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The sustainability of social enterprises in Nairobi, Kenya: A micro-level agency focus on metacognitive awareness

La sostenibilidad de las empresas de economía social en Nairobi (Kenia): Un enfoque centrado en la capacidad de acción a nivel micro y en la conciencia metacognitiva

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Abstract
Recent research suggests that sustainability is closely aligned with social enterprises, which, as mission-driven ventures, create systemic change and deliver sustainable solutions to local communities. While the sustainability literature is primarily concerned with large-scale change, micro-level agency is often neglected. This article addresses this gap by assigning agency to social entrepreneurs through a focus on their metacognition. The study was conducted in Kenya, where primary data were collected and analyzed statistically. The results reveal that social entrepreneurs' metacognitive experiences positively influence the sustainability of their enterprises. This finding supports the notion that social entrepreneurs' unique experiences, emotions, and intuitions enable them to make effective decisions that ensure sustainable outcomes. The practical implications of these findings are relevant to a range of stakeholders in the social economy, highlighting the need to foster a sustainability-oriented mindset among social entrepreneurs while also developing their metacognitive capacities. This study makes a novel contribution to the literature as one of the first to empirically investigate the influence of metacognition from a social enterprise and sustainability perspective.

Keywords: social enterprise sustainability; metacognition; experience; developing countries; Kenya
JEL Classification: G21; G23; O17

Resumen
Investigaciones recientes sugieren que la sostenibilidad está estrechamente vinculada a las empresas de economía social, las cuales, al ser iniciativas impulsadas por una misión, generan un cambio sistémico y ofrecen soluciones sostenibles a las comunidades locales. Si bien la literatura sobre sostenibilidad se centra principalmente en el cambio a gran escala, a menudo se pasa por alto la capacidad de acción a nivel micro. Este artículo aborda esta laguna al atribuir capacidad de acción a los emprendedores sociales, centrándose en su metacognición. El estudio se llevó a cabo en Kenia, donde se recopilaron datos primarios y se analizaron estadísticamente. Los resultados revelan que las experiencias metacognitivas de los emprendedores sociales influyen positivamente en la sostenibilidad de sus empresas. Este hallazgo respalda la idea de que las experiencias, emociones e intuiciones únicas de los emprendedores sociales les permiten tomar decisiones eficaces que garantizan resultados sostenibles. Las implicaciones prácticas de estos hallazgos son relevantes para una amplia gama de partes interesadas en la economía social, lo que pone de relieve la necesidad de fomentar una mentalidad orientada a la sostenibilidad entre los emprendedores sociales, al tiempo que se desarrollan sus capacidades metacognitivas. Este estudio supone una contribución novedosa a la literatura, ya que es uno de los primeros en investigar empíricamente la influencia de la metacognición desde la perspectiva de la empresa social y la sostenibilidad.

Palabras clave: sostenibilidad de las empresas de economía social; metacognición; experiencia; países en vías de desarrollo; Kenia
Clasificación JEL: G21; G23; O17

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1. Introduction

Social enterprises (SEs) have gained global recognition, with social entrepreneurs exploring new ways of working that address economic, sustainability, and societal goals (WEF, 2025). As mission-driven ventures, SEs play a fundamental role in addressing economic and social challenges by creating and delivering sustainable change to local and international communities (Gupta et al., 2020; Kamaludin et al., 2024). In the social entrepreneurship literature, the definition of SEs is grounded in the centrality of their mission, which drives the enterprise and seeks to "balance the tension between market orientation and social orientation, while dealing with change in varied contexts and under different institutionalized structures" (Gupta et al., 2020; Kamaludin et al., 2024). A growing body of research indicates that SEs must balance two paradoxical goals: delivering on their social mission to create sustainable social value and impact while also ensuring the development of a financially sustainable venture (Agrawal et al., 2024; Salwan et al., 2025).

SE practices align with the growing body of literature on environmental, social, and governance (ESG) initiatives, as well as the increasing importance of sustainability and corporate social responsibility (CSR) (Gómez Martínez et al., 2024; Guerrero-Baena et al., 2024). This alignment is exemplified by the "2030 Agenda for Sustainable Development," which is based on 17 Sustainable Development Goals (SDGs) that address global challenges such as poverty, environmental protection, and improvements in quality of life worldwide (United Nations, 2023).

SEs are particularly important in the context of developing countries, as they provide solutions to widespread social problems (Ciambotti et al., 2023; Rivera-Santos et al., 2015). Across Africa, there are approximately 2.18 million social enterprises, generating an estimated $96 billion in annual revenue and creating more than 12 million jobs; over half of these organizations are led by women, and more than one-third are led by youth (WEF, 2024, 2025). In many developing countries, SEs empower people living in poverty to alleviate that poverty and provide access to education, water and sanitation, and healthcare. They also empower women and youth and seek to improve overall well-being and prosperity in regions and communities (Ciambotti & Pedrini, 2021; Nwauche & Claeyé, 2024). However, many SEs struggle in developing-country contexts, facing significant challenges as they attempt to achieve sustainability while meeting their financial resource needs (Lubberink, 2019; Urban & Bukula, 2024).

From a scholarly perspective, sustainability is relatively well documented in the general entrepreneurship literature. For instance, Jayaram and Singh (2025), through a literature review, provide an overview of current themes in sustainable entrepreneurship, including its challenges and models. Similarly, research on SEs indicates that sustainability is closely aligned with this type of enterprise (Gupta et al., 2020; Kamaludin et al., 2024). Singh et al. (2024) show that the factors driving economic growth and environmental sustainability often interact inefficiently. For example, increases in foreign direct investment (FDI) in polluting industries can exacerbate environmental degradation, with high pollution levels negatively affecting output, health, and quality of life. Moreover, these effects are more pronounced in developing countries that exploit natural capital resources and degrade their ecological footprint.

However, some authors argue that this line of research is predominantly focused on a macroeconomic approach, whereby the sustainability literature is primarily concerned with "large-scale changes, in the form of social movements and large formal organizations, while consideration of micro-level agency" is neglected, even though it is pivotal for understanding the relationship between sustainability and social entrepreneurship (Geels, 2020; Lubberink, 2019). Assigning agency within the sustainability literature (Lehtimäki et al., 2021) is therefore important for identifying the role of social entrepreneurs in creating sustainable SEs (Salwan et al., 2025).

The functioning of SEs involves adopting specific attitudes, skills, and actions that can drive sustainable development by identifying and addressing social issues through sustainable business models. Studies highlight that social entrepreneurs' cognitive adaptability underpins the generation of creative solutions in SEs (Schaefer, Corner, et al., 2022; Tian et al., 2022). These findings align with recent calls for policymakers to place greater emphasis on promoting a sustainability-oriented mindset among entrepreneurs at all stages and on establishing mechanisms that support innovative solutions to local sustainability challenges (GEM, 2024). Accordingly, the research question guiding this article is as follows: To what extent do social entrepreneurs' metacognitive processes influence the sustainability of SEs in Kenya?

Empirical studies emphasize that "metacognition as a form of cognitive adaptability is a valuable entrepreneurial resource, as it enables entrepreneurs to develop resilience and venture strategies to navigate complex and challenging environments" (Haynie et al., 2010; Huang et al., 2025; Krueger, 2007; Urban, 2012). Haynie and Shepherd (2009) conceptualize metacognitive adaptability in terms of five dimensions: "(1) goal orientation, (2) metacognitive knowledge, (3) metacognitive experience, (4) metacognitive choice, and (5) monitoring." Metacognition is relevant to both SEs and sustainability, particularly as prior research shows that the metacognitive processes of social entrepreneurs shape sustainability outcomes and enhance awareness of their emotions, especially in relation to environmental and social causes (Schaefer, Corner, et al., 2022).

