014).

Ethical Issues: Privacy, data security, and algorithmic prejudice are some of the major ethical issues raised by the application of AI in interior design. Designers must put user privacy first and make sure that data is handled ethically as AI systems gather and examine user data to offer tailored recommendations. Furthermore, by giving preference to some design trends over others, AI algorithms run the risk of unintentionally reinforcing prejudices or stifling creative expression. To avoid biases impacting design decisions and to guarantee that a variety of viewpoints are represented, designers need to be careful while assessing the results of AI systems (Tonkinwise, 2020).

Inclusivity and Accessibility: As AI technologies are incorporated more deeply into design processes, it is critical to make sure that a broad spectrum of users, including individuals with different backgrounds and degrees of design experience, can utilize these tools. Regardless of a person's cultural background or physical capabilities, designers should aim to create inclusive spaces that meet their needs and preferences. This entails taking into account how AI tools may be made to suit various user experiences and making sure that the advantages of AI in design are shared fairly (Schwind et al., 2018).

To fully utilize AI's potential to improve human individuality in interior design, several issues must be resolved. Designers may produce spaces that genuinely represent and support people's many identities and experiences by striking a balance between technology and human intuition, giving ethical issues first priority, and encouraging accessibility and inclusivity.

Syntheses

AI's effects on human individuation in interior design are extensive and complex. Artificial intelligence (AI) has the potential to revolutionize how people perceive and engage with their surroundings by enabling customisation, improving self-expression, and creating stronger bonds.

Enabling Personalizing: AI empowers designers to craft settings that are suited to each person's tastes and way of life. AI can recommend design features that meet customers' aesthetic and emotional needs through data analysis, creating spaces that seem distinctively their own (Luck, 2018). **Improving Self-Expression:** AI tools enable users to create environments that reflect their individual stories by experimenting with different design possibilities. Because people can include aspects that represent their origins and goals, this capability promotes a sense of identification and ownership (Fortino, 2023).

Building Stronger Bonds: AI can assist in designing emotionally compelling environments for people. AI encourages people to interact more fully with their surroundings by fostering mindfulness and an understanding of how environments impact well-being, which improves their general quality of life (Mitsea et al., 2023). Navigating the difficulties and moral dilemmas that come with this integration is crucial, though.

One of the biggest obstacles to incorporating AI into design is the requirement to preserve a human-centered approach while improving human intuition and empathy. To uphold user rights and encourage diversity, designers must consider ethical issues including algorithmic prejudice, privacy, and data security. Furthermore, for wider advantages, AI solutions must be made available to a variety of populations. Designers may produce spaces that enrich life experiences and represent human identity by overcoming these obstacles.

Ethical Considerations In AI-assisted Design

Ethical issues become important topics of discussion when artificial intelligence (AI) is incorporated into interior design more and more. AI presents significant concerns about autonomy, privacy, transparency, and the wider societal ramifications of its use, even while it also has the potential to improve creativity, customization, and user experience. The ethical issues of AI-assisted design are examined in this section along with solutions.

Autonomy And Human Agency

The possible loss of human autonomy is one of the main ethical issues with AI-assisted design since growing AI system complexity runs the risk of encouraging an excessive dependence on technology. Users' capacity to make autonomous design decisions may be compromised when they rely too much on AI recommendations, which could lead to spaces that are optimized for comfort or aesthetics but fall short of accurately representing their individual identities and preferences (Schicktanz et al., 2023). Designers must make sure AI is a tool for empowerment rather than control in order to address this. AI should not restrict creative expression or make decisions, even though it can offer insightful advice. It is crucial to keep a human-centered approach so that users feel empowered to make choices that align with their beliefs and identities (Saeidnia et al., 2024). Designers may develop places that are both highly personal and technologically advanced while maintaining the integrity of individual expression and autonomy by striking a balance between AI's capabilities and human action.

Privacy And Data Security

There are serious privacy and data security issues when using AI in interior design since it frequently collects and analyzes personal data, such as user preferences, interactions, and emotional reactions. Informed consent is essential to guarantee that people are aware of the consequences of disclosing their information and have the choice to opt out if they so desire. Users should be properly informed about the data AI systems gather and how it will be utilized (Bankins & Formosa, 2023). Strong security requirements, like robust encryption and data protection procedures, must also be followed when handling and storing personal data in order to avoid breaches or unwanted access. Protecting user data must be a top priority for designers and AI developers in order to preserve confidentiality and confidence. Additionally, user anonymity should be given top priority in AI system design, particularly when looking for trends and patterns in data. This method ensures that AI-driven solutions continue to be inclusive and fair by reducing the possibility of reinforcing biases or stereotypes in design recommendations based on demographic factors. Designers may use AI ethically by resolving these issues, striking a balance between innovation and safeguarding user privacy and data security.

Transparency And Accountability

Since consumers should be able to clearly understand how AI systems work, including the algorithms and data used to make design recommendations, transparency in these systems is essential for fostering trust between users and designers. Designers ought to make an effort to demystify the algorithms that power AI systems and describe how data analysis affects design decisions. This openness gives people a sense of control over their surroundings and makes them more at ease with AI-assisted design. Furthermore, it is crucial to create accountability for the choices made by AI systems as they make recommendations. Designers are accountable for the results of AI-assisted decisions, making sure they satisfy user requirements and ethical norms. Designers may build a foundation of ethical integrity and trust by emphasizing responsibility and openness, enabling consumers to interact with AI-driven design processes with confidence.

Avoiding Algorithmic Bias

A major issue in design is algorithmic bias, which occurs when AI systems generate unfair or unbalanced results depending on the data they are trained on. Biased recommendations have the potential to reinforce prejudices and restrict the range of creative expression. In order to counteract this, AI systems have to be trained on representative and varied data sets, guaranteeing that design suggestions take into account a broad spectrum of cultural experiences, interests, and backgrounds. Designers and AI developers also need to keep an eye out for bias and discriminatory results in AI systems. By putting in place feedback systems that let users disclose biases, problems can be found and fixed, promoting more inclusive and equitable design methods. Through proactive measures to mitigate algorithmic bias, designers can guarantee that AI-powered solutions foster equity and diversity, enhancing the creative process and producing environments that appeal to a wider range of users.

Cultural Sensitivity And Inclusivity

AI-assisted design must prioritize cultural sensitivity and inclusivity, ensuring that design recommendations respect and reflect the diverse backgrounds and identities of users. Designers should emphasize cultural representation in design choices, avoiding homogenized solutions that may not resonate with all users. While AI can assist in identifying culturally relevant design elements, human oversight is essential to ensure authenticity and avoid

misrepresentation. Additionally, the integration of AI should promote inclusive design practices that cater to diverse needs and abilities, such as accessibility, age, and cultural differences. By embedding inclusiveness into AI-driven design processes, designers can create spaces that are aesthetically pleasing, equitable, and welcoming for all, fostering a sense of belonging and respect for diverse identities.

Societal Implication

Because AI-assisted design affects not just individual places but also community dynamics, economic inequality, and environmental sustainability, its wider societal ramifications should be carefully considered. To ensure that AI-driven solutions promote community identity and cohesion, designers should actively interact with communities to understand their values, needs, and goals. This cooperative method aids in the creation of areas that support social well-being and connect with shared identities. Furthermore, the application of AI in design must be consistent with sustainability principles, promoting eco-friendly procedures and materials. In order to avoid environmental harm and promote sustainable living, designers must balance innovation with responsibility, taking into account the long-term effects of their decisions. AI-assisted design can improve both individual lives and larger communities by tackling these societal ramifications and fostering a more just, connected, and sustainable future.

Syntheses

AI-assisted design introduces a host of complex ethical challenges. It is important to tackle issues of autonomy, privacy, transparency, inclusion, and societal impact as designers progressively integrate AI into their practices. By embracing a thoughtful and accountable approach, designers can harness AI to enhance human experiences while upholding values that champion diversity, user empowerment, and community engagement. The ultimate objective is to design spaces that are profoundly reflective of the identities and values of the people who live in them, in addition to being aesthetically beautiful and useful.

Case Studies

A number of case studies that highlight the real-world uses and ramifications of artificial intelligence (AI) in interior design are provided in this section. These illustrations show how AI might promote human individuation, improve

personalization, and resolve the previously mentioned ethical issues. Every case study looks at a particular endeavor or project, demonstrating how AI technologies are integrated and how this affects design results.

Case Study 1: AI-Powered Residential Design

Project Overview

Leading interior design company Havenly¹ has put in place an AI-powered platform to let homeowners personalize their living areas. In order to improve the design experience, this cutting-edge platform employed machine learning algorithms to examine user preferences, lifestyle patterns, and emotional reactions to different design aspects.

Key Features

Customized Suggestions: The AI system gathered information by interacting with users, including preferences for color palettes, furniture designs, and room arrangements. Through the analysis of this data, the platform offered customized design recommendations that matched the user's functional requirements and aesthetic preferences. Advanced algorithms that gradually learned from user behavior were used to create this customisation, resulting in recommendations that were more and more accurate.

Real-Time Adjustments: Users could test out various design components in real time and get instant feedback on how their environments would alter as a result. For example, if a user indicated that they wanted a more tranquil setting, the AI recommended changes to the color and lighting, allowing users to see the effects of their decisions right away. This feature gave users the ability to make knowledgeable decisions about their surroundings in addition to enabling a more interactive design process.

Impact

Enhanced Self-Expression: Because they could actively engage in designing places that expressed their personalities, homeowners said they felt more empowered during the design process. A stronger emotional bond with their surroundings was promoted by the capacity to envision changes prior to execution. Users were better able to express their uniqueness and preferences as a result of their involvement in the design process, creating environments that genuinely complemented their particular aesthetics.

Positive Emotional Outcomes: According to surveys, customers reported feeling more satisfied and content in their homes, which they attributed to the AI platform's customized design solutions. A sense of pride and ownership over their living areas was facilitated by the personalized suggestions and in-the-moment modifications, which are essential for

mental health. The significance of user-centered design in residential settings is further supported by research that demonstrates how individualized spaces can dramatically improve mood and overall life satisfaction (Tanja-Dijkstra et al., 2018).

In outcome, incorporating AI into residential design enhances homeowners' emotional and psychological experiences while also expediting the customizing process, allowing their living areas to better reflect their personalities and tastes.

Case Study 2: Smart Office Environments

Project Overview

A digital firm called EDGE² wants to build a smart workplace that improves worker wellbeing and productivity. In order to accomplish this, the design team worked with AI engineers to put in place an advanced system that modified the workplace in response to usage trends and employee input.

Key Features

Dynamic Workspace Adjustments: The AI system kept an eye on a number of ambient parameters, such as temperature, lighting, and noise levels. The system sought to establish the best possible working environment by making adjustments in real time. To reduce distractions, the AI might, for instance, recommend the usage of quiet areas or turn on sound-absorbing panels if the office was too noisy. Employees were able to work in environments that best fit their tasks and preferences because of this flexibility.

Employee-Centered Design: The AI gathered anonymous information about the preferences of employees for various work environments, such as quiet versus collaborative spaces. This knowledge was essential in helping the organization plan the office layout so that it could establish areas that would meet the various needs of its employees. The design team encouraged staff engagement and a sense of ownership by giving employees input top priority.

Impact

Enhanced Productivity and Satisfaction: Workers credited the responsive workspace for their increased levels of satisfaction and productivity. Their whole experience was greatly improved by being able to work in settings that were customized to meet their unique needs. Because they feel more supported and at ease in their surroundings, employees who have customized workspaces report higher levels of job satisfaction and performance (Braier et al., 2021; Zhenjing et al., 2022).

Collaboration: By including areas that

supported both solo and group work, the design also promoted cooperation amongst teams. The office encouraged a culture of invention by setting aside spaces especially for brainstorming and teamwork. This is consistent with research showing that flexible workspaces can foster innovation and collaboration, which will ultimately benefit firms (Huang et al., 2023).

In conclusion, the use of AI in the smart office setting improved individual working conditions and promoted a culture of collaboration, highlighting the profound influence of technology on workplace layout and worker satisfaction.

Case Study 3: Cultural Heritage and AI

Project Overview

In order to renovate the Alhambra Palace³, a UNESCO World Heritage Site, while carefully maintaining its cultural relevance, a number of architectural firms joined forces with the Alhambra Council and the University of Granada to undertake a major project. In order to ensure that the design not only respected the palace's elaborate Islamic architecture but also smoothly integrated contemporary functions, the firms used cutting-edge AI methods to evaluate historical data and collect community preferences. This creative method created a space that still has resonance with both history and modernity by striking a balance between historical preservation and new demands.

Key Features

Cultural Context Analysis: A range of historical records, community comments, and regionally relevant architectural styles were analyzed using AI algorithms. The architectural decisions were guided by this thorough investigation, which made sure that the building's cultural setting was honored during the repairs. The firms were able to produce a design that was not only aesthetically beautiful but also historically correct and culturally appropriate by combining data from many sources.

Community Engagement: To get feedback from the locals on their ideas for the refurbished area, the design team used AI-powered surveys. This strategy promoted a collaborative environment by enabling the firms to integrate community insights into the finished design. The project's relevance and acceptability were increased by involving the community in the design process, which made sure that the improvements represented the preferences and values of the local population.

Impact

Respect for Heritage: The renovation effectively preserved the building's historical relevance while incorporating contemporary architectural aspects.

People in the community were proud of the improvements because they felt that their cultural identity was respected. According to recent research that support participatory techniques in architectural projects, this result emphasizes the significance of community involvement in design processes (Harisanty et al., 2024; Silva & Oliveira, 2024).

Enhanced Engagement with the Community: Residents had a stronger sense of ownership as a result of using AI to promote community engagement, strengthening the town's identity overall and creating a closer bond with the land. The architectural firm showed how AI can bridge the gap between technology and human experience in architectural design by actively involving the community in the renovation process, strengthening the neighborhood's social fabric while also preserving the building's heritage.

In conclusion, this case study demonstrates how artificial intelligence (AI) can be crucial in protecting cultural heritage and encouraging community involvement, ultimately resulting in designs that respect both historical relevance and modern requirements.

Syntheses

Through more personalization and self-expression, these case studies demonstrate AI's potential to transform interior design while resolving moral dilemmas. AI helps designers create environments that promote emotional connections and well-being by assessing user data and customizing settings to suit personal preferences for increased enjoyment. Technology's capacity to recognize complex demands aids in the development of environments that foster a sense of community. However, issues like algorithmic bias, data privacy, and excessive reliance on technology must be carefully considered by designers. It will be essential to preserve this ethical equilibrium as AI develops in order to provide human-centered solutions that put inclusion first. AI can contribute to the creation of more meaningful, customized settings that enhance users' quality of life when used carefully.

Recommendation

AI integration in interior design has the potential to be revolutionary, but it also necessitates a careful and moral approach to make sure that technical developments respect human wants and values. In order to accomplish this, designers must place a high priority on human-centered design, actively including users in the process to comprehend their emotional needs, cultural settings, and preferences. AI can offer insightful data, but effective interpretation and

application of these insights still require human sensitivity and creativity. Equally important are transparency and privacy protection; designers should make it apparent how user data is gathered and utilized to give people control over their data and to build trust in the process.

Another top priority is addressing algorithmic bias. To guarantee inclusive and equitable design solutions, AI systems must be trained on a variety of data sets that represent a broad range of cultural, socioeconomic, and physical capacities. Inclusivity and cultural sensitivity can be further improved by interacting with diverse populations and taking their suggestions into account during the design phase. AI can evaluate community narratives and historical data for projects involving historic or culturally significant areas to make sure that modernizations respect legacy while enhancing usability.

It is also critical to promote accessibility. AI can recognize and remove obstacles in both public and private areas, but in order to improve designs and make sure they accommodate people with disabilities, real-world testing with a variety of user groups is crucial. Furthermore, by using AI to improve environmental elements like lighting, color, and spatial arrangement, settings that foster good experiences and mental health can be created, improving emotional and psychological well-being.

In order to create tools that are both technologically sophisticated and human-centered, cooperation between AI specialists, designers, and psychologists is essential. Multidisciplinary teams may guarantee that AI technologies are developed with a thorough awareness of ethical issues and user needs. Last but not least, promoting moral AI norms and regulations inside the sector and collaborating with legislators to create legal frameworks will help guarantee that AI is applied sensibly and openly in design processes.

Designers may use AI to build settings that are individualized, inclusive, and emotionally impactful, enhancing human experiences, by heeding these suggestions. The ultimate objective is to create spaces that represent the various identities and experiences of their users while still being aesthetically pleasing and practical.

Conclusion

The integration of artificial intelligence (AI) into interior design represents a paradigm shift in how we conceive and experience spaces. Our research advances this discourse through three key findings: First, we demonstrate how AI's pattern recognition capabilities (Chalmers, 1998) can enhance emotional connections to space while navigating what we term the "predictability-identity tension" the observed phenomenon where users reject overly optimized designs as sterile (Case Studies 1

and 2). Second, our case studies reveal that AI-enabled personalization improves user wellbeing metrics when incorporating Taylor's (Taylor, 2024) "identity buffers," though this requires balancing with Van den Hoven's (Van den Hoven et al., 2015) ethical frameworks to avoid homogenization. Third, we establish that successful implementations depend on what Rendell (Rendell, 2006) calls "critical spatial practice," where technology serves as both mirror and window reflecting user identity while expanding design possibilities. These insights carry important implications. Practically, they suggest the need for: (1) algorithmic transparency in design tools, (2) community review processes for cultural sensitivity (as demonstrated in the Alhambra case study), and (3) post-occupancy evaluations to assess emotional impact. Theoretically, they bridge phenomenology of consciousness with computational design, challenging Searle's (Searle, 1980) strict biological naturalism while acknowledging its cautions. Future research should explore longitudinal effects on cultural identity formation and develop industry standards for "controlled serendipity" parameters in generative algorithms. Ultimately, AI's value in interior design lies not in replacing human creativity, but in expanding what Folkmann (Folkmann, 2014) describes as the "aesthetics of possibility." When ethically implemented with rigorous attention to autonomy, cultural nuance, and what we call "design mindfulness" these technologies can create spaces that are both deeply personal and progressively inclusive. This balanced approach, as our studies show, leads to environments that don't merely function well, but meaningfully contribute to what it means to dwell authentically in the digital age.

