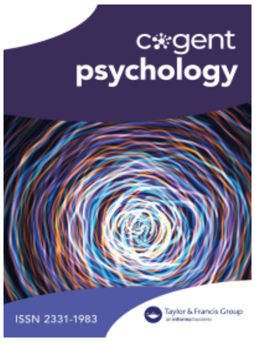

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Impact of social influence, financial literacy, and self-control on saving behavior among micro and small enterprise owners in Uganda

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ABSTRACT
This study examines the moderating role of self-control in the relationship between financial literacy, social influence, and savings behavior among Micro and Small Enterprise (MSE) owners in Kampala, Uganda. The study aims to establish whether self-control influences the association between financial literacy and savings behavior, as well as between social influence and savings behavior. A cross-sectional research design was employed, targeting MSE owners officially registered with Uganda Bureau of Statistics (UBOS) and Kampala Capital City Authority (KCCA). A total of 373 responses were analyzed using PROCESS Macro Model 3.2. The findings indicate that financial literacy and social influence significantly impact savings behavior. self-control significantly moderates the relationship between financial literacy and savings behavior, as well as between social influence and savings behavior. Individuals with higher self-control exhibited stronger savings behavior than those with lower self-control, even as financial literacy and social influence improved. Findings highlight that financial literacy, social influence, and self-control play significant roles in shaping savings behavior among MSE owners in Kampala. Social networks and financial knowledge contribute to better financial decision-making, while self-control moderates these relationships. The findings suggest that policymakers and financial educators should integrate self-control training into financial literacy programs to enhance savings behavior among MSE owners.

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KEYWORDS
Self-control; savings behaviour; social influence; financial literacy; small enterprises

SUBJECTS
Social Psychology; Social Influence; Entrepreneurial Finance

Introduction

Micro and Small Enterprises (MSEs) are organizations that operate with one to four employees. This is the case whether such entities operate in Uganda or outside Uganda. In the Ugandan context, MSEs are defined based on employment size, annual turnover, and capital investment, as outlined by the Uganda Investment Authority (UIA) and the Ministry of Trade, Industry, and Cooperatives (MTIC). According to Uganda's Micro, Small, and Medium Enterprises (MSME) Policy, micro-enterprises typically employ up to four people, have an annual turnover of less than UGX 10 million, and capital investment not exceeding UGX 5 million, while small enterprises employ between 5 and 49 people, with an annual turnover of between UGX 10 million and UGX 100 million (MTIC, 2015). The nature of these businesses suggests that they are prone to operate based on the decisions made by the owner of a business who in most cases, operates alone or with a help of a few friends who are experts in the field (Copur & Gutter, 2019). Most of the MSEs in Uganda have faced a significant challenge of survival rate. The owners of these businesses in Uganda cite the aspect of low savings levels of these institutions emanating from low savings behaviour (culture) of the director(s) or management (Woldehanna et al., 2018). A saving culture is an important ingredient in a society as well as in a country at large. The same is advocated for even at a global level. Through savings, the future is secured from a financial point of view. This means that future financial expenses are made possible (Steinert et al., 2018; Gilenko & Chernova, 2021). Though this could be considered to be a postponed expenditure, saving money today for future expenses is more of a selective expenditure and savings decision (Gerhard et al., 2018). This means that any

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expense that a person or group of people make is attached to a decision to incur that expense (Ariffin et al., 2017). This further means that different people cannot have the same expenditure pattern and savings level because they make decisions differently (Khatun, 2018). In this presentation, savings and expenditure levels are complimentary and hence possess an inverse relationship as provided in the concept of 'marginal propensity to save or spend'.