In this regard, the current literature reveals several shortcomings in understanding the nuanced interaction between entrepreneurs' cognitive adaptability in addressing social problems (Schaefer, Corner, et al., 2022) and the sustainability of SEs, particularly from an African market perspective. Emerging research indicates that debates persist regarding the impact, scalability, and sustainability of SE initiatives (Lehtimäki et al., 2021; Urban & Bukula, 2024), suggesting that these areas warrant further exploration to advance knowledge and inform practice. In light of this gap, this article aims to establish the role of social entrepreneurs as agents addressing sustainability challenges. The purpose of this article is therefore to examine the extent to which social entrepreneurs think and adapt—by exercising their metacognitive processes—to achieve sustainable performance and outcomes in SEs. The article directly addresses recent calls for the "organization and systemization of the extant stock of knowledge on how sustainability is researched from [the] social enterprise context" (Jayawardhana et al., 2022).

This study contributes to the sustainability literature as one of the first to empirically investigate the influence of metacognitive adaptability—across five dimensions—on the sustainability of SEs in Kenya. Given the limited number of studies on SE sustainability in Kenya, this article responds to the need to contextualize sustainability frameworks within developing-country contexts (Urban & Bukula, 2024). In Africa, the high prevalence of complex and deeply entrenched social problems, combined with governments' limited capacity to address social deficits, renders the survival and sustainability of many SEs precarious (Ngumbela, 2023; Urban & Bukula, 2024). This article is expected to generate relevant insights for a range of stakeholders involved in SE development, including service providers, educators, investors, governments, and policymakers. The article proceeds as follows. First, it provides a concise literature review, from which the hypotheses are derived. Next, the methodology is outlined, including sampling and instrument design. The results are then analyzed and discussed, followed by a discussion of limitations, implications, and directions for future research.

2. Literature and theoretical review

2.1 Sustainability and social enterprises

SEs develop highly innovative solutions to critical social and environmental challenges, thereby advancing the SDGs. The sustainability of SEs aligns with the SDGs through a core focus on social and environmental missions embedded in their business models and the use of market mechanisms to create sustainable solutions addressing poverty (SDG 1), education (SDG 4), health (SDG 3), gender equality (SDG 5), decent work (SDG 8), and environmental objectives (SDGs 12 and 13). Through innovative, community-focused, and inclusive practices, SEs act as catalysts for achieving the 2030 Agenda (GEM, 2024; United Nations, 2023; WEF, 2024). To assess the alignment of SEs with the attainment of the SDGs, Diaz-Sarachaga and Ariza-Montes (2022) draw on expert panels and a survey of 100 Spanish social entrepreneurship practitioners to develop a three-tier hierarchical framework comprising 28 indicators across 12 SDGs. The Mondragon Corporation, a leading Spanish cooperative with a global presence, is examined as a case study for this framework.

Prior research on sustainability in the SE context has been examined primarily from three perspectives: social, economic, and environmental (Kamaludin et al., 2024; Ngumbela, 2023; Rivera-Santos et al., 2015; Urban & Bukula, 2024). The social dimension of an SE must consider not only its outputs but also the sustainability of the entire process. This requires SEs to recognize and incorporate economic, social, and environmental considerations in the selection and use of external resources (Jayawardhana et al., 2022). Understanding SE sustainability and developing appropriate measurement frameworks are essential for assessing effectiveness and guiding future development. Research indicates that SEs generating social and environmental value should be grounded in sustainability principles (Audretsch et al., 2024; Lehtimäki et al., 2021), directing attention to the creation of grassroots innovation (Agrawal et al., 2024; Bosma et al., 2016; J. G. Dees et al., 2004; Doherty et al., 2014). SEs aligned with the SDGs are better equipped to address challenges and adapt to changing circumstances, thereby contributing to resolving issues such as climate change, poverty, and inequality (Gupta et al., 2020; Kamaludin et al., 2024). In a similar vein, the Global Entrepreneurship Monitor (GEM, 2024) report on sustainability and entrepreneurship finds that this motivation is evident across diverse cultures and geographies, with little indication that purpose-driven entrepreneurship is confined to higher-income economies. Low-income economies, such as India and Guatemala, are among those with the highest proportions of new and established entrepreneurs endorsing the sustainability-driven motivation "to make a difference in the world."

Moreover, environmental issues can be understood as inherently social and economic in nature; consequently, social entrepreneurs are well positioned to drive impactful change in relation to climate change and the transition to a sustainable circular economy (Campos et al., 2020; Kamaludin et al., 2024). Although SEs are established for social purposes, it is important to assess their efficiency and profitability in order to evaluate their overall effectiveness, which ultimately determines their sustainability (Cosa & Urban, 2025). SEs rely on economic and financial performance measures to evaluate financial accountability and sustainability objectives (Bagnoli & Megali, 2011; Salwan et al., 2025). At the same time, although financial data play a key role in achieving sustainability outcomes, social effectiveness remains essential for meeting social needs in line with

the social mission (Campos et al., 2020; Kamaludin et al., 2024). Most SEs are grounded in missions based on sustainability principles, striving to deliver social benefits in ways that maximize impact (Doherty et al., 2014). Social effectiveness, as a measure of SE performance, assesses the quality and quantity of impact achieved over time (Bagnoli & Megali, 2011), which is often intangible and therefore difficult to measure (Urban & Bukula, 2024). A further challenge in measuring sustainability is the lack of consensus on appropriate indices, which creates a significant barrier to the formulation and implementation of sustainability strategies (Lubberink, 2019; Urban & Bukula, 2024).

Through a systematic review of performance measurement systems and their relevance to SEs, Cosa and Urban (2025) provide insights into the systems that best capture social entrepreneurship hybridity. These include the General PMS Model for Social Enterprises, the Multidimensional Assessment Model, the Vincentian Marketing Orientation, and the SAVE framework, all of which offer, to varying degrees, credible performance measures that enable SEs to assess and report on their overall development and sustainability. Regardless of the performance measurement system adopted, social entrepreneurs must identify and pursue opportunities that generate positive impacts on people and the planet through innovative business models, products, and services (Lubberink, 2019).

A critical dimension of SE sustainability, given that SEs operate within communities, is their credibility and legitimacy, which enable them to gain community support and attract external stakeholders (Bagnoli & Megali, 2011). To achieve credibility and legitimacy, sustainable SEs may adopt strategies such as selecting "socially or environmentally certified suppliers which have ethical certification and provide employment to vulnerable groups and individuals with different types of disadvantages (mental health issues, physical handicap, disabled, etc.)" (Bagnoli & Megali, 2011; Bosma et al., 2016; Gupta et al., 2020). From this perspective, social entrepreneurs are responsible for ensuring that their SEs pursue strategies that promote long-term sustainability, environmental responsibility, social equity, and economic growth (Kamaludin et al., 2024). Achieving these long-term objectives requires the effective mobilization of resources to support the SE's initiatives. This includes not only financial capital but also social networks and other forms of human and knowledge capital, as well as the cognitive capabilities that enable social entrepreneurs to make critical decisions within their SEs (Schaefer, Corner, et al., 2022).