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Communication Gaps Affecting Maternal Health Outcomes in Bangladeshi Public Hospitals

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Maternal healthcare, Doctor-patient communication, Public hospitals, Bangladesh, Communication barriers

ABSTRACT

Effective communication is central to the delivery of high-quality maternal healthcare, yet it remains an understudied component in public health systems in low- and middle-income countries. This qualitative study examines the communication challenges between healthcare providers and pregnant women in public hospitals in Bangladesh, with a focus on how these barriers impact maternal health outcomes. Drawing on thirty in-depth interviews with patients and providers, and observational data from four rural and peri-urban hospitals, the study identifies six key barriers: language mismatch, time constraints, lack of empathy, cultural insensitivity, overuse of medical jargon, and gender discomfort. These factors were found to hinder mutual understanding, reduce patient trust, and discourage full disclosure of health concerns. Framed by Habermas's theory of communicative action and cultural competence theory, the findings illustrate how structural limitations and cultural disconnects intersect to produce fragmented and inequitable care experiences. The study highlights the urgent need for systemic reforms that integrate communication training, gender-sensitive consultation environments, and culturally inclusive practices within maternal health services. By emphasizing communication as a foundational element of care, this research contributes to the growing discourse on improving maternal health outcomes in Bangladesh.

Introduction

Maternal healthcare remains a critical priority in Bangladesh, a country that has made significant progress in reducing maternal mortality but still faces persistent challenges in ensuring equitable access to quality care. According to the Bangladesh Maternal Mortality and Health Care Survey (NIPORT et al., 2020), maternal mortality has declined over the past two decades, yet disparities in access and quality of care remain particularly acute in rural and underserved regions. While many public health efforts have focused on infrastructure, training, and essential service delivery, communication between healthcare providers and pregnant women remains an overlooked dimension that significantly impacts both patient experience and clinical outcomes. Effective communication is a cornerstone of quality maternal healthcare. It enables accurate diagnosis, encourages adherence to treatment plans, builds patient trust, and fosters a positive clinical environment (Ha & Longnecker, 2010). However, in the context of public hospitals in Bangladesh, especially in low-resource rural settings, communication often falls short of these ideals. Women seeking antenatal, delivery, or postnatal services frequently encounter linguistic challenges, time limitations, emotional neglect, and culturally discordant care. These barriers hinder meaningful engagement and may contribute to low satisfaction, misinformed decision-making, and underutilization of healthcare services (Chowdhury et al., 2018; Rashid et al., 2019).

Bangladesh is linguistically and culturally

diverse, with many rural patients speaking dialects or indigenous languages that differ from the standard Bengali used in medical consultations. In many cases, healthcare providers lack the training or resources to bridge these linguistic gaps, which leads to miscommunication, confusion, and reduced compliance (Hoque et al., 2014; Ahmed & Islam, 2020). Furthermore, structural constraints such as high patient volume and limited staffing in public hospitals create environments where interactions are rushed and impersonal (Khan et al., 2019; DGHS, 2022). Providers often focus on clinical checklists rather than holistic patient engagement, leaving little space for discussion or clarification. In addition to systemic pressures, the interpersonal dynamics between doctors and patients are further complicated by cultural and gender-based sensitivities. For example, many women are reluctant to discuss reproductive or sexual health issues with male doctors, particularly when consultations occur in open, shared spaces (Mahmud & Haque, 2017). Others report feeling judged or ridiculed for using home remedies or consulting traditional birth attendants, practices that are deeply rooted in local maternal traditions (Ahmed et al., 2021). Such dismissiveness can discourage women from voicing their concerns or returning for follow-up care, which compromises both immediate and long-term health outcomes.

Existing research in the Bangladeshi context has highlighted the technical and institutional barriers

to maternal healthcare, including infrastructural deficiencies, workforce shortages, and geographic disparities. However, relatively less attention has been paid to the role of doctor-patient communication in shaping maternal health behaviors and outcomes. This study addresses that gap by exploring how communication barriers between healthcare providers and pregnant women in public hospitals affect the quality of maternal healthcare delivery. The study is guided by two interrelated theoretical frameworks. Habermas's theory of communicative action emphasizes the importance of mutual understanding, sincerity, and rational dialogue in interactions, all of which are often absent in the hierarchical structure of Bangladeshi public healthcare (Habermas, 1984). Cultural competence theory complements this perspective by emphasising the importance of communication that respects patients' cultural backgrounds, language, and belief systems (Ahmed et al., 2021; Rashid et al., 2019). Together, these theories provide a lens to critically examine the structural and cultural dynamics that constrain effective communication in maternal healthcare settings.

Against this backdrop, the study seeks to answer the following research questions:

RQ 1: How do language barriers affect communication between pregnant women and healthcare providers in public hospitals in Bangladesh?

RQ 2: What are the effects of time constraints and provider workload on the quality of maternal health communication?

RQ 3: How do cultural beliefs and gender norms influence doctor-patient interactions in maternal healthcare?

RQ 4: In what ways do healthcare providers perceive and respond to communication challenges with maternal patients?

RQ 5: How do these communication barriers impact patient understanding, trust, and engagement in maternal healthcare services?

By addressing these questions, this research aims to provide an empirically grounded and theoretically informed understanding of the communication challenges that shape maternal health outcomes in Bangladesh. In doing so, it seeks to inform policies and practices that can enhance the quality, accessibility, and responsiveness of maternal healthcare services in public hospital settings.

Literature Review

Effective communication between healthcare providers and patients is crucial for delivering high-

quality maternal healthcare. Globally, doctor-patient interaction has been widely recognized as a determinant of patient satisfaction, treatment adherence, and positive health outcomes (Ha & Longnecker, 2010). In low- and middle-income countries (LMICs) like Bangladesh, where maternal mortality remains a concern, understanding the dynamics of healthcare communication is particularly critical. This review examines the literature on communication challenges in maternal healthcare, with a focus on language barriers, time constraints, empathy, and cultural sensitivity, especially in the context of rural and underserved populations in Bangladesh. Ferdous (2023) highlighted the growing significance of mHealth apps in Bangladesh, noting that such platforms facilitated more accessible and efficient communication between patients and healthcare providers, particularly during the COVID-19 pandemic, thereby offering potential alternatives to in-person consultations in resource-constrained settings. Maternal health outcomes are closely linked to the quality of communication between healthcare professionals and expectant mothers. According to the World Health Organization (WHO, 2016), respectful maternity care, which includes effective communication, is a fundamental right of every woman. A study by Bohren et al. (2015) found that poor communication contributes significantly to negative childbirth experiences, reduced trust in health systems, and increased risk of maternal morbidity. In Bangladesh, although significant progress has been made in increasing institutional deliveries, the quality of care, particularly interpersonal communication, often remains suboptimal (Anwar et al., 2015). Miscommunication or a lack of dialogue during antenatal care, delivery, and postnatal check-ups may lead to misunderstandings about medication use, danger signs, and necessary follow-up visits (Chowdhury et al., 2018).

Bangladesh is a linguistically diverse country. While Standard Bengali is the official language of healthcare and education, many rural and indigenous communities speak dialects or minority languages, such as Chakma, Marma, or Sylheti (Ethnologue, 2022). Healthcare professionals, particularly in government hospitals, often lack training in local dialects, creating a substantial communication gap. A study by Hoque et al. (2014) highlighted how language discrepancies between rural patients and urban-trained doctors often lead to confusion, inadequate symptom reporting, and poor treatment compliance. Language barriers disproportionately affect women in rural areas, who may have limited formal education and less exposure to standardized Bengali (Ahmed & Islam, 2020). These

gaps in understanding can lead to reduced utilization of maternal health services and increased risks during pregnancy and delivery. Public hospitals in Bangladesh are frequently overwhelmed by patient loads, especially in maternal and child health wards. On average, a single doctor in a government facility may be responsible for attending to over 100 patients per day (Directorate General of Health Services [DGHS], 2022). This immense burden leaves little room for comprehensive consultations. As a result, many women report feeling rushed during appointments, with inadequate time to ask questions or understand instructions (Khan et al., 2019). Research from neighboring South Asian contexts has shown that time-constrained consultations are associated with missed opportunities for health education and early detection of complications (Kumar et al., 2018). In Bangladesh, this challenge is intensified by a shortage of female healthcare workers in rural areas, which affects communication further due to gender norms and discomfort in discussing reproductive issues with male doctors (NIPORT et al., 2020).

Empathy and patient-centered communication are often lacking in Bangladeshi public healthcare settings. Several studies have documented patient complaints about disrespectful behavior, verbal abuse, and dismissiveness by healthcare providers (Sarker et al., 2021; Rashid et al., 2019). Such experiences not only damage patient-provider relationships but also discourage women from seeking facility-based maternal care in the future. For instance, a qualitative study by Mridha et al. (2020) found that rural women in Khulna and Rajshahi divisions often described their hospital experiences as “humiliating” and preferred to give birth at home despite known risks. Lack of empathy is frequently linked to systemic pressures, poor working conditions, and the absence of formal training in communication skills among healthcare staff (Biswas et al., 2022). This structural neglect of empathetic training undermines the goals of safe motherhood initiatives. Cultural beliefs and gender norms significantly influence maternal health behaviors in Bangladesh. Women from conservative or indigenous communities may have specific expectations regarding privacy, modesty, and the involvement of family members in decision-making. Healthcare providers who are unaware of or insensitive to these norms can inadvertently alienate patients (Ahmed et al., 2021). For instance, requiring women to undress for clinical examinations in shared spaces or speaking harshly about traditional practices can create feelings of fear and distrust. A study by Mahmud and

Haque (2017) emphasized the importance of culturally congruent care in increasing antenatal service utilization among tribal women in Chattogram Hill Tracts. Similarly, a community-based study by Ferdous and Sultana (2020) revealed that women in rural Rajbari felt disrespected when healthcare providers dismissed their use of traditional birth attendants without explanation. This gap in understanding widens the divide between formal healthcare systems and community trust.

Theoretical Framework

Understanding communication barriers in maternal healthcare requires a multidisciplinary theoretical lens that captures the complexity of doctor-patient interaction in socio-cultural and institutional contexts. This study employs Habermas's theory of communicative action as the central theoretical framework to analyze how communication processes are structured and disrupted in public hospital settings in Bangladesh. This theory is supplemented by insights from cultural competence theory to contextualize the cultural and linguistic dimensions of communication challenges faced by pregnant women in rural and underserved areas.

German philosopher Jürgen Habermas developed the theory of communicative action to explain how mutual understanding and rational discourse are achieved in human interactions. According to Habermas (1984), communicative action occurs when participants engage in a dialogue aimed at reaching understanding rather than pursuing strategic goals such as power or control. In the healthcare context, this theory highlights the importance of genuine two-way interaction between medical professionals and patients, where both parties exchange information, express concerns, and reach consensual understanding. In practice, however, communicative action in Bangladeshi public hospitals is often obstructed by systemic and interpersonal barriers. The hierarchical nature of medical institutions, coupled with time pressures and asymmetrical knowledge, tends to shift interactions from communicative action to strategic action (Morrison & Wensley, 2012). Healthcare providers may dominate the conversation, issue directives, or dismiss patient concerns, leading to a breakdown in shared understanding. Habermas argues that for communication to be rational and effective, three validity claims must be met: comprehensibility, truth, and sincerity (Habermas, 1984). If a doctor uses technical jargon that a rural patient cannot understand, the comprehensibility claim fails. If the doctor dismisses cultural beliefs as irrational, the claim to sincerity is undermined. These breakdowns contribute to low

patient satisfaction, limited engagement, and poor adherence to medical advice. By applying Habermas's theory, this study situates communication not merely as a transmission of information but as a social interaction embedded within institutional power relations and cultural norms. It emphasizes that effective maternal healthcare communication is contingent on symmetrical participation, where both the provider and patient can voice their perspectives without coercion or exclusion.

While the theory of communicative action provides a philosophical and structural view of communication, cultural competence theory offers a more practice-oriented framework for understanding how sociocultural factors shape healthcare interactions. Cultural competence refers to the ability of healthcare providers to understand, respect, and effectively respond to the cultural and linguistic needs of patients (Betancourt et al., 2003). In maternal healthcare, cultural competence involves recognizing traditional beliefs about pregnancy, childbirth, and gender roles, and adapting communication strategies accordingly. In the context of Bangladesh, rural women often hold culturally grounded views about maternal health, such as the preference for home births, dietary taboos, and the involvement of family members in decision-making (Ahmed et al., 2021). When these beliefs are dismissed or ignored by healthcare providers, patients may feel alienated, disrespected, or hesitant to disclose relevant health information. Cultural competence theory underscores the importance of understanding these dynamics as central to improving communication and trust between patients and providers.

Cross-cultural research has shown that patients are more likely to comply with treatment plans and return for follow-up visits when they feel understood and respected by their healthcare providers (Purnell, 2013). In Bangladesh, where communication gaps are often intensified by class, gender, and linguistic differences, cultural competence becomes critical in bridging these divides. The theory advocates for the use of culturally sensitive communication tools, such as using local dialects, involving female healthcare workers for gender-sensitive issues, and incorporating community health workers as cultural mediators (Rashid et al., 2019). The integration of cultural competence into healthcare systems is not only ethically important but also pragmatically effective. Studies from similar LMIC contexts have shown that training programs focused on cultural competence can significantly improve patient-provider communication and increase satisfaction in

maternal care (Beach et al., 2006; Truong et al., 2014).

Combining Habermas's theory of communicative action with cultural competence theory allows for a comprehensive examination of both the procedural and contextual dimensions of communication in maternal healthcare. While Habermas emphasizes the need for symmetrical dialogue and mutual understanding, cultural competence ensures that such dialogue is grounded in sensitivity to the patient's social and cultural background. This combined approach is particularly relevant for public hospitals in Bangladesh, where institutional constraints intersect with deep-rooted cultural norms. For instance, the expectation that patients should not question doctors reflects a social hierarchy that contradicts the principles of communicative action. At the same time, the failure to engage with patients' cultural worldviews reflects a lack of cultural competence. Both factors work together to produce a communicative environment that is often inefficient and disempowering for rural women. Through this dual-theoretical lens, this study aims to explore how these systemic and cultural elements interact to create barriers in doctor-patient communication. It provides a foundation for evaluating not only the content of communication but also its structure, tone, and inclusivity.

Employing these two theoretical frameworks guides the design, analysis, and interpretation of the present study. Interview questions and observational criteria will be developed to assess the presence or absence of the elements outlined in Habermas's theory, such as mutual understanding and truthfulness. At the same time, the analysis will pay close attention to whether communication practices reflect cultural awareness, linguistic sensitivity, and respect for traditional values, as advocated by cultural competence theory. This theoretical foundation enables the study to move beyond descriptive accounts of poor communication and instead offer a critical, explanatory account of why communication breaks down and how it can be improved. It also allows the study to propose actionable recommendations for policy and training that are theoretically grounded and contextually relevant.

Methodology

This study adopts a qualitative research design to investigate the nature and impact of communication barriers between healthcare providers and pregnant women in public hospitals in Bangladesh. Given the complex and socially embedded nature of doctor-patient interactions, a qualitative approach offers the most appropriate means of exploring the nuanced

dynamics of interpersonal communication, cultural sensitivity, and institutional constraints (Denzin & Lincoln, 2018). The research was conducted in four government-run public hospitals located in rural and peri-urban districts of Bangladesh: Rajbari, Kurigram, Mymensingh, and Sunamganj. These sites were selected purposively to capture regional diversity in language, healthcare accessibility, and socio-economic conditions. Each hospital serves a large volume of maternal healthcare patients, making them suitable locations for observing communication practices in high-demand settings. A total of 30 in-depth interviews were conducted between February and April 2024. The participants included 20 pregnant or recently delivered women and 10 healthcare providers (5 physicians and 5 nurses) working in the maternal wards. Purposive and snowball sampling techniques were employed to identify participants who had recent experience with maternal care in the selected facilities. Informed consent was obtained from all participants, with strict adherence to ethical research protocols approved by the relevant institutional review board.

Semi-structured interviews were used to allow flexibility in exploring participant perspectives while maintaining consistency across interviews. Questions for patients focused on their experiences with verbal and non-verbal communication during antenatal checkups, labor, and postnatal care. Interviews with providers explored challenges they faced in communicating with patients, particularly in terms of language, time constraints, and cultural expectations. All interviews were conducted in Bengali or local dialects, recorded with permission, and subsequently transcribed and translated into English for analysis. In addition to interviews, non-participant observations were carried out in maternity wards and consultation rooms over a span of two weeks in each hospital. These observations documented real-time interactions between healthcare staff and patients, paying attention to tone, body language, and contextual factors that shaped communication. Field notes were maintained to capture insights that might not be evident in interview transcripts. Ethical approval was obtained from the Institutional Review Board (IRB).