Decisions associated with expenses or money outflows define the pattern of development of continents, countries, communities, and even individuals. This has been witnessed in both, developed and developing countries. In both cases, the actors choose what to spend on and what not to spend on (Xiao & Porto, 2017). Though there are other factors that could influence expenditure decisions leading to an increase in savings or not, the aspect of knowledge associated with an expenditure decision stands out. This is commonly referred to as 'financial literacy'. Through financial literacy training, one gets to know the value of the different expenditure patterns thereby triggering changes in the level of savings that can be realized by an entity, community, country, or even an individual (Ameliawati & Setiyani, 2018). In the context of Uganda, the citizens are regarded as those who like spending compared to the citizens of other East African countries. For instance, Ugandans save less than 5% of their monthly income, compared to some East African countries like Kenya (23%), Tanzania (13%), and Rwanda (18%). This signifies significant low savings behaviour amongst Ugandans. Focusing on the social context of Uganda in comparison to other East African countries, Ugandans are more social people as compared to other citizens (UBOS, 2017). The things that people get exposed to while growing up are also influential in determining what a person in Uganda may spend. This means that there is an aspect of social influence that may have an impact on what a person spends (Herawati et al., 2018; Kyambade et al., 2024a). This aspect further suggests that there is a link between social influence and savings behaviour. In Uganda, this possible link is established through a comparison between the expenditure patterns of people in rural areas and those in towns and cities as well as expenditure across different tribes.

There is, therefore, a link between financial literacy and savings behaviour as well as between social influence and savings behaviour. In this context, the savings behaviour is determined through observation of the expenditure patterns of an individual or group of people (Iramani & Lutfi, 2021; Copur & Gutter, 2019; Esiebugie, 2018; Homan, 2016). Though this is the case, not everyone belonging to a certain identifiable social group has the same expenditure pattern (and hence savings behaviour). Similarly, though there could be many people with the same level of qualification in financial literacy, their expenditure levels and patterns (or savings behaviour) are not the same (Avdeenko et al., 2019). This, therefore, suggests that there could be another factor that could have a contributing influence on the way people save in Uganda leading to their savings behaviour. Focusing on the savings level of an individual, the aspect of self-control at a personal level has been found to contribute to the way financial literacy and social influence impact on savings behaviour of individuals in Uganda. This suggests that the level of self-control may have a moderating influence on the way financial literacy impacts savings behaviour as well as the way social influence impacts savings behaviour (Nepomuceno & Laroche, 2017). It is this possibility that triggered this research study. Based on this trigger, this research was carried out to establish the existence of moderating influence of self-control in the relationships between financial literacy and savings behaviour as well as social influence and savings behaviour amongst people operating MSEs in Kampala, Uganda.

To address the research gap, it is essential to recognize that while numerous studies have explored financial literacy, social influence, and savings behavior separately (Ameliawati & Setiyani, 2018; Iramani & Lutfi, 2021), limited research has examined the moderating role of self-control in these relationships, particularly within the context of Micro and Small Enterprises (MSEs) in Uganda. Existing literature acknowledges the importance of financial literacy in shaping savings behavior (Copur & Gutter, 2019) and highlights how social influence affects financial decisions (Herawati et al., 2018). However, there is insufficient empirical evidence on how an individual's level of self-control interacts with these factors to influence savings behavior. Moreover, studies focusing on Uganda's unique socio-economic and cultural environment, where spending tendencies differ significantly from other East African nations (UBOS, 2017; Kyambade & Namatovu, 2025), are scarce. This study, therefore, fills this critical gap by investigating the moderating role of self-control in the relationship between financial literacy, social influence, and savings behavior among MSE owners in Kampala. By doing so, it contributes to a deeper understanding of the psychological and behavioral dimensions influencing financial decisions in a low-savings context (Nepomuceno & Laroche, 2017), offering practical insights for policymakers, financial educators, and business support programs in Uganda.

Research objectives

Based on the trigger that led to the carrying out of this research study, research objectives were set for this study. These are presented below;

i. To establish the moderating influence of the level of individual self-control in the association between financial literacy and savings behaviour in Micro and Small Enterprises in Kampala.
ii. To establish the moderating influence of the level of individual self-control in the association between social influence and savings behaviour in Micro and Small Enterprises in Kampala.

Literature review

Theoretical review

In this study, there was the involvement of the social capital theory as well as the unified theory of behaviour (UTB). These two were selected for inclusion in this research because of their relevance in providing theoretical guidance on how best social influence can have a relationship with the quality of savings behaviour as well as how financial literacy is related to the quality of savings behaviour. Information in these theories was further instrumental in providing guidance on how self-control could have a contributing influence on the association between financial literacy and savings behaviour as well as between social influence and savings behavior. Details of the guidance provided by these two theories in this research are provided in the subsections below.