This emphasis on cognitive capabilities aligns with the focus of this article on metacognition. While social entrepreneurs' ability to adapt to changing venture environments is essential, their metacognitive processes enable them to make critical decisions within their SEs (Schaefer, Corner, et al., 2022; Tian et al., 2022).

2.2 Social entrepreneurs and metacognitions

Mair and Noboa (2006) were among the first to provide a more comprehensive understanding of the social entrepreneur by examining the antecedents of intentions to establish a social venture. Their model of social entrepreneurial intentions is based on the perceived desirability and feasibility of the enterprise. The relevance of these antecedents has been emphasized by subsequent research, particularly within social psychology, which focuses on understanding the mental processes (cognitions) that link attitudes and beliefs to action (Liñán et al., 2011). Understanding SEs from a cognitive perspective is important, given that social entrepreneurs act as change agents, and their ability to do so is grounded in their cognition (Corbett et al., 2018; Muñoz, 2018).

Various theories of human cognition and psychology have shed light on how and why entrepreneurs think differently from others (Baron, 2004; Mitchell et al., 2007; Urban, 2012). Social cognitive theory (SCT) posits that individuals' cognitions shape and inform their behavior (Bandura, 2001), while entrepreneurial cognition refers to "the knowledge structures and simplified mental processes entrepreneurs use to make sense of previously unrelated material" (Baron, 2004; Mitchell et al., 2007). The entrepreneurial cognition literature has advanced considerably in examining cognitions related to entrepreneurial decision-making (Corbett et al., 2018; Mitchell et al., 2007; Muñoz, 2018). More recent developments in the field examine how entrepreneurs "think about thinking," a process referred to as metacognition (Haynie et al., 2010). Metacognitive theory, introduced by psychologist John H. Flavell in the 1970s, centers on this concept. Metacognitive thinking involves self-awareness, planning, reflection, and the use of strategies based on prior knowledge to select appropriate actions aligned with environmental conditions and goals (Haynie et al., 2010; Urban, 2012).

Whereas cognition is required to complete a task, metacognition concerns awareness of one's own cognitive activity; this awareness implies a form of monitoring that enhances individuals' control over their cognitive processes (Norman et al., 2019). Individuals who effectively apply metacognition benefit from more accurate estimation and updating of their knowledge, as well as improved monitoring and evaluation of ongoing learning, because "metacognition triggers analytic reasoning to evaluate and refine intuitive reasoning" (Hadinejad et al., 2025). Social psychologists define metacognition as reflection on one's thoughts, or thinking about thinking (Bandura, 2001). Similarly, in cognitive psychology, metacognition is described as an individual's executive control, including monitoring and self-regulation (Massoni, 2014). In educational psychology, it is defined as higher-order thinking involving active control over cognitive processes and

conscious awareness (Hanisch & Eirdosh, 2023; Thompson et al., 2011).

Although metacognitive approaches have gained significant attention in psychology, their application beyond this field—particularly in sustainability contexts—remains limited (Hadinejad et al., 2025). Nevertheless, interdisciplinary research integrating metacognition from psychological subfields into sustainability is evolving, with insights from environmental psychology demonstrating how metacognition can inform sustainability research. For example, Said et al. (2023) highlight the role of metacognition in shaping public responses to sustainability communication. Metacognitive strategies have also been identified as fundamental to research processes in sustainable tourism (Truong et al., 2024), while other studies apply metacognitive theory in marketing to examine sustainability-related behaviors (Vilkaite-Vaitone, 2024).

Recognizing that integrating metacognition into sustainability research can provide a more comprehensive framework—one that captures the interplay of cognitive processes, intentionality, and reflective awareness in shaping sustainable action (Hadinejad et al., 2025)—this study adopts the metacognitive awareness model (Haynie & Shepherd, 2009), which is central to the entrepreneurship cognition literature (Michaelis et al., 2021), to inform the development of the study hypotheses. Drawing on prior research integrating metacognition and sustainability, the model is used to examine how each of its dimensions may influence SE sustainability.

2.2.1 Goal orientation

This metacognitive dimension "captures the extent to which an individual appreciates environmental changes in relation to personal, societal, and organizational objectives" (Haynie et al., 2010). Metacognitive awareness is closely linked to the formulation of goals and intentions, as individuals perceive and assign meaning to environmental characteristics in light of their goal orientation (Haynie & Shepherd, 2009). Research highlights the importance of entrepreneurs developing metacognitive processes, as these support the mobilization of resources and facilitate further "thinking about thinking" processes (Bastian & Zucchella, 2022). Prior studies indicate that SEs measure their social impact incrementally and achieve their goals over time (Schaefer, Corner, et al., 2022). Moreover, research shows that social entrepreneurs' empathy leads them to adopt goals aligned with their social mission, thereby activating the social entrepreneurship process (J. D. Dees, 1998).

A goal orientation focused on sustainability outcomes shapes social entrepreneurs' ability to make effective decisions aimed at achieving such outcomes. In particular, their capacity to mobilize resources and build strategic relationships enables them to achieve social goals and expand their SEs (Campos et al., 2020; Lubberink, 2019). Within this context, the role of cognitive processes, intentionality, and reflective awareness in shaping sustainable action is emphasized in the metacognitive awareness model (Hadinejad et al., 2025; Haynie & Shepherd, 2009). It is therefore hypothesized that the goal orientation dimension of metacognition positively influences the sustainability of SEs:

H1:*Goal orientation, as a metacognitive dimension, is positively related to the sustainability of social enterprises in Kenya*.

2.2.2 Metacognitive knowledge

This metacognitive dimension refers to the "extent to which an individual depends on what they already know about themselves, other people, tasks, and strategy when constructing numerous choice frameworks centered on interpreting, planning, and implementing goals to manage a changing environment" (Haynie & Shepherd, 2009, p. 697). Previous research has examined the relevance of metacognitive awareness within entrepreneurship. Urban (2012) finds that individuals draw on metacognitive knowledge to generate multiple alternative decision frameworks and entrepreneurial intentions. Entrepreneurs with strong metacognitive knowledge are better equipped to accurately identify opportunities and risks and to apply effective cognitive strategies in decision-making.

The link between metacognitive knowledge and sustainability is evident in how social entrepreneurs operating in dynamic environments consciously draw on prior metacognitive knowledge to select the most effective cognitive strategies for addressing decision tasks and sustainability challenges (Schaefer, Kearins, et al., 2022; Urban & Bukula, 2024). Kruse et al. (2025) adopt concepts from organizational search theory to analyze 18 narrative interviews with SE operators in Germany and Ethiopia. Their findings provide empirical support for a social entrepreneurial search model that integrates different cognitive search mechanisms and heuristics. They identify three distinct types of SEs that employ different search strategies—"focused search," "tentative search," and "hybrid search"—based on their perceptions of environmental complexity, as well as two normative theories that guide their search as cognitive heuristics.

These findings underscore that social entrepreneurs' ability to draw on metacognitive knowledge is essential for linking SE practices to sustainability, leading us to predict:

H2:*Metacognitive knowledge is positively related to the sustainability of social enterprises in Kenya*.

2.2.3 Metacognitive experience

This metacognitive dimension "reflects how much an entrepreneur relies on their emotions and intuitions when developing various cognitive frames that enable them to interpret, plan, and implement their goals to adapt within the entrepreneurship process" (Haynie & Shepherd, 2009, p. 698). Huang et al. (2025) confirm that both entrepreneurial metacognitive knowledge and entrepreneurial metacognitive experience significantly enhance entrepreneurial resilience. Empirical studies that explicitly connect metacognitive experience with sustainability outcomes show that social entrepreneurs' awareness of their feelings, particularly regarding environmental and social causes, fuels the creative entrepreneurial process (Schaefer, Kearins, et al., 2022).

