A Meta-Data-Analysis of Knowledge Creation Pattern of Small Businesses in Africa: Exploring the Past to Predict the Future

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Abstract: Small businesses continue to be highly supportive of global economies, particularly in emerging nations. It is projected that by 2050, Africa might face a rapid rate of urbanisation in the world, which poses a significant development challenge, requiring innovative and African-led solutions. However, African countries, with institutional weaknesses and inadequate government support, are yet to harness the rich potentials of small businesses, particularly due to inadequate knowledge-creation strategies. The study adopted a postpositivist meta-data analysis approach and study interrogated past research findings from other scientific research to gain a more integrative understanding of what has been discovered about the knowledge creation (KC) pattern of African small businesses. However, the study revealed a very insufficient number of studies that explored the KC processes of African small businesses but found best practices of multi-sectoral oragnisations from different countries that African small businesses can learn from. We identified that most of the KC activities revolve around both formal and social interactions, such as dialoguing, reflections, storytelling, and collaborative activities. Additionally, we note, among others, the role of the culture of mistake acceptance and proximity that removes social, organisational, and institutional distances. The following recommendations were made: the empirical testing of the application of the KC theory of small businesses, particularly in Africa, should be done; more studies should be done on KC processes of organisations so that best practices can be shared; there is a need for small businesses to be systematic in their approach to KC; and knowledge officers should be engaged to ensure the effectiveness of knowledge-creation initiatives in small businesses.

Keywords: KC, Knowledge management, Small businesses, Africa, Rayyan, Socialisation, Proximity, Mistake acceptance, Interactions

1. Introduction

Knowledge has become a critical source of the sustainability of organisations' competitive advantage (Arsawan, 2022). Firms that develop and leverage knowledge resources succeed more than those that depend more on tangible resources (Cooper et al, 2023). Although scholars acknowledge the fundamental role of knowledge creation (KC) for sustainable competitive advantage, few studies have thoroughly investigated the distinctive knowledge-creation processes of small businesses. Understanding KC processes is critical for small businesses to make optimum use of explicit and tacit knowledge flowing within their organisations. Nonaka and Takeuchi (1995) drew upon Polanyi's (1967) work to distinguish between knowledge that is tacit (internalised) and knowledge that is explicit (externalised). By observing the interactions between tacit and explicit knowledge, Nonaka, and Takeuchi's (1995) theory of KC proposes four modes of knowledge. They opined that to have continual KC, the four modes: socialisation, externalisation, combination, and internalisation, must be followed systematically and sequentially.

KC can be depicted as a series of activities (processes) (Styhre, Roth and Ingelgard, 2002), or the output of such processes, such as a value-adding outcome, or a new product or service (Johnson, 2002). As a process, KC refers to the initiatives and activities undertaken to generate new ideas or objects, that is, the methods or means through which knowledge is created. Conversely, KC as an output can be described as the development of innovative ideas that enrich existing knowledge (the difference between what is known and what must be known for project success. Mitchell and Boyle (2010:69) substantiate KC as new knowledge that is "diffused, adopted and embedded as new products, services and systems." The current study was interested in exploring KC as a process, rather than as an output.

Academics and executives mostly agree that organisations where KC is strong are more adaptable, flexible, innovative, competitive, and productive (Sin et al, 2015). However, preceding research on KM in small businesses reveals that they tend to have a more mechanistic approach and rely less on social interactions (Durst and Edvisson, 2012). Organisations need to adequately manage knowledge, which is challenging for small businesses because they usually lack the appropriate resources to fully utilise their knowledge stock. Another significant feature of small businesses is that they are particularly at risk of regular staff turnover (Bell, 2022).

