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Exploring the Effect of Communication on Sustainable Knowledge Management

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Abstract

Effective communication abilities are vital for facilitating Knowledge Management within the construction sector, especially in relation to sustainable development goals objectives. This study examines the influence of communication skills on sustainable Knowledge management practices, stressing how effective and clear communication promotes collaboration, knowledge exchange, and innovative thinking. A thorough systematic literature review was adopted to point out best practices and strategies for enhancing communication to advance sustainable results in construction initiatives.

Keywords

Communication, Communication skills, Sustainable Construction, Knowledge Sharing, Knowledge management

1 Introduction

Sustainability in the construction sector has become a pressing necessity because of environmental, economic, and social imperatives (Caiado *et al.* 2018; Rosati *et al.* 2019). The increasing complexity and challenges of construction projects, especially in achieving sustainable development goals (SDGs) and absence of clear and efficient communication during knowledge sharing among stakeholders often hinders the successful implementation of these goals (Comican *et al.* 2021). Effective communication is crucial in transforming data into useful knowledge, aiding decision-making in sustainability contexts (Eva 2023). Communication is a central vector in knowledge management, facilitating the transfer and exploitation of knowledge within organizations (Grigorescu *et al.* 2014). Knowledge management plays a crucial role in promoting sustainability practices and gaining competitive advantage in organizations (Fadila Rahmaningtyas *et al.* 2024; Cormican *et al.* 2021). Communication, as applied to knowledge management in construction, refers to the processes of generating, sharing, and interpreting information to achieve shared understanding and collaboration among stakeholders (Tingoy and Kurt 2009). This encompasses verbal, non-verbal, and technological channels that

promote team integration and decision-making (Gunhan *et al.* 2012). Sustainable knowledge management involves leveraging knowledge-sharing processes to advance SDG implementation while enhancing environmental and operational efficiencies. This study seeks to address this gap by investigating how effective communication and communication skills facilitate sustainable knowledge management practices in the construction industry.

In light of these considerations, this paper systematically reviews the significance of communication in knowledge sharing within sustainable knowledge management. It emphasizes the pivotal role that communication skills play in fostering collaboration, innovation, and knowledge dissemination, aiming to provide actionable insights for improving sustainable outcomes in the construction sector.

2 Literature Review

2.1 Communication in construction context

Communication in the construction industry context is essential for successful project delivery, involving the timely, appropriate generation, dissemination and implementation of project-related information, ideas and knowledge to ensure shared understanding among stakeholders (PMI 2008). Effective communication is crucial for successful construction projects, involving various stakeholders and complex interdisciplinary teams (Emmitt and Gorse 2006; Senaratne and Ruwanpura 2016). The communication process in construction includes stakeholder identification, planning, information distribution, management, and performance reporting (Senaratne and Ruwanpura 2016). The construction processes is highly information-intensive requiring the exchange of large volumes of data and documents to coordinate multiple tasks simultaneously (Cui *et al.* 2018; Kwofie *et al.* 2019).

Poor communication issue has attracted many researchers and publication platforms to investigate its cause and introduces solutions and strategies (Rahman and Gamil 2019). Furthermore, Gamil *et al.* (2023) identified lack of effective communication as the dominant cause of time overrun which arises from poor communication in the construction industry.

2.2 Communication as an Enabler for Knowledge Sharing

Communication has been examined as a key enabler of knowledge sharing and transfer, which are fundamental to achieving organisational goals in the construction sector (Cormican *et al.* 2021). Effective communication fosters voluntary knowledge-sharing behaviours and helps organizations meet their strategic objectives (Teng and Song 2011). Gumus *et al.* (2007) highlighted the influence of communication styles and satisfaction levels on knowledge-sharing practices, demonstrating that fostering an environment conducive to open communication enhances collaborative outcomes.

Encouraging both task-oriented discussions and interpersonal interactions has been shown to improve knowledge sharing within teams (Park *et al.* 2016). However, barriers such as organisational culture, lack of trust, and stress often impede effective communication (Karim *et al.* 2019). Addressing these challenges is critical to unlocking the full potential of communication in knowledge-sharing processes. Bagais *et al.* (2020) noted that organisations that prioritise effective communication reap significant benefits, including increased responsiveness and operational effectiveness.

Digital and online tools play a centralize role in knowledge management by providing centralized based system for obtaining information, facilitating communication and enabling the exchange of knowledge and experiences among project stakeholders (Hamid 2020; Aljawarneh 2020; Di Vaio *et al.* 2021; Whalen 2008; Aghaee 2024). Tools such as Google Workspace streamline group tasks and project management, promoting knowledge sharing within group assignments and adhering real-time communication and collaborative learning (Aghaee 2024).