Social capital theory

Coleman's (1990) social capital theory, introduced in the 1990s, emphasizes the value of social networks, connections, and group dynamics as essential resources that support organizational problem-solving (Turyahikayo, 2015). Bourdieu extended this idea by proposing that individuals derive advantages based on their status within a social network, as they engage in reciprocal relationships that foster trust and mutual benefits (Mpaata et al., 2021; Duarte & Oliveira, 2017). Social capital is influenced by networks like family, peers, and mentors, which shape individual behaviors and values (Rios-Aguilar & Deil-Amen, 2012; Kyambade et al., 2024b). Specifically, quality family relationships, built on mutual support and trust, exemplify how social networks contribute to resilience and cooperation.

Family dynamics are central to financial socialization, as family interactions shape values and expectations around financial responsibilities, material possessions, and social norms (Palamida, 2016; Mohammed et al., 2018). Social capital, developed through these shared family values and social networks, affects well-being throughout life (Huat & Geetha, 2010). For example, social influence and literacy contribute to one's social capital, supporting educational and economic success (Brounen et al., 2016; Okello et al., 2016). Social capital acts as a resource for accessing further opportunities, encouraging individuals to align with group norms, which reinforces network strength and support for problem-solving (Balatti, 2007; Duarte & Oliveira, 2017). Small businesses that foster robust social networks are more likely to secure funding and sustain operations, underscoring the value of these connections (Turyahikayo, 2015).

However, Social Capital Theory has limitations in explaining savings behavior, particularly in the Ugandan context. While it highlights the role of social networks and trust in shaping financial decisions, it does not fully account for individual agency, self-control, and cognitive factors influencing savings behavior. Furthermore, it assumes that social capital always leads to positive financial outcomes, whereas in Uganda, social pressures can sometimes lead to excessive financial obligations, such as supporting extended family members, which may hinder savings.

The unified theory of behavior

Fishbein et al.'s Unified Theory of Behavior (UTB) provides a framework for understanding core behavioral variables that are amenable to change. The UTB identifies 11 categories of constructs that predict a person's likelihood of engaging in a target behavior, distinguishing between factors related to immediate motivations and willingness to act. Key influences include willingness to participate, necessary skills, environmental constraints, significance of the behavior, and prior behavioral experiences, which can become routine or automatic (Fishbein et al., 2001). These categories offer a comprehensive approach for predicting and influencing behavior.

The UTB holds that a person's choice to carry out an action is a precursor to execution rather than a guarantee of behavioral success (Randall & Wolff, 1994). Therefore, it is necessary to have the second-dimension collection of UTB factors that affect a person's probability of participating in the actual behavioral action. Several factors in this dimension include social pressures about a behavior, behavioral attitudes, behavioral expectations, and the impression of how the behavior will affect their plans. Additionally, mental and cognitive reactions to the behavior's likelihood and opinions on the behavior play a role. Combining these two UTB dimensions makes them proximal drivers of behavioral success because any given behavior is more likely to occur when all the factors are working in its favor.

According to Olin et al. (2010), several characteristics discovered within the UTB can represent saving behavior in this study. A person's ability to function in the first dimension of the UTB will be determined by their financial literacy construct. While the facilitating environment encourages positive saving behavior, environmental restrictions may include the social context in which one lives, which can have a positive or negative impact on saving behavior. Family financial history in saving money can be used to explain past behavioral experiences, which can then be utilized to influence others to follow suit. The second dimension consists of behavioral attitudes influenced by financial knowledge and social influence. In this case, a person's mentality may be impacted by their reading levels or social circles, which can have a positive or negative impact on saving behavior. The self-control construct explains behavioral expectations by showing how people with long-term expectations exercise self-control to reach their intended future goals, which could only be attained via saving.