Small businesses continue to be highly supportive of global economies, particularly in emerging nations, where they contribute towards employment generation because they utilise more labour-intensive production

processes than large enterprises (Ayandibu and Houghton, 2017). It is projected that by 2050, Africa might face a rapid rate of urbanisation in the world (OECD/SWAC, 2020), which poses a significant development challenge, and requires innovative and African-led solutions. However, African countries, with institutional weaknesses and inadequate government support, might not be harnessing the rich potential of small businesses due to inadequate knowledge-creation strategies. Studies suggest that some African nations focus on knowledge acquisition more than context-based KC, which underutilises knowledge for increased productivity, innovation, and competitive advantage. This is because while knowledge acquisition has the tendency to be static by replicating rules, KC induces new insights, discoveries, and innovations appropriate for different contexts. While a lot of research on small businesses has been carried out on knowledge in management, relatively less has focused on how knowledge is created and how the knowledge-creation process can be managed, particularly among small businesses in emerging economies. It is recognised that knowledge can originate from not only revolutionary progress but also through a backward-oriented approach, such as learning from the research output of previous studies. Hence, the current study interrogates past scientific research findings to gain a more integrative understanding of what has been discovered about the KC pattern of African small businesses. We sought to answer the following research questions: what are the demographic characteristics of included studies? What are the trends of KC activities of small businesses in Africa? Can the past predict the future knowledge-creation landscape for African small businesses? To explore these research questions, we assumed there would be a considerable number of knowledge-creation research that:

- Focus on SMEs
- Have Africa as the study location.
- Describe KC as a process based on the applicability of the KC theory (KCT) postulated by Nonaka and Takeuchi (1995)

The next section describes the theory that informed the study.

2. Theoretical Framework

The KC theory (KCT) came into the limelight in 1995 (Nonaka and Takeuchi, 1995). Central to KCT is the process of socialisation, externalisation, combination, and internalisation, described as the SECI model, which describes a cyclical conversion of tacit knowledge to explicit knowledge and finally to new tacit knowledge to increase organisational knowledge. Over time, the application of the KCT/SECI model has been challenged. For example, we noted the argument that the SECI model ignores the context of use (Sarayreh, Mardawi, and Dmour, 2012), discountenances cultural differences, and may be too sequential to be practicable in real-life situations (Sian Lee and Kelkar 2013). However, despite the criticism, the SECI model has been applied successfully in several disciplines (Li, Liu, and Zhou, 2018; Astorga-Vargas et al, 2017) and geographical locations worldwide (Scully et al, 2013). To address some elements of the criticism, some scholars suggest considering the role of context and cultural background (Brundrett and Lungka, 2019), which provides a basis for the motivation to study KC from the lens of SMEs as a peculiar sectorial context and Africa, with its cultural differences. Premised on the findings of Adesina and Ocholla (2019); Li et al (2018); Astorga-Vargas et al (2017), the current study rests on the assumption that in exploring KC, the study's included studies might have employed the KCT approach. A critical analysis of the SECI model, its application, limitations, and implications are covered in a recent study (Adesina and Ocholla, 2019)

3. Methodology

This is a methodologically inclusive research synthesis meta-study, aimed at synthesising primary research. Therefore, the study explored the EBSCO Host database for peer-reviewed empirical studies on KC. The choice of this database was to make it possible to locate a substantial number of relevant studies on knowledge management across various disciplines. Additionally, restricting the search to a single database was to remove many potential duplication problems characteristic of using multiple data sources. The meta-synthesis was built on a systematic review of the literature. The Rayyan software was used to screen articles for the purpose of conducting a knowledge synthesis study, being a checklist for controlling the quality of studies (Johnson and Phillips, 2018).

3.1 Search Strategy

When the initial search terms were stringed to include "KC" AND SMEs OR "small business*" AND Africa, it is notable that this yielded no result, but when SMEs OR "small business*" was removed to reduce the KC to African studies, two results were found. Therefore, we decided to make the search broader by examining "KC"

studies over a 27-year period, regardless of study location or organisational sector. Thus, "KC" was used for the final search limited to open-access peer-reviewed papers published in the English language from 1995 – 2022 in academic Journals. These keywords were used as a selection criterion in titles, keywords, and abstracts. The year 1995 was the year the theory of KC was established (Nonaka and Takeuchi 1995).