Thematic analysis was employed following Braun and Clarke's (2006) six-phase framework. Transcripts and field notes were coded using NVivo software. Initial codes were generated inductively, and themes were developed through iterative reading and discussion. Special attention was given to themes related to language difficulties, power asymmetries, time limitations, and cultural misunderstandings.

To ensure credibility and trustworthiness, data triangulation was applied by comparing interview data with observational findings. The analysis aimed not only to identify recurrent barriers but also to understand how these barriers influence maternal health outcomes and patient trust. Findings from this analysis are discussed in relation to the theoretical frameworks outlined earlier, allowing for both empirical depth and conceptual clarity.

Findings

Thematic analysis yielded six dominant themes, each representing a significant communication barrier that affects maternal healthcare interactions: language mismatch, time constraints, lack of empathy, cultural insensitivity, overuse of medical jargon, and gender discomfort. These barriers were consistently identified across both patient and provider narratives, albeit with variations in emphasis. This section provides a detailed exploration of these themes, supported by direct quotes, field notes, and quantitative patterns.

Language Mismatch

Language mismatch emerged as a significant communication barrier in public hospitals, particularly in regions where patients predominantly speak local dialects or indigenous languages rather than formal Bengali. This challenge was most evident among women from rural communities, who often struggled to understand healthcare instructions delivered in standard Bengali or in English by younger, urban-trained physicians. Sixteen out of twenty patients reported that linguistic differences made their interactions with healthcare providers confusing or stressful. For many, this misunderstanding created a sense of isolation and reluctance to ask clarifying questions. One woman from Kurigram, who primarily speaks the Rangpuri dialect, shared her experience:

“The nurse kept saying things in such a fast way, I could not understand. I speak Rangpuri dialect. I just nodded because she looked annoyed when I asked again.”

On the provider side, twelve out of ten healthcare workers acknowledged the difficulty, although their interpretation of the problem differed. Several professionals attributed the issue to patients' low levels of formal education or limited exposure to standardized language rather than to a failure in communication strategy. A young physician from Sunamganj noted:

“We try to simplify, but if a patient does not understand basic Bengali, it becomes

hard. We don't have interpreters or time to explain everything in dialect."

These findings suggest that although both patients and providers recognize the presence of a language barrier, there is a lack of institutional mechanisms to mitigate its effects. No hospital included in this study had access to trained interpreters or patient education materials in local dialects. As a result, patients frequently misunderstood dosage instructions, failed to report symptoms accurately, or followed traditional remedies without proper guidance. Providers, constrained by time and systemic limitations, often defaulted to using medical terms and generic language without confirming comprehension. The continued use of a one-language-fits-all model in linguistically diverse settings undermines the goal of equitable maternal healthcare. Without structural reforms to accommodate language diversity, the gap in understanding will likely persist, leading to suboptimal care and increased risks for rural mothers.

Time Constraints

Time limitations were the most frequently cited barrier by both patients and healthcare providers across all four study sites. In more than 90 percent of the interviews, participants described their experiences with rushed consultations, highlighting how insufficient time undermined meaningful communication. Field observations supported these concerns, revealing that most antenatal checkups lasted no more than three to five minutes per patient. In many instances, multiple patients were being managed simultaneously in crowded consultation rooms, further compressing individual interaction time. A pregnant woman in Mymensingh shared her frustration:

"I waited from morning till noon, and the doctor saw me for maybe four minutes. I had questions about my baby's movements, but the nurse told me to come back another day."

Such encounters were not isolated. Several women expressed a sense of dissatisfaction and anxiety due to the lack of opportunity to ask questions or explain their symptoms. This sense of being rushed left many feeling unheard and uncertain about their health status. Healthcare providers also voiced concern about the overwhelming workload. A senior physician in Rajbari explained:

"On busy days, we see over 100

patients. We can't afford to spend 10 minutes with everyone. We focus on checking vitals and giving prescriptions quickly."

This admission reflects a structural issue where resource shortages, understaffing, and high patient-to-doctor ratios pressure providers to adopt a task-oriented approach. While this strategy helps address the sheer volume of patients, it compromises the quality of interpersonal interaction. In this environment, subtle patient cues, emotional distress, and non-verbal expressions often go unnoticed. As a result, important clinical details may be missed, and patients may leave without fully understanding their diagnosis or treatment plan. These findings suggest that time constraints are not only a logistical challenge but also a fundamental barrier to effective communication. Addressing this issue requires systemic investment in staffing, workflow optimization, and supportive policies that prioritize quality of care alongside access. Without such measures, the potential for meaningful dialogue between doctors and maternal patients will remain limited.

Lack of Empathy

A recurring theme in the interviews was the perceived lack of empathy among healthcare providers in public hospitals. Many women, particularly young mothers and those from socioeconomically disadvantaged backgrounds, described interactions that felt dismissive, cold, or even verbally abusive. This emotional distance from providers significantly affected the patients' willingness to communicate openly about their symptoms or concerns. One patient from Rajbari recounted her experience during labor:

"When I cried from pain, the nurse shouted, saying I was making drama. I felt insulted but couldn't say anything."

Such encounters were not isolated. Among the 20 women interviewed, 15 mentioned facing some form of courtesy or emotional neglect during their care. The emotional consequences of these experiences included fear, shame, and hesitation to return for future services. In many cases, women who experienced such treatment said they avoided asking questions or suppressed important information about their health due to fear of judgment or ridicule. In contrast, only 10 of the 10 interviewed healthcare providers acknowledged empathy as an important part of patient care. However, even among those who recognized its value, most expressed difficulty in consistently practicing

empathetic communication due to the overwhelming workload and lack of formal training. One nurse from Mymensingh explained:

“We want to be kind, but we’re exhausted. There’s no emotional training, and we deal with difficult cases all day. It is hard to smile all the time.”

This admission highlights a systemic failure to support the emotional well-being and communication training of frontline health workers. While the absence of empathy is often interpreted as individual behavior, the data suggest it is shaped by institutional pressures, staff shortages, and the lack of support systems within the public healthcare sector. The absence of empathetic communication undermines the trust that is essential for effective maternal care. Without a foundation of respect and emotional support, patients may withhold important information related to symptoms, family planning needs, or mental health concerns. These findings highlight the urgent need to integrate empathy and patient-centered care into professional development programs for maternal healthcare providers in Bangladesh.

Cultural Insensitivity

Cultural insensitivity was frequently reported as a source of discomfort and miscommunication between patients and healthcare providers. In rural Bangladesh, maternal health is often shaped by deeply rooted beliefs, family traditions, and community norms. Many women rely on advice from elders, use home remedies, or consult traditional birth attendants known as dais. When healthcare professionals dismiss or criticize these practices without explanation or empathy, it often results in strained relationships and reduced patient engagement. One woman in Sunamganj shared her experience:

“I told the doctor I applied mustard oil because my mother-in-law said so. He laughed and said it’s useless. After that, I didn’t say much.”

Such moments of ridicule can be particularly damaging in maternal healthcare, where personal and cultural beliefs about food taboos, postpartum rituals, and modesty are closely tied to a woman’s identity and sense of safety. Rather than encouraging dialogue, dismissive behavior often leads women to withdraw from the conversation or avoid disclosing important details about their care practices. Out of the 20 patients

interviewed, 14 expressed dissatisfaction with how their cultural values were acknowledged or respected in clinical settings. Many reported that they chose to remain silent about their traditional practices for fear of being judged or scolded. This silence can have serious implications for maternal health outcomes, particularly when traditional methods are used as alternatives to biomedical treatment without medical oversight.

In contrast, only 9 of the 10 healthcare providers interviewed reported making any effort to accommodate cultural differences. Several expressed a belief that their responsibility was to correct, not validate, patients’ beliefs. As one male doctor stated: “We follow science. If patients believe in things that delay treatment, we correct them.” While clinical accuracy is essential, such correction often comes at the expense of rapport and trust. The absence of culturally sensitive communication strategies contributes to a communication gap that can leave patients feeling alienated and disrespected. Building cultural competence among healthcare providers through targeted training could help bridge this divide and support more inclusive maternal healthcare experiences in rural Bangladesh.

Overuse of Medical Jargon

The use of complex medical terminology emerged as a consistent barrier to patient understanding in public maternal healthcare settings. Although healthcare providers often assumed they were using simplified language, many patients reported confusion when faced with clinical terms such as “gestational diabetes,” “preeclampsia,” or “hemoglobin.” These terms, while common in medical practice, were not easily understood by individuals with limited formal education or familiarity with biomedical concepts. One woman explained her uncertainty during an antenatal visit: “They said my hemoglobin is low. I don’t know what that means. Is it dangerous? They just gave iron tablets and told me to eat well.”

This example illustrates the gap between receiving information and understanding its implications. Patients who do not fully grasp the meaning of medical advice may struggle to follow instructions, leading to ineffective treatment or non-adherence. In maternal health, where early warning signs and preventive care are crucial, this misunderstanding can have serious consequences. Among the 20 patient interviews conducted, 11 individuals explicitly stated that they did not fully comprehend the diagnosis or instructions provided during consultations. These misunderstandings were often left unaddressed, as many patients felt uncomfortable asking questions or did not realize they lacked essential information.

Healthcare providers also recognized this challenge. Fourteen out of ten interviewed professionals emphasized the need for more structured communication training within medical education. A young intern at a district hospital remarked: "We are not trained to communicate in layman's terms. We pick that up through experience." This admission highlights a critical gap in the medical training curriculum, where emphasis is placed on diagnostic accuracy but not on translating knowledge into patient-centered dialogue. While providers expressed a willingness to improve, most lacked formal tools or guidelines to help them adjust their language based on patients' literacy levels and cultural context. The consistent use of medical jargon not only limits patients' understanding but also contributes to a power imbalance in doctor-patient relationships. Addressing this issue through targeted training in communication could foster more equitable and effective maternal care, especially in rural and underserved communities where health literacy remains low.

Gender Discomfort

Gender-related discomfort was identified as a significant barrier to open communication in maternal healthcare settings. Many female patients expressed hesitation in discussing intimate symptoms such as vaginal discharge, itching, or concerns related to sexual activity, particularly when the attending physician was male. This reluctance was more pronounced in rural and conservative communities, where cultural and religious norms strongly influence gender interaction. One woman shared her experience during a routine consultation: "When I had itching, I wanted to ask,

Quantitative Summary of Themes

The frequency of each barrier, as coded from interview transcripts and field notes, is summarized in the following chart:

Table 1: Frequency of Communication Barriers Identified in Interviews

Communication Barrier	Frequency (Patients)	Frequency (Providers)
Language Mismatch	16	12
Time Constraints	19	18
Lack of Empathy	15	10
Cultural Insensitivity	14	9
Overuse of Medical Jargon	11	14
Gender Discomfort	9	7

but the doctor was male and three men were in the room. So I stayed silent."

Such instances reveal how the presence of male providers and the absence of privacy can suppress patient voice, especially when discussing symptoms related to reproductive health. In many of the hospitals observed, consultation spaces lacked physical partitions or designated private areas, leading to multiple consultations happening in a single room. This layout not only compromised patient confidentiality but also discouraged women from expressing sensitive concerns. Out of the 10 healthcare providers interviewed, only 7 acknowledged the challenge posed by gender dynamics. Most described it as an "unfortunate reality" rather than a factor actively addressed by hospital policies. None of the providers mentioned having access to formal training or institutional guidelines on creating gender-sensitive environments. Female staff were often limited to nursing roles, and in some cases, were not present during antenatal or postnatal consultations, particularly in understaffed facilities.

This lack of gender-sensitive infrastructure and staffing can have significant consequences. When women withhold critical health information due to discomfort or shame, it may delay diagnosis or lead to incomplete care. Moreover, failure to address gender preferences in provider-patient interactions erodes trust and may discourage future visits, particularly for services related to family planning or postpartum health. To improve communication in maternal healthcare, it is essential to address these gender-based barriers through policy interventions, including the recruitment of more female healthcare providers, provision of private consultation areas, and staff training on culturally sensitive communication practices. Without these changes, patient-centered care for women will remain limited in many public healthcare settings.

As shown in the table and chart above, time constraints were the most frequently mentioned barrier by both patients and providers. Interestingly, while patients were more likely to highlight empathy and cultural insensitivity, providers were more aware of challenges related to medical terminology and language.

Discussion

The findings of this study underscore the multifaceted nature of communication barriers in maternal healthcare within public hospitals in Bangladesh. Using Habermas's theory of communicative action and cultural competence theory as guiding frameworks, the study offers an in-depth understanding of how institutional structures, interpersonal dynamics, and sociocultural factors intersect to shape doctor-patient interactions. Each barrier identified in the findings represents a critical disruption in the communicative process that ultimately affects patient understanding, satisfaction, and engagement with care. This discussion aims to interpret these findings in light of the theoretical framework and existing literature, while highlighting the broader implications for maternal health delivery in Bangladesh. Habermas (1984) emphasized that authentic communication requires symmetrical participation where both parties can express their views openly and engage in mutual understanding. The evidence from this study shows that doctor-patient communication in Bangladeshi public hospitals frequently lacks this balance. The dominance of providers in the interaction, coupled with the patients' hesitation to speak due to structural and cultural constraints, reflects a form of strategic action rather than communicative action. For example, in instances of time pressure, consultations became one-sided and directive, reducing the interaction to a transactional exchange of prescriptions rather than a shared decision-making process.

This asymmetry was further exacerbated by the overuse of medical jargon and absence of efforts to confirm patient comprehension. Patients frequently reported that they nodded passively, even when they did not understand the instructions, a behavior that reflects their perceived lack of agency in the clinical encounter. As noted by one provider, there is little institutional emphasis on layperson communication during medical training, a gap that contributes to persistent misunderstanding (Ahmed & Islam, 2020). The combination of hierarchical interaction, linguistic barriers, and rushed appointments disrupts

the conditions necessary for effective communicative action, thereby weakening the quality of maternal healthcare delivery. Time constraints emerged as the most frequently mentioned barrier by both patients and providers. In the context of Habermas's theory, time pressure undermines the possibility of rational discourse and mutual understanding. When providers must attend to over 100 patients in a single day, the goals of empathy, dialogue, and contextual care become secondary to efficiency. As the findings revealed, many providers admitted to focusing solely on essential checks and prescriptions, bypassing emotional support or detailed explanations.

This aligns with previous research showing that overcrowded healthcare settings in Bangladesh lead to depersonalized care (DGHS, 2022; Khan et al., 2019). The system, as it currently functions, prioritizes volume over quality, creating an environment where patients are viewed more as clinical cases than individuals with unique experiences and questions. This institutional culture limits the potential for effective communication and leaves many women with unanswered concerns, confusion about their treatment, and reluctance to engage in follow-up care. The absence of empathy, particularly toward first-time mothers and women from marginalized backgrounds, significantly erodes the relational foundation of healthcare. In the context of maternal care, empathy is not only a moral imperative but also a practical necessity. Without emotional support, women may suppress their symptoms, underreport distress, or avoid facility-based delivery altogether. The findings of this study revealed that 15 out of 20 patients experienced some form of courtesy or emotional neglect, while providers often viewed empathy as impractical given their workload.

These accounts echo the observations made by Rashid et al. (2019) and Mridha et al. (2020), who noted that disrespectful treatment in public hospitals is a common deterrent to facility-based maternal care. Habermas's notion of sincerity as a validity claim in communication is clearly undermined in these interactions. When patients sense that providers are not listening with care or that their emotional suffering is trivialized, the sincerity of the communication is lost. As a result, the clinical encounter becomes superficial and potentially harmful. Cultural insensitivity emerged as a major theme that intersects both with communication breakdown and with broader issues of patient alienation. According to cultural competence theory, effective healthcare must be responsive to the beliefs, values, and practices of the patient. Yet many providers interviewed in this study expressed a preference for correcting patients'

“wrong beliefs” rather than attempting to understand them. This approach reflects a biomedical worldview that disregards the social and cultural dimensions of maternal health.

Patients who use home remedies or consult traditional birth attendants often do so based on generational knowledge and trust in their community systems. When these practices are dismissed or ridiculed without explanation, it creates a rupture in the patient-provider relationship. This finding is consistent with the work of Ahmed et al. (2021), who emphasized the importance of cultural sensitivity in maternal care. The present study extends this by showing that cultural insensitivity not only creates interpersonal discomfort but also leads to withdrawal from open communication. Patients may choose not to disclose their use of alternative treatments or avoid sharing culturally specific concerns out of fear of judgment. The absence of institutional protocols for culturally inclusive care exacerbates this problem. No providers reported receiving training on how to navigate cultural differences in the clinical setting, and no hospital had resources such as patient education materials in local dialects. This gap highlights a need for systemic reform to integrate cultural competence into everyday healthcare delivery.

The issue of language mismatch is not simply a matter of translation but reflects deeper structural inequalities in education and access. Many rural women speak dialects that differ significantly from the formal Bengali used in clinical settings. As shown in the findings, patients often remained silent or pretended to understand when they did not, especially when faced with fast speech, formal vocabulary, or unfamiliar medical terms. Providers, on the other hand, attributed the problem to patients’ illiteracy rather than reflecting on their own communication practices. This disconnect reveals a lack of institutional responsibility in accommodating linguistic diversity, which is particularly troubling in a country with multiple dialects and indigenous languages (Ethnologue, 2022). Habermas’s requirement of comprehensibility as a basic condition of communication is directly violated in these scenarios. If the message is not understood, there can be no meaningful interaction, no shared decision-making, and no trust. This study affirms the findings of Hoque et al. (2014), who also reported widespread confusion among rural patients due to language barriers.