3 Research Methodology

A systematic literature review (SLR) was adopted to analyze previous studies investigating the impact of effective communication and communication skills on sustainable construction knowledge management. This methodology was chosen for its ability to synthesize existing knowledge on a topic area in a rigorous and unbiased manner, facilitating the identification of gaps and providing actionable insights for policy and future research (Grant *et al.* 2009; Campbell Collaboration 2019; Shittu 2020). By systematically collating and analysing findings, this approach advances understanding and helps ensure the study's alignment with its objectives (Khatoon and Rehman 2021).

3.1 Research Design

This study adhered to established SLR protocols, which include three stages: planning, execution, and reporting. The planning stage focused on identifying the need for a systematic review, defining a classification framework, and developing research questions and methodologies. These steps ensured the study design was comprehensive and robust, minimising the risk of bias (Dabic *et al.* 2020).

To ensure alignment with the research objectives, this study explored two key dimensions:

1. The effects of communication on knowledge management.
2. The role of communication skills in knowledge management

The following research questions guided the review:

- What is the significance of effective communication on knowledge sharing in sustainable construction?
- What is the significance of communication skills in knowledge sharing in sustainable construction?

3.2 Data Collection Methods

The execution stage involved a rigorous and systematic search for relevant academic literature across Emerald, PubMed, and Scopus databases were selected for their broad coverage of peer-reviewed journal articles in communication and knowledge management, and sustainable construction. To ensure a comprehensive review, the search spanned a 20-year period, focusing on studies published between 2004 and 2024.

Search keywords included:

"Knowledge Management" OR "Knowledge Sharing" OR "Knowledge Transfer" AND "Communication Skills" OR "Effective Communication" AND "Sustainable Construction" OR "Sustainability."

To refine the results and maintain alignment with the research objectives, inclusion and exclusion criteria were applied. Studies were included if they:

- Were written in English.
- Focused on peer-reviewed publications.
- Examined the role of communication in knowledge sharing within sustainable construction contexts.

The **backward snowballing technique** was used to identify additional relevant studies by reviewing reference lists of initially selected articles (Wohlin 2014; Ali *et al.* 2023). Duplicates were removed, and only studies meeting the quality assessment criteria were included in the analysis.

3.3 Data Analysis Methods

During the reporting stage, the selected studies were categorised using a predefined classification framework. This framework examined two primary dimensions: the effects of communication and the influence of communication skills on knowledge management.

Data analysis focused on synthesising key themes and identifying patterns across studies. The methodology emphasised extracting actionable insights relevant to sustainable construction, ensuring findings were directly applicable to the research objectives. Identified gaps were highlighted to propose future research directions.

The systematic approach ensured consistency across all stages of the methodology. The methods of data collection and analysis directly addressed the research questions, with a clear focus on advancing the understanding of communication's role in sustainable knowledge management. By adhering to rigorous protocols, the study avoided bias and ensured robust, reliable results.

3.4 Execution Stage

Given the multidisciplinary scope of communication and knowledge management research, this study sourced relevant literature from three prominent databases: Scopus, PubMed and Emerald Insight. These databases were selected for their extensive coverage of peer-reviewed articles high-impact journals in communication and knowledge management. The inclusion of such sources ensures that the selected studies are credible, relevant, and reflect the latest advancements in the field.

3.5 Summary of Results

The final dataset of studies is summarised in Table 1, detailing the progression of search and screening steps:

Table 1. Review Search Results

	Automated Search Method		Remove Duplicate	Manual Search Method		Backward Snowball	Final Result
	1 st Strategy Keywords results	2 nd Strategy Apply Filter		3 rd Strategy Title and Abstract	4 th Strategy Reading Full Article		
Scopus	547	300	44	25	10	14	8
Emerald	2000	289	30	25	14	16	8
EBSCO	218	145	20	7	7	7	1
Total	2765	734	94	57	31	37	17

Table 2 categorizes the selected studies into two primary dimensions:

1. **Communication in knowledge sharing:** Studies exploring mechanisms and barriers to knowledge sharing,
2. **Communication skills in knowledge Management:** Research focusing on the role of communication skills in enabling effective knowledge processes.

Table 2. Overview of Studies

S/N	Category	Sources
1	Communication in Knowledge Sharing	Gumus .M and Çanakkale .O. (2007); Azudin <i>et al.</i> (2009); Tingoy & Kurt (2009); Christine <i>et al.</i> (2013); Islam <i>et al.</i> (2015); Park, H. and Park, S.J. (2016); Razmerita <i>et al.</i> (2016); Xu Ren <i>et al.</i> (2018); Nahyan <i>et al.</i> (2019); Karim and Majid (2019); Cormincan <i>et al.</i> (2021); Alves <i>et al.</i> (2022); Aghaee, (2024)
2	Communication Skills in Knowledge Management	Wickramasinghe and Widyaratne (2012); Yahaya (2010); Benita (2014); Nezhad and Jenaabadi (2014); Park and Sung (2016); Yani <i>et al.</i> (2022)

4 Findings and Discussion

4.1 Communication in knowledge Sharing

Azudin *et al.* (2009) highlighted that informal communication is essential for overcoming cultural barriers during knowledge sharing. This finding was echoed in Islam *et al.* (2015), who emphasised that open communication between team members significantly enhances knowledge transfer, reducing errors and fostering the creation of new work-related knowledge.