3.2 Inclusion and Exclusion Criteria

373 articles were exported from Mendeley into Rayyan, out of which 115 duplicates were removed. Some articles did not include Abstract in Rayyan and were manually searched as a complementary attempt. It is worth noting here that when analysing the search results using the Rayyan software, some studies that did not explicitly address "KC" but discuss other knowledge management components that could have KC processes embedded (Figure 1) were initially considered eligible. The reason for this was to ensure rigour and that the study did not miss out on knowledge-creation processes that could be embedded in such papers due to the use of synonyms. The reasons for excluding studies are presented in Figure 1 below.

Reasons for the eligibility of certain studies	Reasons for Exclusion (100 studies)
• Knowledge accumulation • Knowledge circulation • Knowledge diffusion • Knowledge flows • Knowledge interaction • Knowledge management • Knowledge processes • Knowledge production • Knowledge spillovers • Knowledge transfer • Knowledge translation	• Bibliometric analysis • Blog papers • Cohort studies • Editorial reviews • Foreign language • Full text is not open access • Incomplete articles • Knowledge creation is missing in-text • Literature/systematic literature review • KC not in abstract or keywords • Study's focus is not relevant to our research question. • Opinion papers • Randomised control trial • Sentiment analysis

Figure 1: Reasons for the Eligibility and Exclusion of Certain Studies

To obtain the data necessary for the meta-synthesis, a coding form was developed according to the question of interest (Duriau, Reger, and Pfarrer, 2007). Fourteen (14) coding items were used: Author, title, year of publication, type of study, study location, study context, study's research question, intended contribution, methodology, data collection techniques, data analysis method, key findings, existing study's relevance to the current study, and further comments notes.

4. Results and Discussion

The search result yielded 373 articles. First, the titles and abstracts of selected articles were screened based on the inclusion criteria. Specifically, 26.8% of the papers were irrelevant, 4.8% were duplicates, and 59% were eventually discarded from the eligible studies. Remarkably, despite delimiting the language of the search results to English, three (3) papers still emerged in other languages. Summarily, while 254 papers met the inclusion criteria after the initial screening for relevant and duplicate fulltext publications, only thirty-two (32) papers were included in the review, representing 8.6% of the overall search results, and 12.6% of the eligible studies. Notably, over 80% of the retrieved results treated knowledge as an output, rather than as a process, which was the original intention of the current research (Styhre, Roth and Ingelgard, 2002; Johnson, 2002).

4.1 What are the Demographic Characteristics of Included Studies?

The search results were published in ninety-seven journals from various fields of specialisation, buttressing the widespread of knowledge management research. Most of the studies were located within Europe, followed by the USA, and the least being Africa (Figure 1). This implies the scarcity of KC studies in the African continent.