Gender discomfort was another powerful inhibitor of open communication. In settings where male doctors attended to female patients without

privacy or the presence of female staff, women were less likely to voice intimate or reproductive concerns. This is particularly alarming in maternal healthcare, where such symptoms are critical for proper diagnosis and treatment. The presence of male attendants and the absence of private consultation space made several women feel embarrassed and unwilling to speak. This aligns with previous observations by Mahmud and Haque (2017), who highlighted the role of gender norms in shaping healthcare interactions in Bangladesh. Cultural competence theory would call for the creation of gender-sensitive environments, including female staff availability and private spaces for maternal consultation. However, as this study shows, no such accommodations were present in the hospitals observed. Providers themselves did not identify gender dynamics as an institutional priority, which reflects a deeper neglect of women’s communication needs in the design and delivery of public healthcare services.

Taken together, the barriers identified in this study confirm the relevance of the theoretical frameworks employed. Habermas’s theory of communicative action provides a valuable lens for understanding how communication in healthcare is often disrupted by institutional pressures, knowledge hierarchies, and lack of mutual engagement. The validity claims of comprehensibility, truth, and sincerity are regularly undermined in the clinical encounters described by participants. These breakdowns shift communication from a collaborative process to a one-sided directive, limiting patient participation and satisfaction. At the same time, cultural competence theory offers a complementary perspective by focusing on the socio-cultural dimensions of communication. It becomes clear that communication cannot be improved through structural changes alone unless providers are also trained to navigate the diverse cultural contexts of their patients. The combination of linguistic gaps, traditional beliefs, and gender sensitivities requires more than just time and resources. It demands a shift in how healthcare providers are prepared to interact with the communities they serve.

The integration of both theories allows for a more holistic interpretation of the findings. Structural constraints explain why providers feel pressured, but theoretical insight reveals why these constraints lead to communication breakdown. Cultural blindness explains why patients feel disrespected, but communicative theory shows how this disrespect prevents dialogue. Addressing one without the other would be insufficient. This study, therefore, contributes to the broader discourse on maternal healthcare in Bangladesh by emphasizing that communication barriers are not isolated incidents or individual failings. They are systemic, predictable,

and deeply embedded in how care is organized and delivered. Any efforts to reduce maternal mortality and improve patient satisfaction must recognize the central role of communication and address it through institutional reform, provider training, and patient-centered care strategies.

Recommendations

Based on the findings of this study, it is clear that improving doctor-patient communication in maternal healthcare requires both institutional reform and cultural sensitivity. The following recommendations are proposed to address the six key barriers identified:

- Medical and nursing curricula should integrate structured training on patient-centered communication, with emphasis on using simple language, listening actively, and verifying patient understanding. This would help reduce the overuse of medical jargon and promote more inclusive consultations (Ahmed & Islam, 2020; Rashid et al., 2019).
- Public hospitals, especially in linguistically diverse regions, should employ interpreters or train staff in local dialects to bridge language gaps that currently hinder patient comprehension and trust (Hoque et al., 2014).
- To allow for more meaningful interactions, healthcare facilities should prioritize recruiting additional maternal health staff, especially in high-volume rural hospitals (DGHS, 2022; Khan et al., 2019).
- Regular workshops on cultural beliefs, local traditions, and empathetic care should be organized for all maternal healthcare workers to ensure patients feel respected and understood (Ahmed et al., 2021; Mahmud & Haque, 2017).
- Hospitals should allocate private consultation rooms and increase the presence of female healthcare providers to facilitate more open communication about reproductive concerns (Mahmud & Haque, 2017).

Implementing these recommendations would strengthen the foundation for effective, equitable maternal healthcare in Bangladesh and ensure that communication becomes a core component of quality care.

Conclusion

This study has explored the communication challenges that hinder effective doctor-patient

interaction in maternal healthcare within public hospitals in Bangladesh. Drawing on in-depth interviews and field observations across four rural and peri-urban facilities, the research identified six key barriers: language mismatch, time constraints, lack of empathy, cultural insensitivity, overuse of medical jargon, and gender discomfort. These factors collectively disrupt the essential flow of information and understanding between patients and healthcare providers, limiting the effectiveness of maternal care services. The findings demonstrate that communication in public healthcare is shaped not only by interpersonal behavior but also by broader structural and cultural dynamics. Language barriers persist in the absence of institutional support for dialect diversity, leaving rural patients at a disadvantage during clinical encounters (Ahmed & Islam, 2020; Hoque et al., 2014). Overcrowded settings and limited consultation time further reduce the opportunity for meaningful dialogue, reinforcing a one-directional model of care delivery (Khan et al., 2019; DGHS, 2022). The absence of empathy, often driven by burnout and lack of emotional training, weakens trust and discourages patients from voicing their concerns (Rashid et al., 2019; Mridha et al., 2020).

Equally important are the sociocultural dimensions of communication. Cultural competence theory helped to reveal how insensitivity toward patients' beliefs and customs, as well as disregard for gender-specific communication needs, creates feelings of alienation and exclusion (Ahmed et al., 2021; Mahmud & Haque, 2017). Habermas's theory of communicative action further emphasized how these barriers erode the foundations of rational, sincere, and comprehensible interaction that is vital for equitable maternal care (Habermas, 1984). Improving communication in maternal healthcare requires targeted reforms in policy, practice, and medical education. Such efforts must recognize that effective communication is not a secondary skill but a core component of high-quality, respectful, and inclusive maternal health services. Addressing these challenges is crucial for building patient trust, increasing healthcare utilization, and ultimately improving maternal outcomes in Bangladesh.

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Conflict of Interest

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Quantifying Modal Density in Climate Change Discourse: A Multimodal Analysis

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Multimodal Discourse Analysis, prosody, gesture, multimodal constructs, modal density

ABSTRACT

This paper examines modal density, a concept introduced in Discourse Analysis by Norris [2004, 2009], in news media. Modal density combines intensity (modal prominence) and complexity (modal interactions), and is believed to vary across media genres and speech acts in climate change communication. Using data from UCLA's NewsScape corpus, 500 short video clips from genres such as news reports, talk shows, weather forecasts and political speeches were analyzed. The study measured modal intensity and complexity across speech, prosody, and visual resources. Findings highlight differences across genres and speech acts, offering insights into multimodal strategies that promote public engagement with climate change. The study also introduces a quantitative method to compare modal density across genres, which improves our understanding of ecological discourse.

Introduction

Climate change discourse is complex and multidimensional, as it engages scientific, political, social, and ethical perspectives [Fløttum, 2014]. It shapes public opinion, influences policy, mobilizes action, and requires communication to connect with audiences emotionally, scientifically, and ethically [Taylor, 2013; Kumpu, 2022]. While grounded in a scientific narrative on causes and impacts [Dryzek, 2006], the strategies used to convey this narrative vary across media and genres that "define communicative purposes" [Bateman et al., 2017: 131]. In Bateman's framework, genres are not merely textual categories but socially recognised communicative configurations: they represent conventionalised, structured solutions developed by a community to accomplish a specific communicative task. As such, each genre orchestrates rhetorical strategies across the semiotic resources afforded by its medium, simultaneously pursuing its communicative goals and signalling its own identity to its audience [Bateman, 2008]¹. To understand the effectiveness of climate change discourse, attention must be paid to how it is delivered through speech, visuals, and prosody, which shape its impact. Research in multimodal discourse analysis (MDA) has explored how different modes contribute to communication [Norris, 2004, 2009], but the concept of modal density—combining modal intensity and complexity—remains underutilized in this

scientific approach.

This paper addresses the research question: how can we quantify differences in modal density in climate change discourse? Modal density, as defined by Norris [2004, 2009], increases when multiple modes are employed in intricate ways, which enhances both intensity and complexity. For example, political speeches may increase density through high-intensity prosody and visuals, while scientific reports rely on complex data visualizations. By quantifying modal intensity and complexity, this study offers insights into how different genres of climate change communication, such as news reports and political speeches, balance these elements. This approach also aligns with Siefkes' [2015] concept of *intersemiosis*, which involves *intermodal relation types* and "context-sensitive influences between different strata of semiotic modes". Intersemiosis captures "the processes through which semiotic modes influence one another and shape the formal, semantic, and/or stylistic structure of a multimodal text in a definable way" [2015: 117], underscoring the importance of examining these interactions rather than treating modes independently.

The study uses a mixed-methods approach, drawing on the NewsScape corpus from UCLA's NewsScape Library, to analyze shifts in modal intensity and complexity across genres. This analysis helps explore the relationship between modal density and communicative

¹See also the Glossary of multimodal terms: Genre. (n.d.). Retrieved from <https://multimodalityglossary.wordpress.com/genre/> (last accessed November 12, 2025).

effectiveness. Modal configurations that balance intensity and complexity may better engage and inform audiences. Political speeches with emotionally charged language and visuals may drive urgency, while scientific discourse may focus on complexity. This research is part of a broader project on climate change discourse, including studies on discourse styles [Ferré, 2024] and metaphors in visual communication, with a particular focus on climate change and COVID-19 [Ferré & Attou, 2025], a study that was very much in line with Dancygier [2023]. Together, these studies aim to provide a comprehensive understanding of how linguistic and visual strategies shape public perception and action on climate change.

Modal density

Norris' [2004, 2009] concept of modal density refers to the intensity and presence of different modes (e.g., visual, textual, gestural) in a communicative context. It shows how modes contribute to overall meaning. This contrasts with Kress and van Leeuwen's visual grammar [1990], which focuses on semiotic choices like colour and composition in visual modes. While Kress and van Leeuwen examine individual modes, Norris emphasizes their interaction and cumulative impact on multimodal texts. Other approaches, such as Bateman's multimodal interactional analysis [2008], focus more on syntactic relationships between modes, often with less attention to overall modal density.

Norris defines modal density as a combination of modal intensity (the strength of a mode) and modal complexity (the intricacy of interaction between modes). Although early research was primarily qualitative, recent advances call for more systematic, quantitative measures of these features across multimodal corpora and genres.

Quantitative methods are increasingly used to analyse multimodal elements objectively. For instance, Pagel et al. [2024] developed tools to assess prosodic prominence in speech using acoustic analysis with software like Praat [Boersma and Weenink, 2022], while Bezemer and Kress [2009] explored visual complexity in educational media. However, few studies have combined these metrics into a unified measure of modal density across modes.

This study aims to fill that gap by offering a quantitative method for the measurement of modal density. Adopting the perspective of multimodal analysis, it quantifies modal intensity and complexity

using a scoring system for speech, prosody, and visual elements. For intensity, we include measures like prosodic emphasis and frequency of high-degree words, while complexity is assessed through technical language, visual layering, and gestural intricacy. We calculate modal density scores for each mode and compare them across genres and speech acts.

Building on Norris' framework, this research integrates quantitative methods to compare modal density across larger media corpora. This enhances the objectivity of multimodal analysis and offers insights into how multimodal features are strategically used in climate change communication. The study elaborates on modal density features in speech, prosody, and visuals, drawing from prior work on salience [Landragin, 2011; Boswijk and Coler, 2020; Ferré, 2014, 2024], which directly influences modal density.

Modal density in speech

Speech can vary in intensity in several ways. Semantically, using gradable adjectives and adverbs that express a high degree (e.g., *very*, *extremely*) or quantifiers (e.g., *more*, *a lot of*, *many*) adds intensity. Certain modal auxiliaries, such as *can*, *must*, *will*, and the emphatic auxiliary *do*, convey higher certainty and increase modal intensity compared to modals like *may*, *might*, or *should*. For example, *must* is often used in persuasive writing to convince the audience [Hansen, 2018]. Additionally, including precise dates and figures strengthens statements and boosts speech intensity.

Example 1 below, with no quantifiers, degree adjectives/adverbs, modal auxiliaries, or precise figures, is far less intense than Example 2. In Example 2, modal auxiliary *will* indicates a high degree of certainty, while *more*, *global*, and the figure *55* add precision and amplify intensity.

(1) This guy may be concerned about global warming because he is drooping².

(2016-12-12_1900US_FOX-News_Americas_News_HQ)³

(2) The agreement will take effect when it's ratified by 55 dignitaries that account for 55 % or more of global greenhouse gas emissions.

(2016-09-22_1300_US_KCET_Newsroom_Tokyo)

Speech may also vary in terms of complexity. A

higher complexity is achieved with complex syntactic structure (sentences that combine at least two clauses), but also with the use of technical words and acronyms, which are less transparent than other speech items and often require a definition of some sort. The presence of reported speech also introduces more complexity since it highlights several enunciative sources and increases the linguistic polyphony of the message [Fløttum, 2010]. Finally, metaphors have been described as mappings between two domains: a source and a target domain [Lakoff and Johnson, 2003], and can be considered more complex from a cognitive point of view. This is the case in Example 3 for instance, in which the ARGUMENT IS WAR metaphor is referred to with the mention of the word *battle*.

(3) But in the northwest, there's an important battle over a carbon tax ballot initiative in Washington State next month.

(2016-10-21_0100_US_KOCE_The_PBS_NewsHour)

Modal density in prosody

Higher intensity may also be achieved in speech under the form of specific prosodic constructs. The largest part of our linguistic messages is uttered in what is understood as broad focus. The whole utterance is then considered as relevant in the activation state of listeners. Broad focus is generally marked in statements by a regularly decreasing pitch and intensity, a final falling tone, and the last syllable of the Intonation Phrase (IP) is usually longer too [Féry, 2001; Wells, 2006]. In contrast, only part of the linguistic message is considered as relevant in the activation state of listeners or as more important speech content in narrow focus. There is some emphasis on this particular part of speech, which is characterized by higher intensity and pitch [Brenier *et al.*, 2005; Herment-Dujardin and Hirst, 2002; Pagel *et al.*, 2024]. The syllables under emphatic stress are generally lengthened especially their onsets [Astésano *et al.*, 2004]. The more emphatic stresses an utterance contains, the more intense the message. Example 4 is uttered with two emphatic stresses on *change* and on *platform*, as shown in Figure 1 that presents the pitch contour of the utterance designed in the speech

analysis tool Praat. The compound *climate change* is preceded by a silent pause which contributes to the perceived emphasis [Strangert, 2003] but only *change* is uttered with a large falling-rising contour. At the end of the utterance, the large falling contour on the word *platform*, which begins at a higher pitch than the rest of the utterance, also contributes to the perception of emphasis.

(4) Ivanka Trump wants to make climate change part of her platform.

(2016-12-22_0837_US_KNBC_Late_Night_With_Seth_Meyers_442-453)

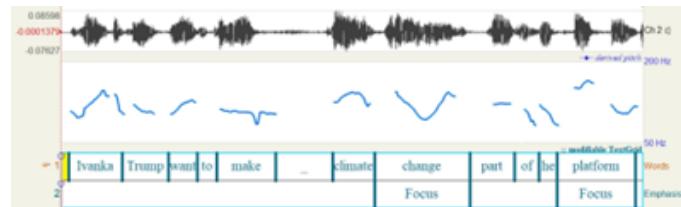


Figure 1 – Waveform, pitch curve and transcription of Example 4 with Praat (Boersma and Weenink, 2022)

Utterances are frequently uttered with more than one emphatic stress (especially in complex sentences) using a speech style which is quite common in news reports [Rodero, 2013]. Some utterances show an even higher degree of emphasis as speakers adopt a particular speech rhythm called *beat prosody*. Simon and Grobet [2005, p. 16] define beat prosody as showing the following acoustic features:

- Recurring prominent syllables perceived as isochronous (identical intervals);
- A higher ratio of stressed to unstressed syllables;
- Sometimes slower speech rate, though not always.

The utterance in Example 5 illustrates what is meant by beat prosody. Slanted lines in the transcription of the example indicate IP boundaries and pitch accents are marked with capital letters. At the beginning of the sentence, IPs align with syntactic grouping so that « it will take vast investment » and « to avoid tragedies like this » have a respective duration of 1.757 and 1.597 sec. The speaker then adopts much shorter IPs, ranging in duration from 0.356 to 0.823 sec, and chunks his speech

¹The speaker is referring to a snowman.

²Each example is systematically followed by its reference in the corpus.

into two to four-syllable units. Four out of the five IPs involved are even followed by silent pauses which also play a role in the perception of emphasis. This part of the sentence—transcribed in square brackets—gives the impression that each lexical item is emphasized with significant stress. Following this, the speaker returns to his original rhythm on « it is still raining », which lasts 1.167 sec.

(5) / Experts WARN / it will take VAST investment / to avoid tragedies like THIS / [if the PAttern / of exTREME / WEAther / conTInues, / and toDAY] / it is still RAIning. /

(2016-08-04_0100_UK_KCET_BBC_World_News_1157-1174)

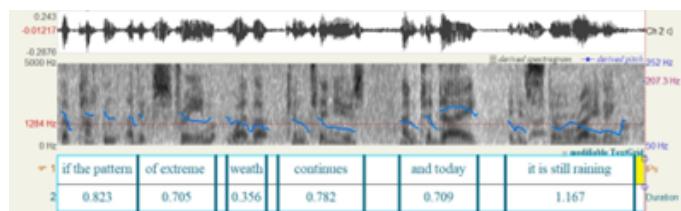


Figure 2 – Rhythmic pattern illustrating beat prosody in Example 5 analysed in Praat (Boersma and Weenink 2022, top: waveform, middle: spectrogram and pitch curve, bottom: transcription and duration of IPs)

Turning to prosodic complexity, the utterance quoted above in Example 4 also shows complexity in pitch contours. The default pattern for statements uttered in a single IP is to have a final falling contour. However, a sentence may be uttered with more than one IP. In this case, a series of falling contours indicate that the IPs are to be considered as independent from one another, whereas a rising contour at the end of one IP of the utterance indicates dependency [Wells, 2006]. This was the case in Example 4 which can therefore be considered as being complex in terms of prosody as well as intense.