Park *et al.* (2016) investigated the relationship between communication behaviour and individual knowledge-sharing using eight communication categories. Their results demonstrated that encouraging team members to engage in both task-oriented discussions and interpersonal interactions enhance knowledge-sharing and collaboration.

Nahyan *et al.* (2019) identified communication related challenges, such as project delays and cost overruns, as critical issues. They suggested implementing improved knowledge-sharing systems, such as creating comprehensive databases and holding regular information committee meetings, to mitigate these problems and enhance project delivery.

Karim *et al.* (2019) revealed that barriers such as organisational culture, lack of trust, and stress impede effective communication during knowledge sharing. Similarly, Bagais *et al.* (2020) found that effective communication during knowledge-sharing activities improves organisational responsiveness and operational efficiency. This was echoed in Cormincan *et al.* (2021), who emphasised trust and communication have positive significant influence on knowledge sharing. Furthermore, Alves *et al.* (2022) emphasized the relationship between knowledge sharing barriers and communication barrier, the result of the study indicates effect of communication barrier on knowledge sharing.

Deng *et al.* (2020) demonstrated the potential of digital tools, such as social media and collaborative platforms, to promote open and transparent communication. Their study underscored how aligning work activities with digital tools facilitate seamless knowledge sharing within teams. these insights align with Cormincan *et al.* (2021), who confirmed the positive impact of effective communication on knowledge-sharing practices.

Previous studies from different authors like (Di Vaio *et al.* 2021, Whalen *et al.* 2008, Metaxiotis and Psarras 2003; Dhamdhare 2015; Aljawarneh 2020), have highlighted the role of social media and communication tools in virtual learning environments and project coordination. Platforms like Zoom, Microsoft Teams, Google Meet, and messaging apps like Discord, WhatsApp, and Messenger facilitate live discussions, collaborations, and interactions among students and instructors. The result of their study indicates the significance of digital communication tools in virtual learning environments and project coordination.

4.2 Communication Skills in Knowledge Management

The importance of communication skills for successful project management in the Architecture, Engineering, and Construction (AEC) industry is well documented. Yahya (2010) highlighted that communication skills are critical for engineers and managers to enable effective knowledge transfer, noting that a lack of such skills often hampers this process.

Nezhad and Jenaabadi (2014) reinforced this by showing how managerial communication skills enhance knowledge sharing across various organisational structures. Yani et al. (2022) emphasized that communication skills positively influence both Knowledge Sharing and employee performance.

Dumbrava *et al.* (2009) revealed that understanding and interpreting social cues, along with the use of nonverbal communication, significantly enhance business interactions and knowledge sharing. Gunhan *et al.* (2012) and Wickramasinghe and Widyaratne (2012) underscored the importance of face-to-face communication as a vital factor for facilitating effective knowledge-sharing practices.

5 Conclusion and Further Research

This study highlights the critical role of effective communication and communication skills in facilitating knowledge sharing and knowledge management within the construction industry. The findings underscore that specific measures must be implemented to optimize knowledge-sharing processes and achieve sustainable organizational performance.

Effective communication not only strengthens relationships among employees but also fosters a culture of collaboration, where ideas can flow freely, and creativity can thrive. This collaborative spirit not only enhances team dynamics but also empowers individuals to take ownership of their contributions, resulting in a more agile and responsive organization. This collaborative spirit not only augments the dynamics of the team but also enables individuals to assume responsibility for their contributions, culminating in an organization that is more adaptive and responsive. This agility allows organizations to adapt quickly to market changes and emerging challenges, ensuring they remain competitive in an ever-evolving landscape. By cultivating a strong foundation of trust and transparency, organizations can further enhance their ability to innovate and respond effectively to the needs of their customers and stakeholders.

Communication and knowledge sharing research has predominantly focused on fields such as social sciences and medicine, with limited evidence available for their application in the construction sector. Future research should investigate these processes in the context of sustainable development goals (SDGs), particularly in developing countries, to bridge this gap.

Moreover, the skills required for sustainable knowledge creation, sharing and implementation in construction remain underexplored. Emerging technologies, such as the metaverse, present new opportunities for enhancing communication and knowledge-sharing practices. Investigating these technologies in future studies can provide innovative solutions for improving knowledge management in the construction sector.

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