According to the socialization approach, social pressures or norms from friends, family, and school affect a person's likelihood of acting in a certain way (saving). Whether or not parents are motivated to engage in the behavior is evaluated. Perceptions of the behavior indicate that a person's motivation to save may be influenced by their parents' understanding and perception of the necessity of saving, as well as by their own past saving experiences (Olin et al., 2010). The UTB promotes the discovery of important mechanisms and underlying patterns relevant to teenagers, families, and other social contextual factors that may influence behavior, such as family relationships and family self-efficacy, perceptions, and behavioral attributions. As parents try to modify their children's behavior to achieve predetermined goals, the UTB framework assists them in becoming proactive change agents. Additionally, this approach offers a conceptual framework for assessing how well parental support has affected their children's behavior. Furthermore, social effect will be assessed to determine whether other significant people in their lives, like their spouses and peers, approve of their behavior.

Financial literacy

Financial literacy includes the growth of financial knowledge, skills, and the capacity to make the most of them (Lajuni et al., 2018). This necessitates the use of constrained financial resources, together with fundamental numeracy abilities, budgeting knowledge, and cash flow management (Abebe et al., 2016). Financial literacy is considerably more than just imparting knowledge and advice about money. It is the ability to effectively consider, monitor, and utilize financial resources to enhance the economic security and well-being of people, communities, and enterprises. Financial literacy significantly influences risk tolerance, savings habits, and investment decisions, according to research by Awais et al. (2016). It has been demonstrated that those who are financially educated would have a stronger appetite for risk, causing them to choose hazardous investment assets, and are more inclined to select riskier investments in order to generate bigger profits. One's life is considered incomplete without having financial literacy, which can result in financial difficulties (Ariffin et al., 2017). Financial lessons, seminars, workshops, and even incorporating financial classes into school programs are all ways that someone might become financially literate (Satsios & Hadjidakis, 2018).

This information helps people make wise decisions and advance their own well-being. Recent studies have found some evidence that the degree of financial literacy affects wealth accumulation, saving, and investment decisions (Hilgert et al., 2003). An individual is guided to make thoughtful judgments and advance personal well-being by this understanding. According to recent studies, financial literacy levels influence capital creation investments and investment choices (Hilgert et al., 2003). Parents who work to instill healthy habits in their kids gradually give them the power to make better decisions and understand money management. Financial socialization literature supports the value of parental involvement and financial knowledge. According to several research, the family has a considerably bigger impact on children's financial socialization than any other socialization agent. A study by Ameliawati and Setiyani (2018) found that financial attitude had a positive impact on financial management behavior through financial literacy. Financial literacy has been extensively investigated as a mediator. Some of the findings include the impact of financial socialization, financial attitude, and financial experience on financial management behaviour. Furthermore, Xiao and Porto (2017) study discovered a favorable correlation between financial management practices and financial attitudes. The study uses financial literacy as a mediator on the basis of this. Considering the relevance of financial literacy in the decision-making process, it was included in this study to establish whether it has an influence the on savings behaviour of those operating MSEs.

The moderation of self-control

The self-regulation mechanism is the ability to maintain self-control when there is a clear choice to be made between long-term objectives and immediate gratification (Bernheim et al., 2015). According to Kim and Park (2015), self-control is the notion of being able to deal with events and ongoing conditions and is measured by how much self-awareness an individual has over such events and circumstances. According to Vitell et al. (2009), self-control is conscious self-regulation that gives someone the ability to act morally by resisting one's propensity to conduct badly. The ability to change undesirable habits, resist temptations, and restrain initial urges is how self-control is typically expressed (Fujita & Han, 2009). A sense of control is crucial for psychological adaptation, according to Kim and Park (2015) and Kyambade et al. (2024c). This ability to undertake actions aimed at accomplishing the desired goal by taking action has been found to be the best indicator of a person's ability to do so. One of the key factors that affect how people behave is social impact because it serves as a training ground for conduct. This is accomplished through altering the behaviour, motives, and justifications that support a given activity and so open doors for a particular action to be conducted. Self-control is a crucial facilitator in behavioural science since it causes acts that are independent of the family's influence.