Research related to metacognitive experience, focusing on inner realities—thoughts, feelings, and self-awareness—demonstrates that social entrepreneurs engage in practices that increase awareness of both positive and negative aspects of their inner experiences. Positive aspects tend to enable generative value-creation mechanisms and lead to favorable social and environmental sustainability outcomes, whereas negative aspects can interfere and result in unintended negative sustainability outcomes (Schaefer, Corner, et al., 2022). Moreover, social entrepreneurs' metacognitive experiences serve as a source of creativity, allowing them to effect social change through the innovative solutions they generate (Schaefer, Corner, et al., 2022).

These findings support the following hypothesis:

H3:*Metacognitive experience is positively related to the sustainability of social enterprises in Kenya*.

2.2.4 Metacognitive choice

This metacognitive dimension refers to the "extent to which an individual actively chooses from numerous decision frames the one that best interprets, develops, and implements a response for the goal of managing a changing environment" (Haynie & Shepherd, 2009, p. 698). Individuals who rely on metacognitions are more likely to recognize that multiple decision frameworks are available and to engage in selecting a response by considering these alternatives (Urban, 2012).

Bohm et al. (2024) examine the metacognition of uncertainty in relation to sustainability challenges and suggest that awareness of different types of uncertainty may lead to different regulatory behaviors. Bastian and Zucchella (2022) highlight the role of feedback and social comparison, which reinforce additional metacognitive processes and further engagement with others. Metacognition serves as a cognitive resource that fosters the development of an outsider perspective, enabling nascent entrepreneurs to rethink current strategies (Ehrig & Foss, 2022).

Research confirms that social entrepreneurs constantly face critical decision tasks while managing their SEs to achieve sustainability. Their ability to select the most effective cognitive strategies and make deliberate decisions is therefore essential (Schaefer, Corner, et al., 2022; Tian et al., 2022).

Based on these findings, the following hypothesis is proposed:

H4:*Metacognitive choice is positively related to the sustainability of social enterprises in Kenya*.

2.2.5 Metacognitive monitoring

This metacognitive dimension refers to an "individual's ability to manage a changing environment by seeking and using feedback to re-evaluate goal orientation, metacognitive knowledge, experience, and choices made" (Haynie & Shepherd, 2009, p. 698). An entrepreneur's metacognitive monitoring depends on their capacity for self-reflection and their ability to draw lessons from previous decisions to inform higher-order thinking processes (Haynie et al., 2010).

Social entrepreneurship, as a process, encompasses multiple stages that actively engage the social entrepreneur's understanding and reflection on the social context, which in turn informs the social mission. Accordingly, self-reflection is critical to the effectiveness and sustainability of SEs (Urban & Bukula, 2024), as it allows entrepreneurs to evaluate achieved or missed goals using the decision frameworks they employ, thereby identifying opportunities for improvement (Haynie & Shepherd, 2009).

Metacognitive processes also encourage nascent entrepreneurs to look beyond their social networks and organizational structures to seek expertise. Such interactions stimulate the adoption of feedback, either through leveraging human relationships inside and outside the venture or by benefiting from social comparisons within their networks (Bastian & Zucchella, 2022). The integration of feedback and social

comparison acts as a motivational trigger, prompting entrepreneurs to engage more actively in local entrepreneurial ecosystems and to focus on sustainability performance measures (Bastian & Zucchella, 2022).

Based on these arguments, the following hypothesis is proposed:

H5:*Metacognitive monitoring is positively related to the sustainability of social enterprises in Kenya*.

3. Research design

3.1 Study context

Kenya is the leading economic hub in East Africa and one of the continent's main commercial centers (World Bank, 2024). Its capital, Nairobi, is home to over 5.7 million people and serves as the primary center for commerce, innovation, and enterprise in the region. With an estimated population exceeding 57 million in 2025, Kenya faces persistent socio-economic challenges, including high youth unemployment, widespread poverty, and ongoing food insecurity (United Nations, 2025; World Bank, 2024).

Social enterprise (SE) activity in Kenya can be traced back to the 1980s, when economic restructuring and declining government investment in social services created space for non-state actors, including NGOs and private organizations, to provide critical services (World Bank, 2022). The growth of SEs in Kenya has been shaped by socio-economic development, with the diversity and rapid expansion of the Kenyan SE ecosystem highlighting both the significant contribution SEs make toward tackling unemployment, fostering innovation, and supporting community development, as well as the gaps that remain in regulatory frameworks, access to finance, and sector-specific policies. SEs have increasingly played a key role in Kenya by addressing these challenges, providing innovative solutions, and creating employment opportunities (Siemens Stiftung, 2020).

Currently, Kenya hosts approximately 137,800 social enterprises, many led by women and youth (WEF, 2025). The number of SEs has more than tripled over the past decade, reflecting their growing importance in addressing community challenges. Collectively, these organizations have created around 796,000 full-time jobs, with 93% employing youth, 91% employing women, and 31% employing persons with disabilities (WEF, 2025). SEs operate predominantly in education (21%), health and well-being (18%), agriculture (15%), and civic engagement (14%), as well as in energy, water, and sanitation, demonstrating the diversity within the ecosystem (WEF, 2025).

Most SEs in Kenya are at the start-up (41%) or growth (33%) stage. However, the regulatory environment does not formally recognize SEs, resulting in most registering under general commercial or non-profit frameworks (World Bank, 2022). Recent reports indicate that 83% of SEs are formally registered, mainly as private companies (36%) or non-profits (29%), with a smaller proportion (5%) registered as benefit corporations (WEF, 2025). While institutions such as the Micro and Small-Sized Enterprise Authority and the State Department for MSME Development provide general enterprise support, no policies or legislation specifically address the unique needs of SEs in Kenya (Siemens Stiftung, 2020). Existing legislation, such as the NGO Coordination Act (1990) and the 2006 Sessional Paper, primarily governs NGOs rather than SEs themselves (British Council, 2016).

Despite these advances, SEs face persistent barriers. Key challenges include limited access to finance, cash-flow constraints, inadequate support services, and low public awareness of the social enterprise model (WEF, 2025). Access to capital remains the primary obstacle, often directed toward operational costs, expanding products and services, and investing in infrastructure. Navigating between non-profit and for-profit registration also creates practical challenges related to governance, taxation, and funding eligibility (WEF, 2025).

The absence of a dedicated legal framework has fostered the creation of networks and initiatives to support the sector. The Social Enterprise Society of Kenya (SESOK), established in 2017, provides technical support, networking opportunities, and raises awareness of social enterprises (Siemens Stiftung, 2020). Similarly, the East African Social Enterprise Network (EASEN) supports the sector through advisory services and advocacy across Kenya, Uganda, Tanzania, Rwanda, South Sudan, and Burundi (Siemens Stiftung, 2020). Kenya also benefits from a strong technical support ecosystem, with over 120 organizations offering business development services, advisory support, and networking opportunities, which have contributed to sector growth and visibility (Siemens Stiftung, 2020). By the 2010s, broader enterprise development structures, including the Micro and Small-Sized Enterprise Authority and the State Department for MSME Development, began offering programs that, while general in scope, positively influenced SE growth (Siemens Stiftung, 2020).

Overall, the SE sector in Kenya is of considerable relevance due to its significant social and economic contributions. The historical, regulatory, and institutional context underscores both the achievements and ongoing challenges that continue to shape the Kenyan SE ecosystem (World Bank, 2022).