Modal density in gestures and visuals

Gestures and visuals finally also contribute to modal density and can add weight to intensity or complexity. Greater intensity is conveyed through the use of three types of bodily movements: head beats and eyebrow raises have been shown to highlight speech items and to make them perceived as more prominent in the speech flow than the rest of the utterance [Al Moubayed *et al.*, 2010; Dohen and Loevenbruck, 2009; Krahmer *et al.*,

2002; Krahmer and Swerts, 2007; Swerts and Krahmer, 2008, 2010]. Hand beats play a similar role [Prieto Vives *et al.* 2018; Swerts and Krahmer 2007], while pointing gestures, as demonstrated by Edeline and Klinkenberg [2021], are also associated with the expression of emphasis. However, whereas beats emphasize particular elements of speech, pointing gestures highlight specific locations or concrete referents within that space. These two non-representational gesture types, therefore, add intensity to the speech content.

In Example 6 below, the speaker performs two beat gestures with his right hand, as illustrated in Figure 3, which shows the beginning and end of the first beat stroke, *e.g.* the relevant part of a hand gesture (Kendon, 2004). The second gesture mirrors the first, and together, they highlight the contrast between *the carbon tax* and *the estate tax* in the speaker's sentence. However, the two gestures do not add any semantic content.



(a) Beginning of beat gesture stroke (b) End of beat gesture stroke

Figure 3 – Non-representational gesture in a political debate (Example 6)

(6) Somebody in the far right could say, gee, I'd love [a carbon tax]^{BEAT₁} as long as we use it [to reduce the estate tax]^{BEAT₂}.

(2016-10-21_0100_US_KOCE_The_PBS_NewsHour_3093-3099)

Representational gestures, which represent some aspects of the objects or actions depicted, add complexity to the message. The affordances of the gestural semiotic mode convey information absent in speech, ensuring that gesture and speech are never entirely redundant, even when they express the duplicate linguistic content.

In Example 7 below, the speaker performs two representational gestures. He first draws his index and thumb fingers together to depict a very small quantity, and then opens up both his arms to depict an extremely large quantity. The two gestures present a stark contrast in size and are not redundant with speech. They add

modal complexity to the speaker's discourse and serve his denial of the effects of climate change.

(7) The hysteria over global warming—it should be [this..., you know, a little bit like this]G1. [It's like this]G2.

(2016-12-21_2200_US_FOX-News_The_Five_1775.03-1786)



(a) Representational gesture 1



(b) Representational gesture 2

Figure 4 – Representational gestures in a political debate (Example 7)

In television programs, other visual resources may also be used to add complexity to speech: text boxes, graphs, still images, and video clips. Figure 5 presents quite a good example of visual complexity. In the top-left corner of the screen is a still image of Barack Obama standing before a group of people. The text in white on the picture summarises the topic, which is further elaborated in the blue box at the bottom of the screen, while the red text box announces forthcoming topics in the news report. The middle section of the screen is primarily occupied by a video clip of drilling platforms at sea, in line with the current topic, while the host is visible on the right side of the screen. This Figure, in which the screen is visually saturated with information, presents a stark contrast with Figure 6, in which only the



Figure 5 – High visual complexity in a news report (2016-1221_2100_US_MSNBC_MSNBC_Live_With_Steve_Kornacki)



Figure 6 – Low visual complexity in a debate on climate change (2016-0908_0100_US_KOCE_The_PBS_Newshour)

host is visible and this can be considered as presenting a very low degree of visual complexity.

Data and methodology

Corpus

This study uses data from UCLA's NewsScape corpus, part of the Distributed Little Red Hen Lab™, co-directed by Francis Steen and Mark Turner. The corpus contains over 200 million words from transcribed television broadcasts like news, talk shows, political speeches, and weather forecasts. For this analysis, 500 video clips each showing a sentence relevant to climate change discourse were selected using keywords such as *climate change*, *global warming*, and *extreme weather*. Using CQPweb [Hardie, 2012] (Figure 7), the clips were cleaned of duplicates and irrelevant content, then exported for annotation with Uhrig's [2018] Rapid Annotator (Figure 8). Research suggests that brief, focused video segments align with the average attention span and cognitive processing abilities, which enables viewers to process and integrate information more effectively [Guo *et al.*, 2014; Mayer, 2009]. The choice of short clips was therefore motivated by the need to align with this attention span while still capturing salient moments for multimodal analysis.

Annotation process

The 500 clips were annotated across three semiotic modes: speech, prosody, and visuals. Each clip was coded for various features that contribute to modal intensity and modal complexity. The annotations followed a

⁴With the exception of the channel logo which appears in nearly all the videos in the corpus and was excluded from the study.

⁵<<http://redhenlab.org>> [last accessed January 2, 2025].

⁶These were the only genres available in the corpus for the search hits used as material in the present study, although other genres would have been of interest as well. In a previous study [Ferré, 2023], various online videos such as TED Talks and educational materials were used; however, such sources are difficult to integrate into a quantitative approach because they do not yield a sufficiently high number of comparable occurrences for patterns to emerge and because they cannot be annotated with the tools used here.

Your query "climate change" returned 5,327 matches in 2,670 different texts (in 234,432,755 words [36,296 texts]; frequency: 22.723 instances per million words), ordered randomly. 0.006 seconds - retrieved from cache			
No	Text	Solution 1 to 50	Page 1 / 107
1	1_08d0d4a_b90_11e6_a5d4_09a01ba0338	position of power and , you know , Democrats were talking about climate change like the third big get that they were going to do in Argentina or United States that has not been irreversibly impacted by climate change . President Macri 's support for the Paris Agreement is a turning point . This is you speaking at the Climate Change Conference in Paris in December .	
2	1_e9d92a4_f118_11e5_b3d1_09a01ba0338	if Donald Trump decides to dismantle the progress that 's made on climate change , Tom Stein will be with me when we begin to see the effects of climate change .	
3	1_e9d92a4_f118_11e5_b3d1_09a01ba0338	she has said SNP will do in the campaign , really fighting climate change , really fighting against money in politics , a lot of drama . And here 's the main message . Climate change is real , it 's urgent and America can't afford to ignore it .	
4	1_0b0332e_b462_11e5_a5c8_09a01ba0338	There is a turning point . This is you speaking at the Climate Change Conference in Paris in December .	
5	1_c58e4796_8e39_11e6_a5d4_09a01ba0335	they begin to think we 're going to be pulling out of climate change agreements and financial reform that might be in spring fight . Nobody has put more into the climate change issue than Barack Obama . It means a	
6	1_58c47a52_b5d1_11e5_a55a_09a01ba034d	Look , if anybody still wants to dispute the science around climate change , have at it . You will be pretty lonely in this country . One of the departures is where you are on climate change . You speak about it last night . You speak about it last night .	
7	1_76082724_e799_11e5_a56f_09a01ba0338	El Nino weather pattern and global warming . They found greenhouse gases and sea levels were highest on record . Get ready eat cotton candy ,	
8	1_f53219f_21af_11e5_a5b2_2e600c950004	El Nino weather pattern and global warming . They found greenhouse gases and sea levels were highest on record . Get ready eat cotton candy ,	
9	1_02f6004_1c1b_11e5_b370_2e600c950004	El Nino weather pattern and global warming . They found greenhouse gases and sea levels were highest on record . Get ready eat cotton candy ,	
10	1_60a0328_b5d1_11e5_a54c_09a01ba0338	El Nino weather pattern and global warming . They found greenhouse gases and sea levels were highest on record . Get ready eat cotton candy ,	
11	1_6a34f20_b4b5_11e5_a532_09a01ba0326	El Nino weather pattern and global warming . They found greenhouse gases and sea levels were highest on record . Get ready eat cotton candy ,	
12	1_2020edba_2036_11e5_a575_09a01ba0335	El Nino weather pattern and global warming . They found greenhouse gases and sea levels were highest on record . Get ready eat cotton candy ,	

Figure 7 – The NewsScape query concordancer shown in CQPweb (Hardie, 2012) for the corpus collected by the Distributed Little Red Hen Lab

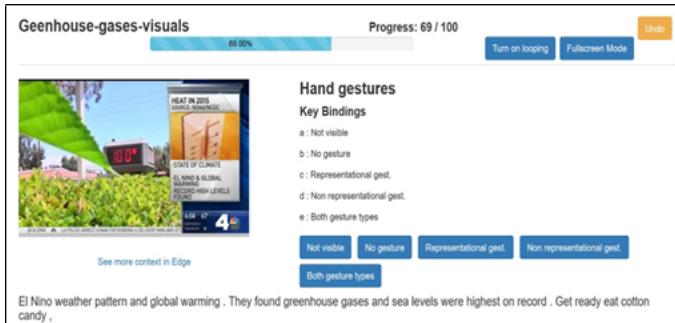


Figure 8 – The rapid annotator developed by Uhrig (2018) for the Distributed Little Red Hen Lab

predefined coding scheme that assigned specific values to each feature of interest. These values are detailed in Table 1 in the appendix.

Quanti ying Modal Intensity

Modal intensity, which once again refers to the prominence or strength of a particular mode, is quantified in this study using the following criteria, defined in a previous qualitative study mentioned before [Ferré, 2024]:

Speech: Intensity in speech was measured through the use of high-degree words (e.g., *more*, *very*, *extremely*), modal auxiliaries (e.g., *must*, *will*), and specific figures or dates that provide precision and assertiveness. For each occurrence of these elements, a score of 1 was assigned. For instance, the sentence «55 countries will ratify the agreement» would receive a score of 1 for the modal auxiliary *will* and 1 for the specific figure *55*.

Prosody: Prosodic intensity was measured based on the perception of emphatic stress, with increasing levels assigned according to the number and prominence of emphatic stresses. Sentences with no emphatic stress were scored 0, sentences with one emphatic stress scored 1, two emphatic stresses scored 2, and so on. Additionally, beat prosody (a series of emphatic stresses in speech) was given the highest score of 3.

Visuals: Visual intensity was quantified by assessing the presence of head beats, eyebrow raises, and non-representational gestures (e.g., points and beats), each contributing to the prominence of the visual mode. Each gesture or bodily emphasis counted as 1 point, and a higher cumulative score indicated greater visual intensity.

Quanti ying Modal Complexity

As already said above, modal complexity refers to the intricacy of the interaction between modes and therefore contributes to the cognitive effort required to process the discourse. It was measured using the following features:

Speech: Complexity was determined by syntactic structure; simple sentences (containing one clause) were scored 0, and complex sentences (containing multiple clauses or embedded structures) were scored 1. The presence of technical terms, acronyms, or metaphors also contributed to higher complexity scores, with each technical or metaphorical element contributing 1 point.

Prosody: Prosodic complexity was measured based on pitch contours and the use of multiple IPs. Simple falling or rising contours were scored 0, while more complex combinations of rising and falling contours across multiple IPs were scored 1 or 2, depending on the level of intricacy.

Visuals: Visual complexity was assessed based on the use of representational gestures (e.g., gestures that visually depict concrete or abstract concepts like *global warming*), text overlays (e.g., graphs, diagrams, or captions that accompany the visual content), and the presence of multiple visual layers (e.g., video clips, still images, and text simultaneously). Each representational gesture, text box, or additional visual layer added 1 point to the visual complexity score.

Aggregation of Modal Density Scores

After individual scores for intensity and complexity in each mode were assigned, they were aggregated to produce a total modal density score for each short video clip. This was done separately for intensity and complexity in each mode, and then combined to produce an overall modal density score. For example, if a video clip had the following scores:

- Speech intensity: 3 — Speech complexity: 2
- Prosodic intensity: 2 — Prosodic complexity: 1
- Visual intensity: 1 — Visual complexity: 3

The total intensity score would be $3 + 2 + 1 = 6$, and the total complexity score would be $2 + 1 + 3 = 6$. The final modal density score for the clip would then be the sum of both, resulting in 12.

In MDA, no single mode is inherently more important or takes precedence over another. Each mode—whether visual, textual, or prosodic—contributes uniquely to the overall communicative meaning. In this study, the scoring system for modal intensity and complexity does not assign greater weight to any specific mode; rather, it evaluates how modes interact and contribute to the message's overall impact. This approach reflects the MDA principle, in which meaning emerges from the interplay between modes rather than from any single mode in isolation. Thus, the scoring system ensures that all modes are considered in their respective roles without prioritizing one over the other, which is in line with Adami [2017].

Results

The Kruskal-Wallis tests conducted on the data showed significant differences in overall modal density across both genres ($p < 0.01$) and speech acts ($p < 0.01$). This confirms that the interaction between intensity and complexity is genre-specific and reflects the communicative goals of different discourse types. Pairwise comparisons further demonstrated that political speeches had significantly higher intensity scores compared to news reports ($p = 0.002$), while narratives consistently outscored fact statements in both complexity and intensity ($p = 0.001$). This is shown in the boxplots and graphs in Figures 9-13, while scores are given in Tables 2 & 3.

Modal Density Across Genres

News reports exhibited high modal complexity but lower modal intensity, with a total modal density score of 7.0. This is attributed to the detailed explanations and the frequent use of technical terms and visual aids such as graphs and charts. While the content is complex, the intensity—both prosodic and visual—is moderate, as news broadcasts often aim for neutrality and avoid emotional appeals.

Political Speeches: Political speeches demonstrated similar levels of modal intensity and complexity, with a total modal density score of 7.0. The frequent use of emphatic stress caused the elevated intensity, high-

degree modal auxiliaries (e.g., *must, will*), and gestures such as hand beats and head movements. However, political speeches also maintained moderate complexity, balancing the need for urgency and emotion with sufficient detail.

Talk Shows: With a total modal density score of 7.2, talk shows exhibited moderate visual intensity, as indicated by a 1.7 score for visuals. This reflects the dynamic use of gestures and facial expressions typical of the genre. However, the overall complexity was moderate, with a modal complexity score of 3.6. While talk shows aim to engage and entertain the audience, the complexity remains relatively low, as the discussions often focus on conversational, rather than deeply analytical, content. This balance between interaction and entertainment results in moderate complexity across speech, prosody, and visuals.

Weather forecasts displayed moderate modal complexity (score of 3.7) and relatively low modal intensity (score of 2.7), with a total modal density of 6.4. This reflects their data-focused, straightforward nature, which often relies on visual elements such as maps and charts to convey weather patterns. Since they deliver factual information, the intensity—both prosodic and visual—remains relatively low, as indicated by the 1.3 score for prosody and 1.0 for visuals. This suggests that while extreme weather events may be covered, the goal of weather forecasts is to maintain neutrality. They thus avoid dramatic or overly persuasive tones, even when they address significant events such as storms or heatwaves, often linked to climate change.

In sum, these results illustrate how modal density shifts across genres. Weather forecasts emphasize moderate complexity (3.7) through the use of visual aids like maps and charts, but maintain lower intensity (2.7), as they focus on delivering clear and factual information. News reports, on the other hand, prioritize high complexity (4.1) but with moderate intensity (2.9). These programs offer detailed explanations and maintain a neutral tone. Political speeches balance both intensity (3.4) and complexity (3.6), evoking urgency and emotional responses, while still delivering a moderate level of detail. Talk shows, similarly, strike a balance between moderate complexity (3.6) and visual intensity (3.6), using dynamic visuals, gestures, and conversational styles to captivate and engage their audience.

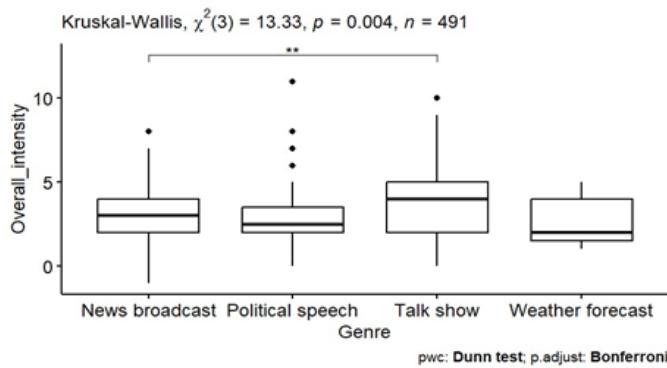


Figure 9 – Differences in overall intensity between genres in the NewsScape corpus

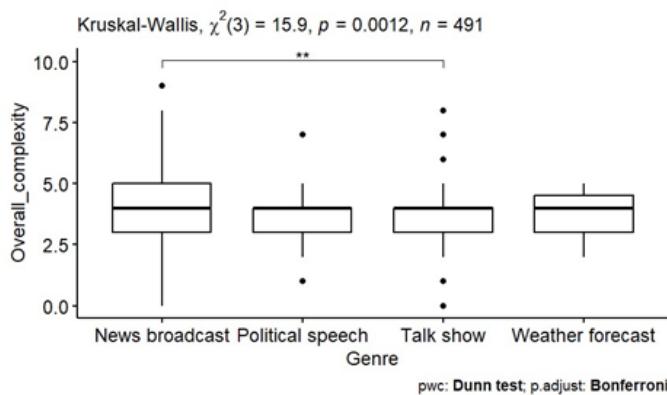


Figure 10 – Differences in overall complexity between genres in the NewsScape corpus

Modal Density Across Speech Acts

The study also found notable differences in modal density across various speech acts as shown in Table 3 in the Appendix, which illustrates how communicative objectives influence the interaction between intensity and complexity. While not all speech acts will be described in detail, the focus will be on the most significant ones, which highlight major patterns in how modal density operates across different communicative contexts.