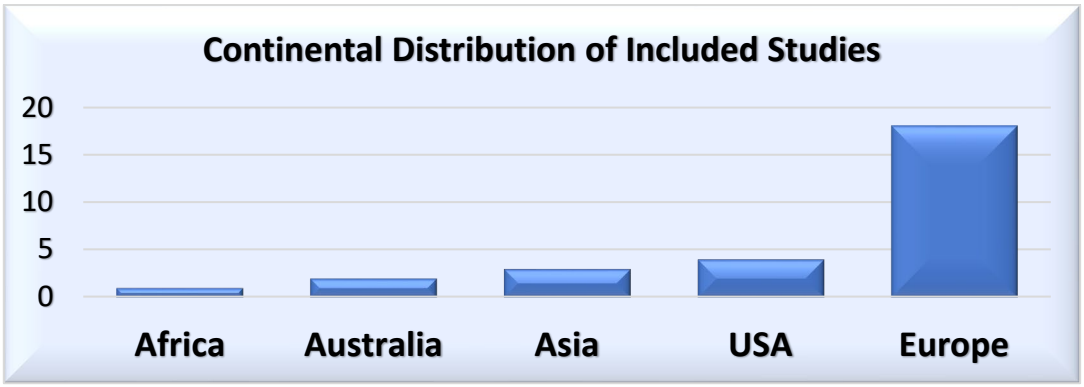

Figure 2: Continental Distribution of Included Studies

It was noted that only one (1) study originated from a small business (SME) perspective, while most were large organisations (Figure 3). This finding buttresses the need for more studies on the knowledge-creation activities of SMEs, an organisational sector that is as knowledge-intensive as HEIs and STEM (Grimsdottir, Edvardsson and Durst, 2019).

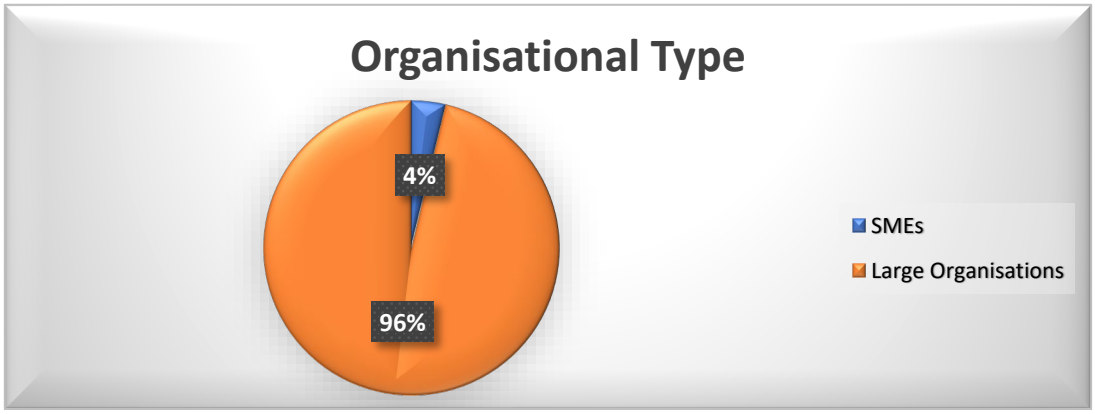

Figure 3: Organisational Distribution of Included Studies

4.2 What are the Trends of KC Activities of Small Businesses in Africa?

Notably, six (6) studies (Sales de Aguiar and Paterson, 2018; Sołek-Borowska, 2017; Heskestad, Aase and Storm, 2016; Baloian and Zurita, 2012; Travaille and Hendriks, 2010; Poissant et al, 2010) explored the SECI modes to demonstrate their KC processes, while one study (Seitamaa-Hakkarainen and Hakkarainen, 2010) utilised only the externalisation mode. Most of the studies focused on knowledge as an output rather than as a process; therefore, we settled on extracting the themes that lead to KC (Table 1) and those that enable the process, which we called facilitating conditions (Table 2). The themes from the studies are presented, not in an order of importance, but in alphabetical order, just for ease of reference.

Table 1: KC Process Themes

Methods Employed for KC Process	Author
Brainstorming; brainwriting/brainsketching/ Visual representations	Baloian and Zurita (2012); Travaille and Hendriks (2010); Poissant et al (2010); Moodysson (2008); Fong, Hills and Hayles (2007)
Collaborative analysis, collaborative learning, collaborative social efforts to solve a problem, novice-expert collaborative solutions analysis.	Shan, Ayers, and Kiley (2020); Muukkonen et al (2020); Levy et al (2016); Niemi, Nevgi and Aksit (2016); Andjelković et al (2016); Tsai et al (2013); Deken et al (2012); Travaille and Hendriks (2010)