3.2 Sampling and data collection

The unit of analysis was the social entrepreneur actively involved in a social enterprise (SE), defined as a mission-driven organization that addresses social concerns while simultaneously striving to achieve financial goals (Urban & Bukula, 2024). Regarding sample size and frame, Kenya has an estimated 137,800 SEs, with Nairobi reporting the highest levels of social entrepreneurial activity (Siemens Stiftung, 2020; WEF, 2025). However, no formal or reliable database of SEs in Kenya exists. Therefore, a convenience sampling approach was employed, with the qualifying criterion being individuals "starting or currently leading any kind of activity, organization or initiative that has a particularly social, environmental or community objective" (Bosma et al., 2016, p. 9).

Based on this criterion, 550 surveys were administered across multiple locations in Nairobi to "ensure sufficient variability and a high regional representativeness" (Schindler, 2019). Participants were randomly selected from each regional subgroup to approximate the proportional distribution of SE activity across the city. Despite these efforts, the absence of a formal population database means no claims of sample representativeness can be made.

Following survey administration, and after multiple reminders over a three-week period, a total of 231 responses were received, representing an acceptable response rate for electronic surveys of this type (Schindler, 2019). Non-response bias was assessed using *t*-tests, which showed no significant differences between early and late respondents in terms of survey region. Ethical standards were strictly observed: all participants provided informed consent, and confidentiality of their responses was ensured.

Sample characteristics were as follows. Regarding the type of social venture, the majority (73.5%) were hybrid models, 18.1% were for-profit, and 8.5% were non-profit. In terms of gender, 61.45% of respondents were male, and 38.55% were female. Most respondents fell within the 20–30 age group (60.2%), with 33.7% in the 31–40 age range. Sector activity was concentrated in education, health and well-being, and civic engagement, with key priorities including youth, climate, and economic development. This aligns with evidence showing that SEs in Kenya operate across sectors such as education, health, agriculture, water management, and energy (WEF, 2025).

Regarding venture longevity, most SEs had been in operation for three to five years (46.8%). Geographically, the majority were located near Nairobi's central business district, in areas including Westlands, Karen, Kilimani, Ngong Road, Ruaraka, and Embakasi. For additional details, see Table A1 in the appendix.

3.3 Research instruments

The survey questions were drawn from prior research and comprised two main sections, employing multi-item scales with a 7-point Likert scale ranging from 1 (Strongly Disagree) to 7 (Strongly Agree) (Schindler, 2019). Demographic data were also collected, including variables previously identified as relevant to social enterprise (SE) sustainability, such as the social entrepreneur's age, gender, and years of SE operation (Jayawardhana et al., 2022).

For the study's independent variables (IVs), the 36-item Generalized Measure of Adaptive Cognition (MAC; Haynie et al., 2010; Haynie & Shepherd, 2009) was adopted. This instrument has previously been used in emerging market contexts (see Urban, 2012). Drawing on existing theory and empirical work from cognitive and social psychology on metacognition, the MAC instrument's validity has been previously confirmed, as its factor structure was consistent with five theoretically derived dimensions (Haynie & Shepherd, 2009). It has been proposed that "metacognition measures should explore heterogeneity in an individual's performance across a wide variety of entrepreneurial tasks and situations"; accordingly, items for MAC were grouped based on the five dimensions of metacognitive awareness: goal orientation, knowledge, experience, choice, and monitoring (Haynie & Shepherd, 2009). Items were randomized during administration, and respondents were asked to rate themselves on a seven-point scale, with 1 representing "not very much like me" and 7 representing "very much like me."

For the dependent variable (DV), measures were adapted from previous studies investigating SE sustainability and consolidated from established research instruments, including the social return on investment (SROI) index, a widely used tool for SE evaluation internationally (Millar & Hall, 2013); social impact measures from the Centre for the Advancement of Social Entrepreneurship (J. G. Dees et al., 2004); the Multidimensional Assessment Model (Bellucci et al., 2012); the Benefit Impact Assessment Model (Nigri & Del Baldo, 2018); the Vincentian Marketing Orientation (Miles et al., 2014); and the SAVE framework (Bassi & Vincenti, 2019). These instruments provide credible performance measures that allow SEs to assess and report on overall sustainability.

The justification for using these measures is that sustainability is closely aligned with SEs, insofar as SEs can promote sustainable development by addressing social issues through sustainable business models (Gupta et

al., 2020). SEs can develop innovative solutions to social and environmental challenges, thereby contributing to the Sustainable Development Goals (SDGs) (Kamaludin et al., 2024; Singh et al., 2024). By drawing on the theoretical scaffolding of SE theory and relying on established constructs such as SROI, this study builds on and may extend the theoretical and empirical understanding of the SE–sustainability relationship. Using established measures is advantageous because they are supported by empirically meaningful relationships established in earlier studies, allowing for more advanced knowledge development (Cosa & Urban, 2025; Urban & Bukula, 2024).

The selected measures capture the study's objectives, including items focused on social impact and reach (four items), expandability and replicability (three items), and the sustainability of the venture (four items). All items were measured using seven-point Likert scales ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). See Table 1 for examples of questions related to each of the IVs and the DV.

3.4 Data analysis

Statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS, version 25). Descriptive, correlational, and multiple regression analyses were performed. The data were first screened for incomplete responses, including missing values. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were conducted in SPSS to assess the validity of the measurement scales.

Because all data were collected from the same source, it was necessary to examine common method bias (CMB). Both procedural and statistical approaches were employed to address potential CMB, as recommended by Podsakoff et al. (2012). Procedurally, the scales were piloted with 20 respondents to ensure that the items were clear and unambiguous. Statistically, Harman's one-factor test, implemented via principal component analysis (PCA), was conducted on all measurement items (Podsakoff et al., 2012, p. 560). The PCA results identified six components with eigenvalues greater than 1.0, with the first component accounting for only 17% of the variance. Because no single factor explained the majority of the variance, the results indicated no evidence of common method bias.

4. Results

4.1 Validity and reliability testing

The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy calculated across all items was 0.829 (approx. $\chi^2 = 964.289$, $df = 231$, $p < .001$), exceeding the recommended threshold of 0.5 and indicating suitability for exploratory factor analysis (EFA). Communalities for all items were above 0.3, suggesting adequate item correlations and acceptable explanation of variance.

The initial EFA identified ten factors with eigenvalues greater than 1. Factors with zero loadings or cross-loadings were eliminated, resulting in six factors being retained. Promax rotation with Principal Axis Factoring was applied, and the rotation converged in seven iterations. The six extracted factors accounted for a total variance of 71.06%, surpassing the commonly accepted threshold of 50% cumulative variance (Schindler, 2019). Table 1 presents the factor loadings for the final pattern matrix of the six retained factors.

Internal consistency was assessed using Cronbach's alpha. Results (Table 1) indicate excellent reliability for sustainability (α = 0.827), goal orientation (α = 0.896), and metacognitive knowledge (α = 0.843); respectable reliability for metacognitive experience (α = 0.790) and metacognitive choice (α = 0.764); and acceptable reliability for metacognitive monitoring (α = 0.688), which falls within the minimally acceptable range of 0.65–0.70 (Tonidandel et al., 2018). All inter-item correlations exceeded 0.3, confirming convergent validity for all scales (Schindler, 2019).