Contradiction has one of the highest modal density scores (7.1), which is composed of a modal complexity score of 4.2 and a modal intensity score of 2.9. This high density reflects the intricate interaction of modes used when contradictions are expressed, as they often involve complex language, multiple enunciative sources, nuanced prosodic patterns, and visual elements such as facial expressions or gestures to emphasize opposing viewpoints. The greater complexity stems from the need to articulate and balance contrasting ideas, while the moderate intensity underscores the importance of highlighting these opposing perspectives without overwhelming the listener.

Narrative speech acts demonstrated a high overall modal density, with a total score of 7.3, largely due to their use of complex sentence structures, technical language, and representational gestures that enrich the narrative. These elements, combined with the use of visual aids such as video clips, increased both intensity and complexity. Narration can be considered a highly informative speech act. The complexity score for narration was 4.4, with notable contributions from speech (1.6), prosody (1.5), and visuals (1.3). The intensity score was 2.9, with speech and prosody contributing 0.9 and 1.2, respectively, while visuals played a smaller role.

Incitative speech acts, such as calls to action in political speeches, had a total modal density of 6.4. These acts were marked by moderate intensity, driven by emotionally charged language, emphatic stress, and gestures intended to motivate the audience. While complexity was slightly lower, reflecting a focus on urging immediate action rather than providing detailed explanations, the overall balance of intensity and complexity made the incitations effective at prompting engagement. It is surprising that these speech acts are not more intense, given their potential to drive action and influence audiences, yet they still maintain a significant impact with their measured use of intensity and complexity.

Descriptive speech acts had a mean modal density of 7.0. These acts were characterized by moderate complexity, driven by detailed language, clear structure, and often accompanied by visuals to enhance the imagery. While the intensity was lower than that of other speech acts, rich descriptions effectively convey information and create vivid mental images for the audience.

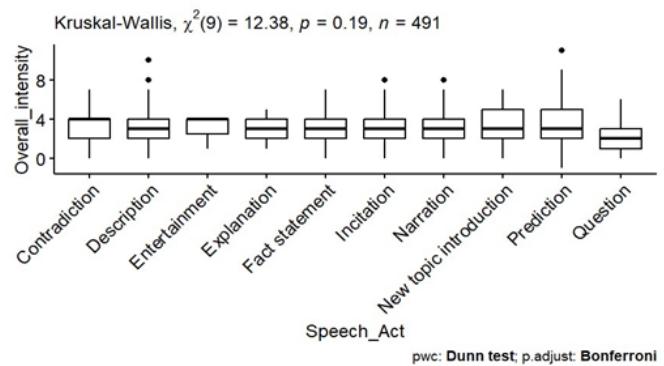


Figure 11 – Differences in overall intensity between speech acts in the NewsScape corpus

The differences in modal density across speech acts highlight how intensity (Figure 11) and complexity (Figure 12) are strategically deployed to achieve various communicative goals.

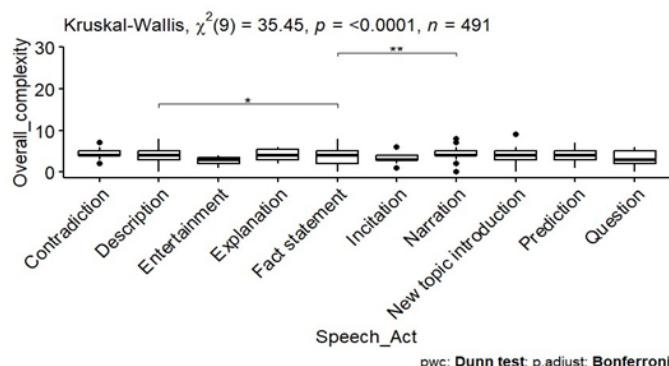


Figure 12 – Differences in overall complexity between speech acts in the NewsScape corpus

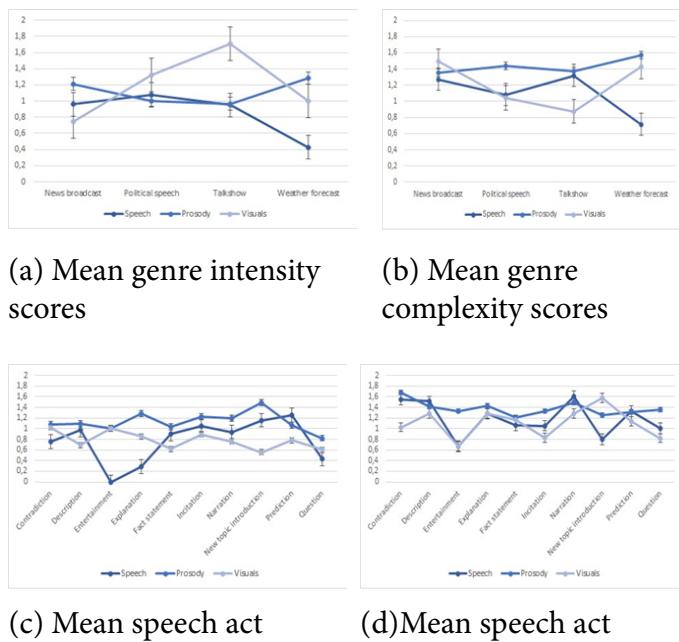


Figure 13 – Mean intensity and complexity scores across genres and speech acts

Discussion

The results of this study highlight modal density as a key factor in shaping climate change discourse across different genres and speech acts. This research thus offers objective insights into how multimodal elements interact to create discourse that is both informative and persuasive. This approach is particularly relevant in climate change communication, where effective discourse can influence public understanding, engagement, and action.

Genre-Based Discourse Strategies in Climate Change Communication

In climate change discourse, it is crucial to balance modal intensity (emotional strength) and modal complexity (informational richness). High-intensity messages create urgency, while high-complexity ones add credibility. This balance is vital to counter misinformation, emotional fatigue, and the complexity of climate science.

Political speeches and activist messages use a strategic blend of intensity and complexity to emphasize urgency while maintaining credibility. Emotional language, stress, and gestures aim to evoke responsibility or hope, but excessive emotion tends to reduce credibility. Balancing these dimensions is important to both incite audiences to act without alienating them.

Weather forecasts, with lower intensity, present extreme weather visually, associating it with climate change. They focus on clear, factual visuals like maps which ensures they remain informational rather than persuasive. While their emotional impact is subtle, the dramatic visuals can still raise awareness of climate risks.

News reports prioritize high complexity with lower intensity, as they use technical language and visuals like graphs to inform and educate. Their focus on neutrality limits emotional appeal but is crucial against misinformation. To boost engagement, these reports may need to be supplemented by more emotionally engaging content.

Talk shows offer moderate intensity and complexity, making climate change accessible through conversational formats. They blend relatable dialogue with visuals, and thus bridge the gap between purely informative and emotionally charged discourse.

Modal density needs to be adapted to context and audience in order to overcome feelings of disengagement and skepticism. The study suggests that different genres, from high-intensity political speeches to fact-driven news reports, play complementary roles in mobilizing effective climate responses.

Implications for Various Speech Acts

A central challenge in climate change communication consists in overcoming public disengagement. Overly complex messages may alienate audiences, while overly emotional ones may provoke skepticism, which is why a good balance is preferable.

Narratives are particularly effective as they balance intensity and complexity, and score high in modal density. Documentaries and public awareness campaigns use relatable narratives grounded in scientific facts to draw people into the discussion.

Contradictions in climate change discourse, which emphasize opposing viewpoints, often reflect moderate modal density, marked by complex interactions of language, multiple enunciative sources, and multimodal elements.

Incitative messages, conveyed by political speeches or social media advocacy, rely on moderate intensity to motivate action. However, oversimplification can alienate informed audiences, so balancing emotional appeal with scientific detail is important.

Descriptive messages show moderate intensity to present detailed information in an accessible way. By balancing clear language and relevant visuals, these messages help convey complex concepts without overwhelming the audience.

Conclusion

This study has demonstrated the value of quantifying modal density, defined by Norris [2004, 2009] as the interaction of modal intensity (strength of a mode) and modal complexity (intricacy of multimodal interaction). This is especially relevant in climate change discourse. The study presented a quantitative framework that sheds light on how multimodal constructs function across genres and speech acts in climate communication. Results showed that varying levels of intensity and complexity are strategically used across media to engage, inform, and persuade. This approach provides a more objective understanding of how climate change discourse shapes public perception and action.

The study applied quantitative measures in MDA, which goes beyond subjective discourse interpretations. Scores for intensity and complexity in each semiotic mode (speech, prosody, visuals) were aggregated into a modal density score, enabling systematic comparisons of discourse styles. This precise analysis of how modes combine to achieve communicative goals complements previous qualitative work [Ferré, 2024].

Understanding the intricacies of modal density in terms of intensity and complexity can improve communication strategies. The study highlights that balanced high modal density makes climate change

discourse more engaging, while imbalances between intensity and complexity can reduce its effectiveness. Too much intensity can oversimplify the message, while too much complexity can make it overly technical and fail to capture attention. Achieving the right balance is therefore essential for effective communication.

Quantifying the contributions of semiotic modes provides a better understanding of multimodal constructs and opens new research avenues in MDA that may apply to high-stakes communication, such as public health or political campaigns. Future refinements, such as automated tools for measuring prosodic and visual features, could enable larger-scale analyses, while expanding datasets to include diverse media genres and additional parameters that might be introduced into the study (such as colour or sentence length). They would also provide insights into how modal density adapts to different platforms and influences audience engagement.

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Appendix

Table 1 – Annotation levels and values coded in the study as well as their contribution to modal intensity, modal complexity or both (brackets show the number of occurrences for each value)

Level	Annotation values	Modal density
Text	Text genre: <i>news broadcast</i> (316), <i>talk show</i> (145), <i>political speech</i> (25), <i>weather forecast</i> (7), <i>unidentified</i> (7) Speech act: <i>Contradiction</i> (37), <i>Description</i> (121), <i>Entertainment</i> (3), <i>Explanation</i> (7), <i>Fact statement</i> (100), <i>Incitation</i> (18), <i>Narration</i> (63), <i>New topic introduction</i> (70), <i>Prediction</i> (51), <i>Question</i> (28), <i>Unidentified</i> (2) High degree words Quote: <i>Yes</i> (68), <i>No</i> (432) Technical words: <i>Yes</i> (97), <i>No</i> (403) Acronyms: <i>Yes</i> (41), <i>No</i> (459) Auxiliary Date/figure: <i>Yes</i> (87), <i>No</i> (413) Syntax: <i>Simple</i> (137), <i>Complex</i> (363)	Intensity and complexity Complexity Complexity Complexity Intensity Intensity Complexity
Prosody	Prosodic emphasis: <i>No emphasis</i> (145), <i>Emphasis+</i> (145), <i>Emphasis++</i> (205), <i>Beat prosody</i> (5) Pitch contours: <i>Fall</i> (30), <i>Rise</i> (0), <i>Rise-Fall/Fall-Rise</i> (210), <i>Rise-Rise</i> (2), <i>Fall-Fall</i> (258)	Intensity Complexity
Gestures and visuals	Hand gestures: <i>Not visible</i> (272), <i>No gesture</i> (46), <i>Representational gesture</i> (3), <i>Non-representational gesture</i> (156), <i>Both gesture types</i> (25) Head beat: <i>Yes</i> (245), <i>No</i> (85), <i>Not visible</i> (170) Eyebrow raises: <i>Yes</i> (110), <i>No</i> (214), <i>Not visible</i> (176) text box: <i>Yes</i> (318), <i>No</i> (182) Graph: <i>Yes</i> (27), <i>No</i> (473) Still image: <i>Yes</i> (96), <i>No</i> (404) Video clip: <i>Yes</i> (170), <i>No</i> (330)	Intensity and complexity Intensity Intensity Complexity Complexity Complexity Complexity

Table 2 – Complexity and intensity scores across genres in the NewsScape corpus

	MEAN COMPLEXITY			MODAL	MEAN INTENSITY			MODAL
	Speech	Prosody	Visuals		Speech	Prosody	Visuals	
News broadcast	1,3	1,4	1,5	4,1	1,0	1,2	0,7	2,9
Political speech	1,1	1,4	1,0	3,6	1,1	1,0	1,3	3,4
Talk show	1,3	1,4	0,9	3,6	1,0	1,0	1,7	3,6
Weather forecast	0,7	1,6	1,4	3,7	0,4	1,3	1,0	2,7

Table 3 – Complexity and intensity scores across speech acts in the NewsScape corpus

	MEAN COMPLEXITY			MODAL	MEAN INTENSITY			MODAL	MODAL
	Speech	Prosody	Visuals		Speech	Prosody	Visuals		
Contradiction	1,5	1,7	1,0	4,2	0,8	1,1	1,0	2,9	7,1
Description	1,5	1,4	1,3	4,2	1,0	1,1	0,7	2,8	7,0
Entertainment	0,7	1,3	0,7	2,7	0,0	1,0	1,0	2,0	4,7
Explanation	1,3	1,4	1,3	4,0	0,3	1,3	0,9	2,4	6,4
Fact statement	1,1	1,2	1,2	3,4	0,9	1,0	0,6	2,6	6,0
Incitation	1,1	1,3	0,8	3,2	1,1	1,2	0,9	3,2	6,4
Narration	1,6	1,5	1,3	4,4	0,9	1,2	0,8	2,9	7,3
New topic intro.	0,8	1,3	1,6	3,6	1,2	1,5	0,6	3,2	6,8
Prediction	1,3	1,3	1,1	3,8	1,3	1,1	0,8	3,1	6,9
Question	1,0	1,4	0,8	3,2	0,4	0,8	0,6	1,9	5,0

Bridging Divides: Promoting Reconciliation through Peace Journalism in South African Media Coverage of Xenophobic Violence

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Peace journalism, Xenophobia, South African media, Reconciliation, Social cohesion

ABSTRACT

This study critically examines the application of peace journalism principles in South African newspaper coverage of xenophobic violence, focusing specifically on episodes from 2008 and 2015. Utilizing qualitative content analysis guided by Johan Galtung's peace journalism framework, the research evaluates the extent to which leading newspapers, *Mail & Guardian*, *Sunday Times*, *The Star*, and *Daily Sun*, contextualized conflicts, avoided binary narratives, amplified marginalized voices, and promoted solutions-oriented reconciliation. Findings indicate significant disparities in journalistic practices, with analytical newspapers such as *Mail & Guardian* consistently adhering to peace journalism principles through contextual reporting, inclusive representation, and solution-focused narratives. Conversely, tabloids like *Daily Sun* prioritized sensationalism, reinforcing stereotypes and neglecting comprehensive contextualization. These variations highlight the crucial influence media narratives have on societal perceptions and responses to xenophobic violence. The study emphasizes the transformative potential of peace journalism, arguing for its broader adoption within South African media as a critical strategy for fostering empathy, understanding, and social cohesion. Ultimately, the consistent application of peace journalism principles could substantially contribute to addressing the structural causes of xenophobia and to promoting sustainable peace and reconciliation.

Introduction

Media narratives significantly shape societal perceptions, particularly in contexts marked by persistent tensions and recurring conflicts. In South Africa, the complex interplay of historical injustices, economic disparities, and contemporary social challenges frequently manifests as xenophobic violence targeting foreign nationals (Harris, 2002; Crush, Ramachandran, & Pendleton, 2013). The recurrent episodes of xenophobia in 2008 and 2015 drew widespread national and international attention, prompting critical debates on the role media narratives play in either exacerbating tensions or fostering reconciliation and social cohesion (Rodny-Gumede, 2015). Given the media's influential role in shaping public understanding and societal responses to conflict, examining journalistic practices is crucial to addressing the root causes and reducing xenophobic hostility. Central to this inquiry is Johan Galtung's theory of peace journalism, which offers a valuable normative framework for evaluating media practices in conflict-sensitive contexts (Galtung, 2000, 2003). Unlike traditional war journalism that focuses predominantly on sensationalism, elite voices, and explicit acts of violence, peace journalism encourages reporters to provide comprehensive context, explore underlying structural causes, avoid binary framings, amplify marginalized voices, and actively propose solutions aimed at reconciliation and peaceful coexistence (Lynch & McGoldrick, 2012). By incorporating these

principles, journalists can significantly influence public understanding of conflicts, encouraging empathy and constructive dialogue rather than perpetuating divisive stereotypes or tensions (Youngblood, 2017; Masud-Un-Nabi, 2021).

Previous studies suggest that South African media have often failed to consistently adopt peace journalism approaches, frequently emphasizing sensationalized depictions of violence rather than in-depth analysis and reconciliation-focused reporting (Rodny-Gumede, 2015). For example, coverage of the tragic killing of Emmanuel Sithole in 2015, widely disseminated through graphic imagery, sparked international attention yet was criticized for not adequately exploring structural causes or proposing viable solutions to xenophobic tensions (Oatway, 2015). Such media practices can inadvertently entrench societal divisions, highlighting the necessity for deeper investigations into media reporting standards and their implications for reconciliation efforts. Thus, the current study addresses this critical gap by examining the extent to which selected South African newspapers—*Mail & Guardian*, *Sunday Times*, *The Star*, and *Daily Sun*—adhere to peace journalism principles in their coverage of xenophobic violence. By utilizing qualitative content analysis of 200 articles published during peak periods following xenophobic incidents in 2008 and 2015, this research provides a systematic evaluation of media reporting styles in relation to peace journalism

criteria. The study explores explicitly how newspapers contextualize conflicts, frame narratives, represent marginalized voices, and promote reconciliation and solution-oriented dialogues.