Numerous research have used self-control as a moderator. For example, Mobarake et al. (2014) found that self-control significantly moderated the association between peer affiliation and antisocial behavior in adolescents in Tehran, Iran. Yi et al. (2016) found that self-control plays a moderating role in the association between maternal socialization of positive emotions and behavioral problems in children, while Nepomuceno and Laroche (2017) found that self-control and long-term orientation play a moderating role when materialists plan to avoid consumption. This prompted an examination of the moderation role of self-control in the association between social influence and saving behaviors.

Self-control plays a pivotal role in moderating the relationship between social influence and saving behaviors, acting as a psychological mechanism that allows individuals to balance immediate desires with long-term financial goals. It involves the ability to regulate one's emotions, thoughts, and behaviors in the face of temptations and distractions (Bernheim et al., 2015). When individuals encounter social pressures, such as the urge to conform to peers' spending habits, those with higher levels of self-control are better equipped to resist these impulses and prioritize their savings objectives. According to Kim and Park (2015), self-control is linked to self-awareness, enabling individuals to recognize and manage the triggers that may lead them away from their financial goals. Additionally, self-control can mitigate the impact of external social influences by fostering a sense of autonomy and commitment to personal financial aspirations (Vitell et al., 2009). Research indicates that self-control is essential for psychological adaptation, allowing individuals to undertake deliberate actions that align with their long-term interests (Fujita & Han, 2009; Kyambade et al., 2024d). For instance, Mobarake et al. (2014) found that self-control moderated the relationship between peer affiliation and antisocial behavior, while Yi et al. (2016) highlighted its role in the context of maternal socialization and behavioral problems. By examining these dynamics, our study aims to elucidate how self-control not only influences saving behaviors but also acts as a crucial facilitator that empowers individuals to navigate the complexities of social influence effectively.

Hypothesis and model conceptualization

The review of literature indicated that there is a possible moderation effect of self-control in the association between financial literacy and quality of savings behaviour. Additionally, the same self-control, which acts as a personal trait, is proposed to have a moderating influence in the association between social influence and quality of savings behaviour. These moderating influences are also specified as the research objectives of this study. Based on these realizations, the following hypotheses were derived for testing in this research study.

H_1: self-control moderates the association between financial literacy and saving behavior.

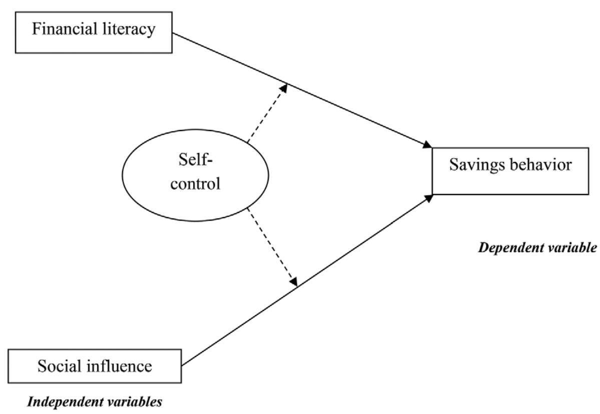

Figure 1. Conceptual framework.
Source: Author's own work.

H_2: self-control moderates the association between social influence and saving behavior.

Based on the hypotheses developed and the detailed review of literature carried out, a conceptual model for this study was developed. This is presented in Figure 1 of this research study. This model indicates that the relationships that were tested in the analysis section of this research report.

Measurement of study variables

Saving behaviour

The dependent variable for this analysis was saving behaviour, and researchers used and adjusted measures from Dangol and Maharjan (2018), Chowa and Despard (2014), Delafrooz and Paim (2011) and Ariffin et al. (2017). The 7-Likert scale was employed to rate the respondents' statements that most accurately described their saving actions. based on the nine items, scores ranged from 1-Strongly Disagree, indicating inadequate saving behaviour, to 7-Strongly in Agreement, demonstrating the respondent's capacity to conduct good saving behaviour.

Social influence

Social influence is the extent to which the individuals or people in question agree or disagree with the performance of a particular action. In order to measure SI, researchers typically asked individuals how many their closest friends, family members, co-workers, or classmates influenced them to engage in certain activities (Dinc et al., 2016). The social impact was quantified in this study by the adoption and modification of measuring items from Dangol and Maharjan (2018), Hanachi (2005), Dinc et al. (2016). The 7-Likert scale was used by the researcher; depending on the respondent, it ranges from 7-Strongly Agree (high social influence impact) to 1-Strongly Disagree (low social influence impact). Ten evaluation items served as the foundation for the Social Influence evaluation.