Table 1. Validity and reliability results: EFA final factor pattern matrix

Constructs	Items	1	2	3	4	5	6
Sustainability (DV)	Sustainability8 – Our venture is widespread and spans several communities	.822					
	Sustainability6 – Our venture has entered several partnerships with businesses, or has a few important ones	.789					
	Sustainability7 – Our venture has many direct beneficiaries	.755					
	Sustainability3 – The venture organization is firmly in place and can stand without the support of the founder	.685					
	Sustainability1 – Our venture self-generates most of its funds, or outside funding is reliable	.650					
	Sustainability5 – Our venture results are tangible to date	.630					
Goal Orientation (IV1)	GoalOrientation4 – I understand how accomplishment of a task relates to my goals		.939				
	GoalOrientation5 – I ask myself how well I have accomplished my goals once I have finished		.838				

Table 1. Validity and reliability results: EFA final factor pattern matrix

Constructs	Items	1	2	3	4	5	6
	GoalOrientation3 – I set specific goals before I begin a task		.808				
	GoalOrientation1 – I organize my time to best accomplish my goals		.766				
Metacognitive Knowledge (IV2)	MetacognKnowledge4 – I find myself automatically employing strategies that have worked in the past			.925			
	MetacognKnowledge7 – I try to use strategies that have worked in the past			.874			
	MetacognKnowledge5 – I perform best when I already have knowledge of the task			.732			
Metacognitive Experience (IV3)	MetacognExp5 – I know what kind of information is most important to consider when faced with a problem				.894		
	MetacognExp1 – I use different strategies depending on the situation				.775		
	MetacognExp3 – I depend on my intuition to help me formulate strategies				.506		
Metacognitive Choice (IV4)	MetacognChoice5 – I ask myself if I have learned as much as I could have when I finished the task					.730	
	MetacognChoice4 – I re-evaluate my assumptions when I get confused					.692	
	MetacognChoice1 – I ask myself if I have considered all the options when solving a problem					.684	
Metacognitive Monitoring (IV5)	MetacognMonitoring3 – I periodically review to help me understand important relationships						.762
	MetacognMonitoring5 – I find myself pausing regularly to check my comprehension of the problem or situation at hand						.712
	MetacognMonitoring6 – I ask myself questions about how well I am doing while I am performing a novel task						.503
Eigenvalues		7.452	2.784	1.882	1.312	1.152	1.051
Cumulative Variance (%)		33.80	46.52	55.08	61.05	66.28	71.06
Cronbach's Alpha		0.827	0.896	0.843	0.790	0.764	0.688
Composite Reliability		0.879	0.926	0.869	0.814	0.793	0.718

Confirmatory factor analysis (CFA) was conducted to further validate the factor structure through cross-validation. Convergent validity at the construct level was assessed using the average variance extracted (AVE), with all constructs exceeding the recommended threshold of 0.50 (Hair et al., 2010). Discriminant validity was evaluated using the Fornell–Larcker criterion, confirming that the square root of each construct's AVE exceeded its highest correlation with any other construct. Additionally, the heterotrait–monotrait (HTMT) ratio of correlations was examined to assess the true correlation between latent constructs under the assumption of perfect reliability (Hair et al., 2010). All HTMT ratios were below 0.70, well under the maximum recommended threshold of 0.90, thereby supporting discriminant validity. Cross-loading analyses further confirmed discriminant validity, as indicator variables loaded higher on their intended constructs than on any other constructs (Hair et al., 2010). Model fit was also supported by a standardized root mean square residual (SRMR) value ≤ 0.10, indicating acceptable fit. Composite reliability (CR) was assessed alongside Cronbach's α values (see Table 1), with all CR scores exceeding the recommended threshold for internal consistency reliability (Hair et al., 2010).

Table 2 presents the descriptive statistics and Pearson's correlation coefficients. Mean scores (M) for all metacognitive dimensions exceeded the scale midpoint, indicating generally high agreement on these factors. Sustainability returned a mean score slightly below the scale midpoint (M = 3.463). Several significant correlations were observed. According to Schindler (2019), correlation magnitudes can be interpreted as small (≥ 0.10), medium (≥ 0.30), or large (≥ 0.50). Results indicate positive relationships between sustainability and goal orientation (r = 0.269, p < .05), metacognitive experience (r = 0.335, p < .01), and metacognitive choice (r = 0.252, p < .05). Non-significant correlations were observed between sustainability and metacognitive knowledge and monitoring. Significant intercorrelations were also observed among the factors; however, all coefficients were below 0.9, indicating no evidence of multicollinearity at this stage of the analysis (Schindler, 2019).

Table 2. Descriptive statistics and correlation coefficients

	Mean	*SD*	1	2	3	4	5	6
1. Sustainability	3.463	.8740	—					
2 Goal Orientation	5.072	.7965	.269*	—				
3. Metacognitive Knowledge	5.048	.9111	.018	.163	—			
4. Metacognitive Experience	5.019	.6746	.335**	.442**	.234*	—		
5. Metacognitive Choice	5.260	.5854	.252*	.378**	.300**	.482**	—	
6. Metacognitive Monitoring	4.955	.7511	.092	.403**	.219*	.396**	.347**	—

(*) p < .05; (**) p < .01 (two-tailed)

The influence of the independent variables (IVs) on the dependent variable (DV), sustainability, was examined using multiple regression analysis. First, the normality of the data was assessed to confirm that the distribution of the data was appropriate for modeling (Schindler, 2019). Assumption testing for all extracted variables ensured that the data were normally distributed, contained no outliers, and met the linearity criterion. Table A2 and Figures A1-A3 in the appendix present the results of these analyses. According to the regression results shown in Table 3 and Table 4, the base model indicates an adjusted $R^2$of 0.097, with all IVs together explaining approximately 15.3% of the variance in the DV (R^2= 0.153). The Durbin–Watson statistic (d = 1.864) falls between the critical values of 1.5 and 2.5, indicating no evidence of first-order linear autocorrelation in the data (Schindler, 2019). The ANOVA results (not shown) indicate a statistically significant model fit, F = 2.771, p = .024.

Table 3. Regression model summary

Model	*R*	R^2	Adjusted R^2	*SE*	*d*
1	.391	.153	.097	.830	1.864

Predictors: Goal Orientation, Metacognitive Knowledge, Metacognitive Experience, Metacognitive Choice, Metacognitive Monitoring. Dependent variable: Sustainability

Table 4. Regression coefficients

Variable	Unstandardized		Standardized			95% CI for B		Collinearity	
	B	*SE*	*β*	*t*	*p*	Lower	Upper	Tolerance	VIF
(Constant)	.870	.963	—	.904	.369	−1.047	2.787	—	—
Goal Orientation	.175	.135	.160	1.294	.199	−.094	.445	.722	1.385
Metacognitive Knowledge	−.082	.107	−.086	−.769	.444	−.294	.130	.890	1.124
Metacognitive Experience	.343	.167	.265	2.047	.044	.009	.676	.659	1.518
Metacognitive Choice	.188	.188	.126	.996	.322	−.188	.563	.691	1.447
Metacognitive Monitoring	−.119	.141	−.102	−.849	.399	−.399	.161	.755	1.325

Dependent variable: Sustainability

Table 3 and Table 4 present the standardized regression β coefficients for each of the study hypotheses. For H1, the results show that goal orientation is positively associated with the sustainability of social enterprises; however, this relationship is not statistically significant (β = 0.160, p = .199), and H1 is therefore not supported. For H2, metacognitive knowledge is negatively associated with sustainability, but the effect is also non-significant (β = −0.086, p = .444); thus, H2 is not supported. For H3, metacognitive experience is positively and significantly related to the sustainability of social enterprises (β = 0.265, p = .044), supporting H3. For H4, metacognitive choice shows a positive but non-significant association with sustainability (β = 0.126, p = .322), and H4 is therefore not supported. Finally, metacognitive monitoring is negatively associated with sustainability, although the effect is not statistically significant (β = −0.102, p = .399), leading to the rejection of H5.