The significance of this research lies in its potential contribution to media studies and conflict-sensitive journalism in South Africa. It emphasizes how responsible reporting practices could fundamentally shift public perceptions about migrants and conflict, promoting societal healing and social cohesion. Moreover, it underscores the practical importance of media literacy, journalist training, and editorial policies in fostering peace journalism, thereby informing both media practitioners and policymakers committed to sustainable solutions to address xenophobia. To comprehensively guide this research, the following research questions have been formulated based on insights from the analysis of media coverage:

RQ1: How extensively do South African newspapers contextualize xenophobic violence by identifying its underlying socio-economic and historical causes?

RQ2: To what extent do newspapers avoid binary “us versus them” framings in their reporting of xenophobic violence?

RQ3: How consistently do South African newspapers represent the perspectives and voices of marginalized groups directly affected by xenophobic violence?

RQ4: How actively do South African newspapers promote solution-oriented narratives and reconciliation efforts aimed at addressing xenophobic violence?

By addressing these questions, the study seeks to critically evaluate current journalistic practices against peace journalism principles, highlighting strengths, deficiencies, and areas for improvement. This comprehensive analysis underscores the transformative role that peace journalism can play in mediating complex societal conflicts, fostering informed public discourse, and advancing reconciliation and social cohesion within the diverse and historically fragmented South African society.

Literature Review

The role of media in shaping societal perceptions and influencing conflict dynamics is profound. In contexts like South Africa, where historical and contemporary tensions coexist, the media's approach to reporting can either exacerbate conflicts or promote reconciliation. This literature review examines the principles of peace journalism, its application in media coverage of xenophobic violence in South Africa, and

its potential to foster reconciliation and social cohesion. Peace journalism, as conceptualized by Johan Galtung, advocates for reporting that emphasizes non-violent responses to conflict, highlights multiple perspectives, and addresses underlying causes of disputes (Galtung, 2000). This approach contrasts with traditional war journalism, which often focuses on violence, elite perspectives, and zero-sum narratives. By prioritizing solutions and giving voice to marginalized communities, peace journalism aims to create opportunities for society to consider and value non-violent responses to conflict (Lynch & McGoldrick, 2005). South Africa has experienced recurrent episodes of xenophobic violence, notably in 2008 and 2015, targeting foreign nationals, particularly from other African countries. The media's portrayal of these events has been scrutinized for potentially reinforcing negative stereotypes and failing to contextualize the socio-economic factors contributing to such violence. For instance, the 2015 killing of Emmanuel Sithole, a Mozambican national, was captured in a series of photographs by South African photojournalist James Oatway. These images, published on the front page of the Sunday Times, sparked national outrage and brought international attention to the severity of the attacks (Oatway, 2015). While the graphic nature of the photographs highlighted the brutality of the violence, critics argue that such coverage can perpetuate fear and further entrench divisions if not accompanied by an in-depth analysis of root causes and potential solutions.

Implementing peace journalism in South Africa faces several challenges. Journalists often operate under tight deadlines, limiting the scope of their reporting. Economic pressures and competition can lead media outlets to prioritize sensational stories that attract immediate attention, often at the expense of nuanced analysis (Rodny-Gumede, 2015). Additionally, entrenched biases and a lack of training in conflict-sensitive reporting can result in coverage that inadvertently reinforces stereotypes and societal divisions. Media narratives significantly influence public perceptions and intergroup relations. Negative portrayals of certain communities can lead to their marginalization and justify discriminatory practices. Conversely, media that highlight stories of intergroup solidarity and successful integration can promote social cohesion. For example, the Post-Conflict Research Center (PCRC) in Bosnia-Herzegovina utilizes multimedia projects to foster tolerance and mutual understanding among divided communities (Post-Conflict Research Center, n.d.). Similar initiatives in South Africa could leverage storytelling to bridge divides and promote reconciliation.

Beyond social impacts, media representations have economic consequences. A report by Africa Practice and Africa No Filter revealed that negative stereotypes in international media cost Africa up to £3.2 billion annually in inflated interest payments on sovereign debt (Makura, 2024; Suryani, 2024). This “prejudice premium” underscores the tangible costs of biased reporting and highlights the need for balanced narratives that accurately reflect the continent’s complexities and opportunities. The media wields significant power in shaping societal narratives and influencing conflict dynamics — a point strongly emphasized in peace journalism scholarship, which shows that conflict-sensitive reporting can reduce support for violence, foster empathy, and open space for non-violent solutions (Galtung, 2003; Lynch & McGoldrick, 2005; Shinar, 2007; Lee, 2010; Youngblood, 2017; Masud-Un-Nabi, 2021; Suryani, 2024; Mokoena & Nshimiyimana, 2025). In South Africa, adopting peace journalism principles in reporting xenophobic violence can therefore contribute to reconciliation and social cohesion by providing context, amplifying marginalized voices, and promoting non-violent solutions. However, challenges such as economic pressures, entrenched biases, and the need for specialized training must be addressed to realize the full potential of peace journalism. By doing so, the media can play a pivotal role in transforming conflict narratives and fostering a more inclusive society.

Theoretical Framework

Peace journalism, as articulated by Johan Galtung, provides the central theoretical underpinning of this research. Galtung (1998) conceptualized peace journalism as a normative approach that emphasizes solution-oriented reporting, seeking to uncover the structural and cultural roots of conflicts rather than merely describing violence. Galtung’s theory challenges traditional media practices by promoting news coverage aimed explicitly at peace-building and conflict resolution rather than simply depicting conflict as an inevitable part of societal interactions. Galtung’s theory draws a clear distinction between peace journalism and traditional war journalism. War journalism tends to focus on overt violence, elites, winners and losers, and often disregards the complex socio-economic conditions underpinning conflicts (Galtung, 2003). Conversely, peace journalism advocates a multidimensional reporting strategy that prioritizes context, constructive dialogue, and narratives that humanize all conflicting parties (Lynch & McGoldrick, 2012). It actively seeks alternatives to violence, highlights invisible effects on communities, and refrains from dehumanizing adversaries. Thus,

peace journalism provides a comprehensive framework for analyzing media practices concerning conflicts, particularly in contexts marked by intense societal fractures, such as South Africa.

In the South African context, peace journalism theory is particularly relevant given the nation’s historical legacies and recurring internal tensions. Post-apartheid South Africa continues to grapple with profound socio-economic inequalities, racial tensions, and notably, xenophobic violence. These structural problems manifest as recurrent societal conflicts, frequently represented in simplistic or sensationalized ways by mainstream media (Harris, 2002; Crush, Ramachandran, & Pendleton, 2013). Applying the theoretical lens of peace journalism thus facilitates critical analysis of whether and how South African media coverage either contributes to reconciliation and cohesion or reinforces divisions and prejudices. Peace journalism operates through several core principles, all of which are particularly salient in addressing xenophobic violence in South Africa. The first principle is the avoidance of simplistic binary narratives, such as “us versus them,” often employed in conventional reporting (Kempf, 2007). By highlighting the nuances within the conflicting groups and their interconnected histories, peace journalism reduces polarization and encourages empathy among different societal factions. According to Kempf (2007), binary framing in media coverage intensifies conflicts and entrenches antagonistic identities, making reconciliation considerably more challenging.

Another principle involves highlighting root causes and context behind conflicts rather than merely reporting on the violent outcomes (Masud-Un-Nabi, 2021; Lee, 2010). By exposing underlying factors such as economic deprivation, social exclusion, and structural injustice, peace journalism compels audiences and policymakers to address systemic problems that fuel violence rather than focusing solely on its immediate manifestations (Hackett, 2011). This contextual approach is critical in South Africa, where xenophobic violence has deep connections to poverty, unemployment, migration pressures, and institutional failures (Misago et al., 2015; Tewodros, 2024). Thus, applying peace journalism theory enables a deeper understanding and a more comprehensive media discourse on how xenophobic violence can be mitigated through targeted social interventions rather than temporary security measures. Furthermore, peace journalism advocates for inclusive reporting by amplifying marginalized voices, specifically those affected by violence, yet typically excluded from mainstream discourse (Shinar, 2007). By prioritizing the narratives of marginalized communities and affected

foreign nationals, peace journalism facilitates broader societal understanding, empathy, and dialogue across social divisions (Shaw et al., 2011). This principle is crucial in addressing xenophobia because it shifts media coverage from a singularly nationalistic perspective to a more humanistic narrative, fostering mutual understanding and social cohesion (Rodny-Gumede, 2015).

Additionally, peace journalism emphasizes solution-oriented journalism, promoting dialogue, reconciliation, and peaceful coexistence as legitimate news values (Lynch & McGoldrick, 2012; Masud-Un-Nabi, 2021). Instead of simply reporting violent acts and their immediate consequences, journalists guided by peace journalism principles actively seek out and report on initiatives aimed at preventing conflict, mediating conflicts, and building peace. By spotlighting these efforts, the media can reinforce societal optimism and encourage constructive dialogue among conflicted communities (Youngblood, 2017). Critics, however, argue that peace journalism may unintentionally sacrifice objectivity by engaging in advocacy-oriented reporting. Loyn (2007), for example, suggests that peace journalism risks crossing ethical boundaries by taking on advocacy roles rather than simply informing audiences. Nonetheless, peace journalism theorists such as Lynch and McGoldrick (2012) counter that objectivity does not imply neutrality or detachment from ethical considerations. Instead, peace journalism explicitly recognizes the ethical responsibilities journalists bear when reporting conflict, advocating transparent, responsible journalism that actively reduces societal harm (Hackett & Schroeder, 2008).

Applying peace journalism theory to South Africa's xenophobic violence provides robust analytical utility and clear normative guidance. It facilitates the assessment of South African media practices, identifying gaps in current coverage, and highlighting the potential for more responsible, context-sensitive, and reconciliation-focused reporting (Rodny-Gumede, 2015). By emphasizing the structural drivers of xenophobia and foregrounding stories of reconciliation and unity, peace journalism can play a transformative role, shifting societal perceptions and enhancing social cohesion. Galtung's peace journalism framework provides the theoretical foundation for understanding how media coverage influences societal attitudes toward xenophobic violence in South Africa. By emphasizing context, promoting diverse voices, avoiding simplistic narratives, and prioritizing solutions over sensationalism, peace journalism offers an invaluable approach to foster reconciliation and social cohesion in a fractured society.

Materials and Methods

This study employed qualitative content analysis as its primary research method to investigate the application of peace journalism principles in media coverage of xenophobic violence in South Africa. Qualitative content analysis was selected for its strength in interpreting and critically evaluating textual content, enabling researchers to systematically identify patterns, themes, and underlying meanings in media reports (Schreier, 2012). Given the complexity of xenophobic conflicts and the nuances involved in assessing journalistic practices, a qualitative approach provided an appropriate framework to deeply analyze textual data and reveal subtle ways in which news coverage aligns with or deviates from peace journalism principles. The primary data for this research consisted of news reports published by major South African newspapers during key episodes of xenophobic violence, particularly those that occurred in 2008 and 2015. Newspapers were specifically chosen for their role as influential platforms that shape public discourse, perceptions, and attitudes about contentious issues such as migration, violence, and social cohesion (Rodny-Gumede, 2015). Four leading newspapers were purposively selected: *Mail & Guardian*, *The Star*, *Daily Sun*, and *Sunday Times*. These newspapers represent a cross-section of the South African media landscape, encompassing variations in audience reach, editorial stance, publication frequency, and ownership structures, thereby providing comprehensive insights into the overall journalistic landscape.

The sample period for content analysis covered the two months immediately following each xenophobic outbreak (May-June 2008 and April-May 2015). This timeframe was strategically chosen to capture media coverage during peak violence, the immediate societal responses, and subsequent policy discussions. Such periods offer the richest data for examining how media narratives evolve and reflect underlying journalistic practices in crisis situations. Although the xenophobic outbreaks examined in this study occurred in 2008 and 2015, they continue to be widely recognized as watershed moments in South Africa's post-apartheid history, shaping long-term public discourse, policy debates, and newsroom practices on migration and violence. Focusing on these high-salience periods allows the study to examine how foundational narrative patterns were established during acute crises — patterns that are still referenced in contemporary political and media discussions of xenophobia. The historical distance also offers analytical advantages, as it provides complete access to archival coverage and enables a more systematic assessment of how conflict narratives

crystallized over time and how they continue to inform present attitudes toward migrants and xenophobic violence. Data collection involved systematic searches of the newspapers' online archives using relevant keywords, including "xenophobia," "violence," "foreign nationals," "immigrants," "migrants," and "attacks." A comprehensive initial search yielded approximately 550 relevant articles. A further screening was performed based on relevance criteria, resulting in a refined final corpus of 200 articles that explicitly discussed xenophobic violence and related societal dynamics. This purposive and systematic approach ensured that the sample was both representative and manageable, facilitating deep qualitative analysis without compromising analytical rigor.

Qualitative content analysis proceeded through a structured and iterative coding process guided by Galtung's (1998) theoretical framework of peace journalism. An initial coding scheme was developed based on key peace journalism criteria, including contextual reporting, avoidance of binary opposition, emphasis on solutions and reconciliation, and amplification of marginalized voices. Articles were read thoroughly multiple times, with coding categories refined iteratively as new patterns and insights emerged, following procedures suggested by Schreier (2012). Coding reliability was strengthened through peer checking by an experienced independent researcher familiar with qualitative methodologies, ensuring objectivity and methodological rigor. Each article was systematically analyzed according to how clearly and consistently it aligned with or diverged from the peace journalism criteria established in the theoretical framework. Articles demonstrating consistent engagement with multiple peace journalism principles—such as highlighting underlying structural causes, providing perspectives from affected communities, and emphasizing solutions and reconciliatory narratives—were classified as strong exemplars of peace journalism. Conversely, articles primarily characterized by sensationalism, superficial reporting of violent events, reliance on elite perspectives, and binary framing were coded as aligning predominantly with traditional war journalism practices. This analytical approach provided clear, comparative insights into the extent and nature of peace journalism practices within South African media.

The qualitative content analysis method enabled the researcher to discern not only explicit content but also subtle, implicit meanings conveyed through linguistic choices, framing strategies, source representation, and narrative structures. Thus, it was possible to gain deeper insights into how journalistic choices influence societal

understandings of xenophobic violence, potentially either contributing to or hindering social cohesion and reconciliation efforts. Finally, ethical considerations were maintained throughout the research process. Given that the research utilized publicly available newspaper articles, formal ethical approval was not required. Nonetheless, the study adhered strictly to ethical guidelines regarding the accurate representation of media content, avoidance of misinterpretation, and transparent presentation of findings. The adoption of qualitative content analysis for this study provided a rigorous, systematic, and flexible methodological approach suitable for exploring the nuanced ways in which peace journalism principles manifest in the complex context of xenophobic violence in South Africa. Through careful selection of data sources, strategic sampling, structured coding, and detailed interpretative analysis, this method allowed the researcher to produce robust, credible, and insightful findings, significantly contributing to scholarly understandings of peace journalism practices within conflict-sensitive environments.

Results

This chapter presents the findings of the qualitative content analysis conducted on newspaper coverage of xenophobic violence in South Africa. Guided by Galtung's peace journalism theory, the analysis explored the extent to which the selected newspapers (*Mail & Guardian*, *The Star*, *Daily Sun*, and *Sunday Times*) adhered to or diverged from the principles of peace journalism. The dataset comprised 200 articles published during critical periods following xenophobic incidents in May–June 2008 and April–May 2015. The findings are organized around four major themes central to peace journalism: contextual reporting, framing of narratives, representation of marginalized voices, and the promotion of solutions and reconciliation.

Contextual Reporting of Xenophobic Violence

Contextualizing conflicts by identifying structural and societal causes is a fundamental component of peace journalism. This analysis examined the extent to which selected South African newspapers adhered to this principle in their coverage of xenophobic violence. Significant disparities emerged across the newspapers studied (Table 1). Approximately 65% (n=130) of the articles provided meaningful context related to socio-economic factors, including poverty, unemployment, inadequate housing, and competition over scarce resources. Notably, *Mail & Guardian* exhibited the highest adherence (82%), followed by *Sunday Times*

(70%), reflecting their preference for analytical and investigative reporting styles. In contrast, *Daily Sun* demonstrated minimal contextual depth, with only 38% of its articles explicitly addressing underlying socio-economic conditions. Instead, its coverage prioritized sensationalist depictions of violent events.

Table 1: Contextual Reporting across Newspapers

Newspaper	Articles Analyzed	Articles Providing Context (%)
Mail & Guardian	50	41 (82%)
Sunday Times	50	35 (70%)
The Star	50	30 (60%)
Daily Sun	50	19 (38%)
Total	200	125 (62.5%)

In-depth analysis revealed that *Mail & Guardian* often linked incidents of xenophobic violence directly to enduring inequalities rooted in apartheid-era injustices, systemic governance failures, and economic marginalization. For example, one particular article explicitly connected outbreaks of xenophobic violence to government failures in housing and public services delivery, thereby enhancing reader comprehension of the deeper societal dynamics at play. Such reporting aligns closely with Galtung's principles of peace journalism, shifting the focus from sensationalist descriptions of conflict to nuanced discussions of structural and institutional shortcomings that perpetuate societal divisions. In sharp contrast, the *Daily Sun* commonly depicted xenophobic violence as spontaneous, isolated incidents rather than outcomes driven by broader social inequalities. Articles in this publication frequently lacked in-depth socio-economic analysis and predominantly highlighted dramatic or violent aspects of conflicts. Such simplistic portrayals reinforce stereotypes about migrants and obscure the multifaceted nature of xenophobic tensions, thereby limiting the potential for informed public discourse.