Methods Employed for KC Process	**Author**
Data visualizations	Tilak and Glassman (2020)
Dialogues	Rambe and Bere (2013)
Face-to-face social interaction, brainwriting (knowledge externalisation using freehand writing), brainsketching (idea generation techniques using sketching); visual representations	Tanner (2018); Baloian and Zurita (2012); Duin and van den Besselaar (2011); Poissant et al (2010)
Mentoring	Collins and Winnips (2002)
problem-solving (complex problem-oriented situations in a cross-disciplinary way) deep reasoning questions and answers/discussions/feedback/interactions, project/group meetings, and contextual information sharing (novices share information about their task, and experts share information about their expertise)	Manniche, Moodysson and Testa (2017); Heskestad, Aase and Storm (2016); Andjelković et al (2016) Deken et al (2012); Baloian and Zurita (2012); Travaille and Hendriks (2010); Poissant et al (2010); Moodysson (2008)
Reflection activities	Tilak and Glassman (2020) Starodub (2019); Tsai et al (2013); Cooper (2000)
Storytelling	De Quattro (2019)

Significantly, most of the KC activities revolve around interactions, from brainstorming, brainwriting, brain sketching, to data/visual representations. Organisations engage in both formal and social interactions: dialoguing, reflections, storytelling, and collaborative activities, which can be face-to-face or virtual teams and groups, to solve organisational problems and create new knowledge.

We note, among other conditions highlighted below, the following: the role of the culture of mistake acceptance, which is not to promote mistakes but to encourage employees to share the lessons learned in order to limit the repetition of the same mistakes (Kucharska, 2022); the need to reduce distance, for instance, cognitive distance (the extent to which actors differ in their knowledge bases), social distance (the extent of relationships between actors, generally built on familiarity, friendship, and kinship. Such close relationships encourage empathy, communication, and coordination, organisational distance (such as the separation of individuals by hierarchical structures), and institutional distance (norms, rules, and values that influence how actors behave. Large institutional distances may impose serious impediments to fruitful interactions if interacting actors respond to different, even potentially conflicting, sets of incentives or values. It is also crucial that we recognize the role of digital technologies in reducing physical, social, and organizational proximities, in addition to organizing meetings to take place at locations different from employees' work surroundings, such as through shared meals in a different setting and learning arena.

Table 2: KC Facilitating Conditions Themes

Facilitating condition	**Author**
Archive for social and collective memory	Peters and Besley (2019)
Better top-down communication	Travaille and Hendriks (2010); Shan, Ayers, and Kiley (2020); Muukkonen et al (2020); Tsai et al (2013)
Collaboration networks	Hazır, LeSage and Autant-Bernard (2018)
Knowledge Communities: Communities of practice (CoPs) or Epistemic Communities	Kim (2015) ; Rambe and Bere (2013) ; Poissant et al (2010); Moodysoon (2008)
Cooperative relationships with other enterprises	Qiu, Wang and Chen (2019)
Cartography and counter-mapping tools	Starodub (2019)
Digital tools, such as clouds, online networks, social web, online instruction videos, and Web 2.0 tools	Muukkonen et al (2020); Tilak and Glassman (2020); Peters and Besley (2019); Duin and van den Besselaar (2011);
Expert-mentee relationships	Sołek-Borowska (2017)