The collinearity of predictor variables was assessed using tolerance (TOL) values and variance inflation factors (VIF). When TOL values exceed 0.20 and VIF values are below 5, predictor variables do not exhibit elevated collinearity. In cases of elevated collinearity, strategies such as creating higher-order constructs, eliminating indicators, or merging indicators would be considered. As shown in the collinearity statistics in Table 4, all VIF values were below 10, indicating no problem of multicollinearity (Schindler, 2019).

5. Discussion

The study findings augment emerging theory on the nexus of social enterprises (SEs) and sustainability by examining social entrepreneurs as sustainability agents, responding to calls for greater attention to agency in sustainability transitions (Lehtimäki et al., 2021). The results indicate that social entrepreneurs' metacognitive experience positively influences the sustainability of their SEs. This finding contributes empirically to the literature by showing how social entrepreneurs identify social problems and consider solutions through sensemaking, consistent with the notion that their cognitions, unique experiences, emotions, and intuitions enable effective decision-making within SEs (Muñoz, 2018).

The positive effect of metacognitive experience aligns with prior research, as this dimension reflects the extent to which an entrepreneur relies on emotions and intuitions when developing cognitive frames to implement goals (Haynie & Shepherd, 2009). Specifically, social entrepreneurs' awareness of their feelings toward environmental and social issues appears to drive the creative entrepreneurial process, facilitating innovative solutions to societal problems (Schaefer, Corner, et al., 2022). In practice, social entrepreneurs draw on their metacognitive experience when making decisions regarding sustainability performance. This metacognitive resource highlights how awareness of internal states—thoughts, feelings, and self-reflection—shapes both positive and negative sustainability outcomes. Positive internal insights appear to support generative value creation and favorable sustainability outcomes, whereas negative insights may lead to adverse outcomes (Schaefer, Kearins, et al., 2022).

Furthermore, the present findings reinforce prior research suggesting that social entrepreneurs' intuition enables them to detect nuances, generate creative ideas, and effect social change (Schaefer, Corner, et al., 2022). Overall, these results underscore the central role of metacognitive experience as a cognitive resource for promoting sustainable practices within SEs.

While goal orientation, metacognitive knowledge, metacognitive choice, and metacognitive monitoring were found to be non-significant predictors of SE sustainability, these findings remain valuable. Non-significant results have precedents in the literature (e.g., Urban & Bukula, 2024), suggesting that, as with any scientific endeavor, the field of SE sustainability cannot advance without them, particularly during the initial stages of theoretical development. Drawing on theoretical triangulation—using multiple perspectives to interpret findings—several explanations are offered for these non-significant results.

Regarding goal orientation, it is plausible that the extent to which individuals interpret environmental variations in light of multiple personal, social, and organizational goals generates dissonance for SEs in Kenya. In other words, the tension between achieving both economic and sustainability outcomes may obscure the metacognitive processes related to goal orientation. For example, Nielsen et al. (2019) conducted a systematic review of potential tensions between social and profit goals and reported that some SEs struggled to integrate both objectives into a single system. In selecting options for scaling up, organizational-level factors—including funding, capacities, and scaling strategies—are widely recognized as influential (Bauwens et al., 2020). These factors are particularly salient in the African context, where SEs often face limited access to capital in traditional financial markets (Urban, 2020).

Similarly, for metacognitive knowledge—which involves interpreting, planning, and implementing goals to manage a changing environment—SEs in Kenya may not feel sufficiently in control to consider alternative cognitive strategies for achieving sustainability (Haynie et al., 2010). SEs often operate under collective or cooperative structures, leveraging networks and peer-support systems, which reinforce knowledge and learning through interactions with external stakeholders across complex boundary structures—mediated by agents who can address environmental diversity (Bastian & Zucchella, 2022). A plausible reason that metacognitive knowledge showed a non-significant relationship with sustainability is that processes enabling social entrepreneurs to extend beyond their social networks, structures, and associations to seek expertise and cognitive feedback may be limited in Kenya. Specifically, the extent to which they leverage human relationships inside and outside their ventures or benefit from social comparison appears constrained. This reasoning aligns with Bastian and Zucchella (2022) findings regarding the role of feedback and social comparison in reinforcing metacognitive processes and engagement with others. Moreover, Bohm et al. (2024) highlight how metacognition of uncertainty influences sustainability-related behavior and how awareness of different forms of uncertainty may lead to varied regulatory responses.

In terms of metacognitive choice and monitoring, the non-significant results suggest that individuals are not effectively engaging in the active process of selecting among multiple decision frameworks to interpret, plan, and implement responses for managing a changing environment. Yitshaki and Kropp's (2016) narrative analysis shows that social entrepreneurs dynamically shape opportunities by connecting their past experiences with present actions. Cost-related challenges are widespread in scaling SEs in Africa, as addressing societal problems while offering affordable solutions to people living in poverty—without sacrificing quality—remains difficult (Akter et al., 2020). Moreover, Han and Shah (2020) argue that, without systemic support such as institutional infrastructure and government policy, efforts to scale SEs are challenging and may not translate into meaningful social change. The sustainability agency of SEs, understood as a "capacity to act as agency situated in and shaped by the context," represents a critical research consideration (Lehtimäki et al., 2021). Social entrepreneurs must understand the context-specific social needs of communities, along with the institutional, economic, political, cultural, and religious environments in which they operate. As change agents, they must navigate these contextual dynamics successfully and develop solutions that are both operationally and socioeconomically sustainable.

Furthermore, it is possible that significant results might have been obtained under different conditions—for example, if the sample of social entrepreneurs had been more diverse in terms of background and context. Nonetheless, this study contributes to the body of knowledge on sustainability by highlighting the role that metacognitive awareness plays in SE sustainability. Accepting that "past research typically assumes but does not test that theories can be transferred from developed to developing country contexts" (Bruton et al., 2008, p. 3), the findings support a more in-depth understanding of the complex relationship between metacognitions and SE sustainability in an African context. This empirical work in an underexplored African setting extends the theoretical reach of sustainability and social entrepreneurship research.

An additional contribution of this study is the positive validity and reliability results obtained for the constructs under examination, now confirmed in an African emerging market context. Establishing the psychometric properties of the original scales in this setting enables replication studies in other comparable emerging market contexts.

6. Conclusions and implications

The findings of this study make a unique contribution to the literature by being among the first to empirically examine the influence of metacognitive dimensions on SEs and sustainability in Kenya. These results not only extend current understanding of the metacognitions–SE sustainability relationship but also hold contextual relevance, as they address a knowledge gap in the SE–sustainability field within an African context. The SE sector in Africa—and globally—faces increasing demands for effective sustainability practices, which aligns with growing calls to foster a sustainability mindset among social entrepreneurs and to implement mechanisms that enable innovative solutions to local sustainability challenges. Higher levels of metacognitive awareness appear to enhance an individual's adaptability in dynamic decision-making environments, particularly because SE sustainability aligns with the SDGs through its focus on social and environmental missions embedded in business models.