The variations observed in contextual reporting reflect broader editorial policies and target audiences of the respective newspapers. Publications like *Mail & Guardian*, known for critical investigative journalism, adopted peace journalism principles consistently by emphasizing the broader social contexts that underpin conflict scenarios. In contrast, tabloids such as the

Daily Sun prioritize sensationalism, reflecting a market-driven approach designed to attract larger audiences through dramatic storytelling. The implications of these distinct approaches are considerable, as contextual reporting significantly influences public understanding, shaping policy responses and societal attitudes toward conflict and reconciliation. Ultimately, this analysis demonstrates that adherence to peace journalism principles can meaningfully contribute to public dialogue on xenophobia, fostering a more nuanced societal understanding that supports peaceful conflict resolution and social cohesion.

Framing of Narratives: Avoidance of Binary Oppositions

Avoiding simplistic binary narratives, particularly the "us versus them" framing, is central to peace journalism, as it prevents the reinforcement of divisions within societies experiencing conflict. In analyzing newspaper coverage of xenophobic violence in South Africa, substantial variations emerged in adherence to this principle (see Table 2). Among the 200 articles examined, exactly half (n=100; 50%) relied upon binary framing, portraying the issue primarily through a conflict between South Africans ("us") and foreign nationals ("them"). However, this framing was not uniformly employed, highlighting distinct editorial approaches among the selected newspapers. As illustrated in Table 2, newspapers varied significantly in their use of binary framing.

Table 2: Use of Binary Framing in Newspaper Coverage

Newspaper	Articles Analyzed	Articles with Binary Framing (%)
Daily Sun	50	35 (70%)
The Star	50	29 (58%)
Sunday Times	50	22 (44%)
Mail & Guardian	50	14 (28%)
Total	200	100 (50%)

The *Daily Sun* showed the highest reliance on binary narratives (70%), frequently depicting foreign nationals as economic competitors threatening local job opportunities and public resources. This portrayal implicitly justified hostility by reinforcing divisions

between citizens and foreigners, neglecting underlying complexities such as shared socioeconomic struggles. Similarly, *The Star* frequently utilized binary framing (58%), though slightly less overtly. Articles from this newspaper often highlighted violent confrontations without sufficiently exploring nuanced socio-political contexts, inadvertently promoting perceptions of inherent differences and antagonism. In contrast, *Mail & Guardian* used the fewest binary narratives (28%). Its coverage consistently emphasized interconnected socioeconomic struggles between local and immigrant communities, thus reframing the xenophobic violence as a shared consequence of systemic failures in governance, employment, and social policy. The newspaper highlighted migrant contributions to South Africa's economy, challenging the simplistic notion that foreign nationals pose an economic threat. By humanizing migrants and highlighting mutual vulnerabilities, the publication actively contributed to reducing hostility and facilitating empathy between divided groups.

The stark difference between newspapers like the *Mail & Guardian* and the *Daily Sun* underscores the critical role that editorial choices play in shaping public perceptions. Newspapers adopting peace journalism principles help construct narratives that recognize common human experiences, thereby promoting understanding rather than division. Conversely, reliance on simplistic binary framings by other publications risks reinforcing prejudice and conflict, potentially exacerbating societal tensions. These findings emphasize that responsible media practices, aligned with peace journalism, hold substantial potential for mitigating xenophobic violence by fostering inclusive narratives. Such an approach is essential in diverse societies like South Africa, where simplistic binary representations can significantly undermine efforts toward national cohesion and reconciliation.

Representation of Marginalized Voices

Amplifying marginalized voices, especially those directly impacted by violence, remains a critical aspect of peace journalism. Analysis revealed significant variations among newspapers in representing victims, migrants, and affected communities in their coverage of xenophobic violence. Overall, less than half of the analyzed articles (47%, n=94) featured direct accounts from marginalized individuals, community representatives, or humanitarian groups (Table 3). Notably, *Mail & Guardian* led in this aspect, with 68% of its articles incorporating firsthand narratives from migrants, local activists, and NGOs. The *Sunday Times* followed, albeit with a lower rate of 54%. Both newspapers consistently presented personal

stories, thus humanizing victims and encouraging empathy and deeper societal understanding. Conversely, *The Star* and *Daily Sun* demonstrated substantially weaker representation of marginalized voices, at 38% and 28%, respectively. Their articles typically prioritized narratives sourced from authorities such as police officials, government spokespeople, and political leaders. For example, the *Daily Sun* frequently published brief reports dominated by police statements describing the incidents superficially without integrating the perspectives of affected migrants or local communities. Consequently, their reporting appeared imbalanced, perpetuating exclusion and reinforcing perceptions of marginalized groups as passive victims rather than active participants in society.

The disparity in representation has implications for societal understanding of xenophobic violence. Articles that incorporate voices of affected individuals offer nuanced perspectives, fostering audience engagement and societal solidarity. For instance, *Mail & Guardian* often published detailed personal testimonies of migrants describing their experiences, challenges, and contributions to South African communities. Such accounts challenged negative stereotypes, highlighted migrants' vulnerabilities, and emphasized their humanity, facilitating public empathy and dialogue. In contrast, newspapers limiting themselves to elite sources indirectly marginalized affected communities, undermining principles of inclusivity and comprehensive storytelling central to peace journalism. Limited representation of marginalized voices in newspapers like *Daily Sun* not only diminished reader awareness of the complexities behind xenophobic violence but also potentially perpetuated prejudicial attitudes, presenting migrants as outsiders rather than integral members of the community.

Table 3: Representation of Marginalized Voices

Newspaper	Articles Analyzed	Articles Including Marginalized Voices (%)
Mail & Guardian	50	34 (68%)
Sunday Times	50	27 (54%)
The Star	50	19 (38%)
Daily Sun	50	14 (28%)
Total	200	94 (47%)

This analysis underscores the critical role media representation plays in shaping public perceptions. The

stark differences among newspapers illustrate varying adherence to peace journalism standards, significantly influencing public discourse and attitudes. Thus, the findings highlight a clear opportunity and urgent need for South African media outlets to enhance their coverage of marginalized voices, thereby promoting empathy, dialogue, and ultimately social cohesion amid ongoing tensions surrounding xenophobic violence.

Promoting Solutions and Reconciliation

Promoting solutions, reconciliation, and constructive dialogue constitutes a fundamental principle of peace journalism, crucial in reporting sensitive issues such as xenophobic violence. The analysis of newspaper coverage demonstrated considerable variation in adherence to this principle, with approximately 40.5% (n=81) of the total articles incorporating solution-oriented narratives (Table 4). Among the selected newspapers, the *Mail & Guardian* exhibited the highest commitment (62%), frequently highlighting community-driven initiatives, government interventions, and peace-building programs aimed at addressing root causes and promoting social cohesion. Similarly, the *Sunday Times* showed moderate engagement (46%), emphasizing policy discussions and community dialogues to facilitate reconciliation. In contrast, *The Star* (32%) and particularly the *Daily Sun* (22%) placed less emphasis on solutions or reconciliatory narratives. Coverage by these newspapers predominantly prioritized immediate security responses, such as police actions, law enforcement measures, and border control activities, which, while necessary, do little to foster long-term reconciliation or social integration. The limited portrayal of sustainable solutions contributes to a public discourse that predominantly views xenophobia as a security issue rather than a complex social problem requiring comprehensive and inclusive measures.

Table 4: Promotion of Solutions and Reconciliation

Newspaper	Articles Analyzed	Articles Promoting Solutions (%)
Mail & Guardian	50	31 (62%)
Sunday Times	50	23 (46%)
The Star	50	16 (32%)
Daily Sun	50	11 (22%)
Total	200	81 (40.5%)

Specifically, *Mail & Guardian* articles frequently featured narratives emphasizing grassroots efforts by civil society organizations and local communities, including workshops and community forums, to address underlying tensions and promote mutual understanding. These stories consistently sought to foster empathy among audiences by humanizing migrants and highlighting the shared socio-economic challenges faced by all residents, irrespective of nationality. Meanwhile, *Daily Sun*'s limited engagement primarily focused on immediate security responses, perpetuating short-term, reactive solutions without more profound reflection on sustainable, community-based reconciliation efforts. This variation in media practices reveals an essential gap within South African journalism: while certain outlets actively pursue peace journalism strategies to support reconciliation, others continue to prioritize short-term, event-driven narratives. This inconsistency underscores a broader challenge in leveraging journalism as a tool for social healing in South Africa. Consequently, promoting a more uniform application of peace journalism practices could significantly enhance public discourse around xenophobic violence, ultimately fostering greater understanding, societal cohesion, and sustainable peace.

Discussion

This study explored the extent to which South African media adopted peace journalism principles in reporting on xenophobic violence, focusing particularly on how these narratives promoted reconciliation and social cohesion. Based on a qualitative content analysis guided by Galtung's (2000) framework, significant variations in the media's adherence to peace journalism principles were found across selected newspapers: *Mail & Guardian*, *Sunday Times*, *The Star*, and *Daily Sun*. The discussion addresses the implications of these findings, underscoring how adherence to or nonadherence to peace journalism principles affects societal understanding of xenophobia and subsequent reconciliation processes. It is important to acknowledge the historical nature of the sample. The articles analyzed were produced in response to the 2008 and 2015 outbreaks of xenophobic violence, and the South African media environment has continued to evolve, particularly with the growth of digital platforms and shifting political dynamics. However, these outbreaks represent formative episodes in the public conversation about xenophobia, and the frames identified in this study still underpin contemporary reporting and policy debates. The findings should therefore be read as an examination of how core media narratives and journalistic habits were consolidated during key crises — narratives that continue to shape how xenophobic violence is understood,

remembered, and responded to today. The findings revealed notable disparities in how South African newspapers contextualized xenophobic violence. Newspapers with higher analytical and investigative orientations, such as *Mail & Guardian* (82%) and *Sunday Times* (70%), consistently linked xenophobic violence to underlying socio-economic factors, including poverty, unemployment, inadequate housing, and structural governance failures. This aligns closely with Galtung's (2003) assertion that effective peace journalism must address the root causes of conflict rather than merely report on violent events. Conversely, tabloids such as *Daily Sun* provided limited contextual analysis (38%), often portraying violence as spontaneous outbursts devoid of systemic antecedents. Such minimalistic reporting reinforces simplistic interpretations and stereotypes that obscure deeper issues, potentially perpetuating cycles of violence and misunderstanding (Harris, 2002; Crush, Ramachandran, & Pendleton, 2013). Consequently, newspapers adopting comprehensive contextualization foster richer public discourse capable of addressing xenophobic violence sustainably, aligning with the objectives of peace journalism to deepen societal comprehension and empathy (Lynch & McGoldrick, 2005).

Significant variations also emerged in narrative framing, particularly in the use of binary ("us versus them") portrayals. While half of the articles analyzed adopted binary framing, this was most pronounced in *Daily Sun* (70%) and *The Star* (58%). Both papers frequently represented foreign nationals as threats or competitors for limited resources, inadvertently reinforcing xenophobic sentiments. Such coverage starkly contrasts with peace journalism principles outlined by Kempf (2007), who argued that simplistic binary framings exacerbate conflict dynamics and solidify antagonistic identities. Conversely, *Mail & Guardian* (28%) demonstrated substantial avoidance of binary narratives, consistently highlighting common challenges faced by migrants and South African nationals alike. This integrative approach aligns with peace journalism's goal of humanizing conflicting parties and promoting shared understanding (Lynch & McGoldrick, 2012). By avoiding divisive portrayals, *Mail & Guardian* effectively challenged xenophobic stereotypes and reduced societal polarization, contributing constructively to public perceptions around migration and coexistence. Regarding the representation of marginalized voices, the analysis highlighted critical deficiencies in South African media. Only 47% of articles across all newspapers

directly included perspectives from migrants or affected communities. This lack of representation is problematic, as peace journalism emphasizes inclusivity and amplification of marginalized groups to foster deeper societal understanding and empathy (Shinar, 2007). Newspapers such as *Mail & Guardian* (68%) and *Sunday Times* (54%) outperformed others by regularly presenting migrant experiences and testimonies, aligning with peace journalism's inclusive principles. Contrarily, *Daily Sun* (28%) and *The Star* (38%) predominantly featured elite narratives—government officials, police authorities, and political leaders—thereby marginalizing victims' voices and experiences. The absence of diverse perspectives can significantly diminish reader comprehension of migrants' lived realities, potentially perpetuating prejudiced attitudes and exclusionary practices (Rodny-Gumede, 2015). Thus, increasing the representation of marginalized voices remains crucial for strengthening peace journalism practices within South African media, promoting greater understanding and societal solidarity.

The promotion of reconciliation and solutions was similarly uneven among the newspapers studied. Only 40.5% of total articles advocated solution-oriented narratives, indicating an overarching media tendency toward reactive rather than proactive coverage. The *Mail & Guardian* notably exhibited the most substantial alignment with solution-focused journalism (62%), regularly highlighting grassroots initiatives, community dialogues, peace-building efforts, and policy responses. In contrast, publications like *Daily Sun* (22%) and *The Star* (32%) focused primarily on immediate, short-term security interventions, neglecting sustainable reconciliation strategies. According to Youngblood (2017), emphasizing solutions and reconciliation within journalism significantly shapes constructive public discourse, thereby fostering collective optimism and active participation in peace processes. The findings underscore the vital role of solution-oriented journalism in facilitating societal reconciliation, affirming the necessity for broader media adoption of peace journalism principles to effectively mitigate xenophobic tensions. Critically, these media disparities reflect broader structural and market-driven influences shaping editorial decisions. Economic pressures and audience preferences influence newspapers differently, with tabloids generally prioritizing sensationalism to attract readership (Rodny-Gumede, 2015). In contrast, newspapers oriented toward investigative journalism are more likely to adopt comprehensive peace journalism approaches, given their established editorial missions and target demographics. However, irrespective of economic or audience-driven

considerations, media accountability remains critical in societies experiencing recurrent conflicts, such as South Africa. Peace journalism does not inherently require sacrificing economic viability but encourages responsible reporting that actively contributes to societal cohesion and conflict mitigation (Hackett & Schroeder, 2008; Lynch & McGoldrick, 2012). Encouraging broader editorial commitment to these principles through journalist training and institutional support thus emerges as an essential strategy for enhancing the South African media's positive societal influence.

The implications of this study extend beyond journalistic practice alone, also informing policy-making and community interventions aimed at addressing xenophobic violence. Media portrayals significantly influence public discourse, shaping both perceptions and policy responses to complex societal issues. As the findings illustrate, responsible peace journalism can positively impact public understanding, dialogue, and ultimately societal cohesion. Conversely, adherence to sensationalistic or simplistic narratives risks perpetuating cycles of misunderstanding and conflict, undermining broader reconciliation efforts. Policymakers and community leaders thus hold an essential stake in advocating for media practices aligned with peace journalism principles, recognizing their significant capacity to support long-term peace-building and societal integration (Masud-Un-Nabi, 2021). The findings provide robust empirical evidence regarding the transformative potential of peace journalism in the South African context, particularly in addressing xenophobic violence. Although notable disparities currently exist in journalistic practices, consistent adherence to peace journalism principles, contextual reporting, avoidance of binary framings, amplifying marginalized voices, and promoting reconciliation, offers significant opportunities for media to actively foster social cohesion and reconciliation. Embracing these principles systematically can fundamentally shift societal understandings of xenophobia, moving beyond simplistic interpretations toward meaningful, lasting reconciliation.

Conclusion

This study explored the extent to which South African media applied principles of peace journalism in reporting on xenophobic violence, focusing specifically on how media narratives promoted reconciliation and social cohesion. The findings demonstrate significant disparities among newspapers

(*Mail & Guardian, Sunday Times, The Star, and Daily Sun*) in their adoption of peace journalism practices. Newspapers such as *Mail & Guardian* notably embraced comprehensive contextual reporting, avoided binary framings, highlighted marginalized voices, and consistently advocated solutions and reconciliation initiatives (Rodny-Gumede, 2015). Conversely, newspapers like *Daily Sun* primarily favored sensationalized narratives, reinforcing divisions and perpetuating superficial understandings of violence. These variations reflect differing editorial orientations influenced by market pressures and audience targeting, yet underline the media's critical role in shaping societal responses (Hackett & Schroeder, 2008). This study underscores peace journalism's potential to transform conflict narratives by emphasizing root causes, inclusive perspectives, and reconciliation-focused solutions (Galtung, 2003; Lynch & McGoldrick, 2012). The South African context, marked by historical tensions and recurrent xenophobic violence, particularly requires media approaches that encourage deeper societal understanding and collective empathy (Rodny-Gumede, 2015). To fully realize this potential, the media must overcome entrenched biases, sensationalist reporting tendencies, and resource constraints through systematic journalist training and editorial commitment to ethical, solution-oriented journalism (Rodny-Gumede, 2015; Youngblood, 2017). Ultimately, broader implementation of peace journalism principles in South African media could significantly contribute to long-term societal reconciliation, addressing xenophobic violence through informed, empathetic public discourse.

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