Facilitating condition	**Author**
Face-to-face meetings.	Baloian and Zurita (2012); Duin and van den Besselaar (2011); Tanner (2018); Poissant et al (2010)
Flipcharts/adhesive post-its to record all concepts and ideas suggested	Fong et al (2007); Shan, Ayers, and Kiley (2020)
Identifying knowledge agents	Sołek-Borowska (2017)
Interdepartmental teams	Sołek-Borowska (2017)
Interdisciplinary teamwork	Muukkonen et al (2020)
Knowledge forum	Seitamaa-Hakkarainen and Hakkarainen (2010)
Learning communities	Rambe and Bere (2013); Stein (2002)
Meeting locations different workplace surroundings	Heskestad, Aase and Storm (2016)
Mistake acceptance.	Sołek-Borowska (2017)
Novice–expert consultation meetings	Deken et al (2012)
Open projects	Sołek-Borowska (2017)
Open, multichannel communication	Tilak and Glassman (2020)
Organising activities around shared "objects," such as reports, concepts, products, or services	Muukkonen et al (2020)
Podcasting exercise promotes collaborative knowledge	Tanner (2018)
Project/group meetings	Travaille and Hendriks (2010); Shan, Ayers, and Kiley (2020); Muukkonen et al (2020); Tsai et al (2013); Poissant et al (2010)
Proximity: social, cultural, and organisational	Bone et al (2020); Tanner (2018); Manniche, Moodysson and Testa (2017);
Spaces that facilitate dialogues and promote interactions	Sales de Aguiar and Paterson (2018)
Supportive cultures	Sołek-Borowska (2017)
Teamwork	Sołek-Borowska (2017)
Training and workshops	Sołek-Borowska (2017)
Trust relationships	Sołek-Borowska (2017)
Web 2.0 technologies	Lee, McLoughlin, and Chan (2008)

4.3 Can the Past Predict the Future Knowledge-Creation Landscape of Small Businesses in Africa?

Essentially, this study reflects on the best practices of other organisations and suggests that small businesses adopt the methods of KC and facilitating conditions supportive of their budget, size, and sector to enhance their KC processes. Therefore, this paper adds to ongoing discussions on the knowledge-creation strategies of organisations, particularly African small businesses.

5. Conclusion

We set out to explore the pattern of KC processes of African SMEs by assuming the existence of a substantial number of studies on KC with a focus on African SMEs/small businesses, and studies where KC is described as a process through the lens of the KC theory postulated by Nonaka and Takeuchi (1995). The initial search revealed only sixteen studies on Africa, out of which only one was eligible to be included in the final stage of the screening process. It is also notable that only one of the included studies emanated from a small business. We were aware that the KCT of Nonaka and Takeuchi has been challenged by several scholars as described in the theoretical framework assumed to guide the current study, but we went ahead to assume its usefulness to the current study because of its attested wide acceptance and usage (Adesina and Ocholla, 2019). However, we found out that out of the thirty-three included studies, only six (6) studies adopted the modes of the KCT postulated by Nonaka and Takeuchi (1995).

We acknowledge that our assumptions were not upheld, which implies an insufficient status of KC studies on African SMEs, particularly those that originate from Africans. However, the study has highlighted best practices from other industrial sectors and study locations that can be considered by African SMEs/small businesses to plan and develop their knowledge-creation activities. We were delighted to identify several facilitating conditions for such plans and development. Again, the socialisation mode of the SECI model remains relevant to almost all the research articles (Miranda and Borges, 2019; Adesina and Ocholla 2019). We observe the overlapping relationship between the methods of socialisation and externalisation. We believe this may be the reason for describing the SECI model as a continuous process, but we query the sequential nature as observed by Sian Lee and Kelkar (2013). We opine that both socialisation and externalisation take place simultaneously and that externalisation becomes distinguished only at the point of making deliberate and systematic efforts to capture the tacit knowledge for organisational use. This suggests that organisations need to pay more attention to this mode to facilitate KC and sharing, and foster innovations in line with sustainable development goal (SDG) 9. The danger of concentrating on only certain modes of the KC cycle, especially socialisation and externalisation,' was acknowledged by Nonaka (1994), so it is important that SMEs explore all modes of the KC theory.

- Recommendation
- We call for empirical testing of the application of the KC theory of small businesses, particularly in Africa.
- More studies should be done on KC processes of organisations so that best practices can be shared.
- We suggest that small businesses should be systematic in their approach to KC, as the creation of new organisational knowledge is becoming a managerial priority.
- Therefore, engaging knowledge officers to ensure effective knowledge-creation initiatives in SMEs will be an essential organisational asset.

6. Limitation

The choice of a single database host may appear insufficient. Nonetheless, it provides agenda for further research.

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