Recognizing the growing interest in the SDGs, social entrepreneurs can adopt a sustainability-focused mindset through metacognitive awareness when developing solutions for social needs. SEs are relevant not only in Africa but also in other emerging economies, such as India and Brazil, where individuals increasingly recognize their capacity to shape their own futures by embracing sustainability-oriented thinking. In this context, governments, NGOs, and policymakers should empower SEs by creating opportunities to enhance their metacognitions. As a dynamic, learned response, metacognitive awareness can be strengthened through experience and training. Consequently, intensive efforts by multiple stakeholders to raise social entrepreneurs' metacognitive awareness are pivotal. Agencies aligned with the social economy could promote educational campaigns emphasizing the benefits of developing metacognitions to improve the SE–sustainability relationship.

Such interventions could adopt tailored approaches to metacognitive training that foster cognitive adaptability in social entrepreneurs through curriculum design and innovative teaching methodologies, enabling adaptive thinking in response to the complexity of the SE–sustainability environment. Policymakers should support digital ecosystems that enhance entrepreneurs' adaptive capabilities. Metacognitive training should also be integrated across the SE ecosystem, including entrepreneurship courses, accelerator programs, and incubators. Experimental approaches may employ metacognitive checklists or structured exercises that encourage reflection and awareness-building. Training could draw on structured programs, such as Metacognitive Training (MCT), which teaches recognition of cognitive biases and assists individuals in adapting strategies, leveraging feedback, and building on knowledge and expertise to achieve greater entrepreneurial success. Furthermore, the use of AI tools and techniques to support continuous metacognitive development through interaction and feedback is strongly recommended.

The study has several limitations. First, its cross-sectional research design precludes causal inference and suggests that longitudinal analyses are needed, particularly given that metacognitive awareness and SE sustainability are dynamic constructs that are better assessed over time. Second, accurately capturing the social and environmental value creation of SEs remains challenging, and the generalizability of the findings is limited due to the use of non-random sampling methods; more coherent, comparable, and sustained data collection across studies is therefore needed. Finally, survey-based biases—including acquiescence and social desirability—may have influenced responses, and some caution is warranted in interpreting the findings.

Several directions for future research emerge from this study. Further exploration of the challenges that social entrepreneurs in African and similar contexts face—and how they overcome these challenges by leveraging diverse forms of entrepreneurial cognition, capital, and competencies—would advance understanding in this area. The inclusion of moderating variables is also recommended, as these may provide a more nuanced understanding of the complex SE–sustainability relationship by identifying the specific conditions under which it holds. For example, researchers could investigate how digital innovation and transformation create opportunities for SEs to achieve greater sustainable outcomes.

Data Availability Statement

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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Appendix A

Table A1. Respondents and venture characteristics

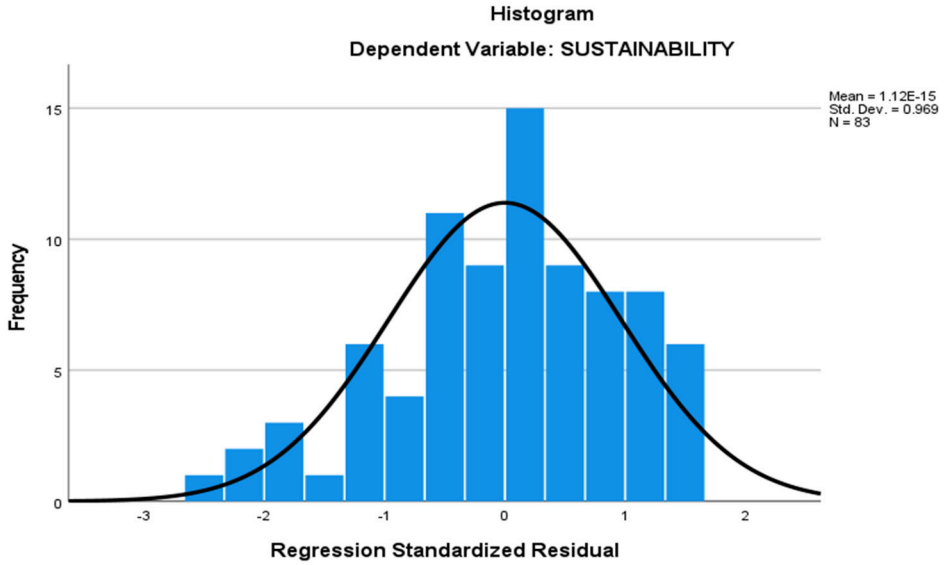
Variable	% of Sample
Gender	
Male	61.4
Female	38.6
Age (years)	
20–30	60.3
31–40	33.7
41–50	6.0
Nature of Social Venture	
For-profit model	18.1
Hybrid model	73.5
Non-profit model	8.4
Years of Venture Existence	
0–2 years	44.6
3–5 years	47.0
6+ years	8.4
Location	
Westlands	20.8
Karen	16.7
Embakasi	12.5
Kasarani	12.5
Kibera	12.5
Kilimani	12.5
Ngong Road	12.5
Sector	
Education	35.0
Health and Well-Being	24.0
Agriculture	21.0
Civic Engagement	18.0

Table A2. Normality test statistics

	Sustainability	Goal Orientation	Metacognitive Knowledge	Metacognitive Experience	Metacognitive Choice	Metacognitive Monitoring
Missing	0	0	0	0	0	0
Mean	3.4630	5.0728	5.0483	5.0199	5.2608	4.9552
Median	3.5000	5.3333	5.3333	5.0000	5.3333	5.0000
Mode	3.67	5.00a	5.33	5.00	5.00	5.33
Skewness	−.347	−.842	−1.561	−.606	−.584	−.631
SE Skewness	.264	.264	.264	.264	.264	.264
Kurtosis	−.095	.431	2.791	.217	−.116	−.157
SE Kurtosis	.523	.523	.523	.523	.523	.523
Minimum	1.00	2.33	1.67	3.00	3.67	3.00
Maximum	5.00	6.00	6.00	6.00	6.00	6.00
Sum	287.43	421.04	419.01	416.65	436.64	411.28

Multiple modes exist; the smallest value is shown

Figure A1. Histogram of regression standardized residuals (dependent variable: sustainability)



The solid line represents the normal distribution curve

Figure A2. Normal P-P plot of regression standardized residuals (dependent variable: sustainability)

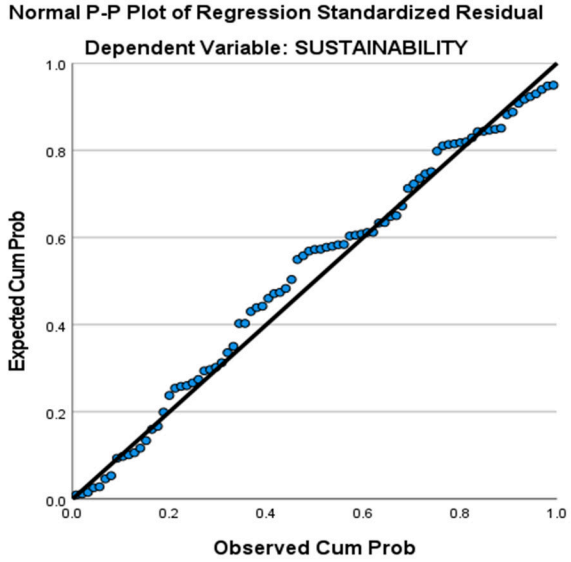


Figure A3. Scatterplot of regression standardized residuals against standardized predicted values (dependent variable: sustainability)