Financial literacy

In this study, financial literacy acts as an intervening variable. According to Arnone (2004), financial literacy refers to the knowledge and abilities one gain via education that help one to act in a way that will improve their financial well-being. One must comprehend the application of financial data in order to be able to manage their finances on a daily basis. This measurement is based on the adoption and modification of metrics by Atkinson and Messy (2012), Schagen and Lines (1996), Sebstad et al. (2006), and Ariffin et al. (2017). Eleven (11) items were adjusted to assess financial literacy using the 7-Likert scale, where 7-Strongly Agreement indicates a responder has strong financial literacy and 1-Strongly Disagree indicates a respondent has low financial literacy. The questions ranged from 'I have experience managing my own finances', 'I have a better grasp of how to cope with my use of credit', and 'I have a very good vision of my future financial demands', among others.

Self-control

The degree to which a person feels in control of events and continuing conditions is referred to as self-regulation. This enables one to be able to have a suitable match for oneself and one's surroundings, preventing one from acting on undesirable behavioural patterns that are morally dubious (Vitell et al., 2009). The research included 10 items on a 7-Likert scale, ranging from 7-Strongly Agree to show good self-control in the responder to 1-Strongly Disagree to show low self-control. The questionnaire included measurement items like I'm good at resisting temptation, I often regret the things I do in the moment, I have stronger self-control, and I have a hard time quitting harmful habits, to mention a few. Lindner et al. (2015); Ariffin et al. (2017); and Strömbäck et al. (2017) provided the original ideas for these measuring items, which were then adopted and adjusted to suit current context.

The 7-point Likert scale was employed to rate the respondents' statements that most accurately described their saving actions. We have clarified that the scale was adapted from previously validated instruments in the literature, which have established reliability and validity in similar contexts (Likert, 1932;

Nunnally & Bernstein, 1994). Furthermore, we conducted our own reliability analysis, achieving a Cronbach's alpha coefficient above the acceptable threshold of 0.70, confirming the internal consistency of the scale (Tavakol & Dennick, 2011). This information has been added to ensure that readers understand the robustness of the measurement tool used in our research.

Methodology

Research design

The researchers used a cross-sectional research design with the aim of establishing the moderating influence of self-control in the relationships that were studied as per the hypotheses. This was necessary to ensure that the researchers are able to explain the moderating phenomenon in MSEs in Kampala during the specific period of time that was considered. This further provided room for similar research to be conducted in the future to establish whether the findings in the current research still stand (Hair et al., 2010).

Population and sample

The population of our study was composed of the owners of the MSEs in Kampala. These were considered because they are the ones that make decisions on behalf of the entities they own and lead. This means that the sampling unit was the MSE and the unit of inquiry was the leader and or owner of that MSE. The MSEs that were considered in this study are those that were properly and officially registered with Uganda Bureau of Statistics (UBOS) and Kampala Capital City Authority (KCCA) where they receive their trading licenses. We focused on registered MSEs because they represent a formalized segment of the business landscape, providing us with reliable data on businesses that comply with legal and regulatory requirements. This choice enhances the validity of our findings, as registered MSEs typically have established operational frameworks and practices, allowing us to gather insights from entities that are actively contributing to the local economy. While we acknowledge the existence of unregistered MSEs, including them could introduce variability and confounding factors that might skew the results. Based on the information extracted from the two bodies of the government of Uganda, a total of 47,900 MSEs were identified in the entire Kampala. This number, therefore, formed the population of the study. The sample size was computed using the Yamane formula presented below;

$$\mathrm{n} = N/1 + N*(e)^2$$

Using the formula above, a maximum sample size at a 5% margin of error was obtained (Yamane, 1973). This was composed of 397 MSEs. Following the determination of the sample size, a sampling design was considered. In this study, a cluster sampling design was used. This was necessary because it gave room for MSEs from the five divisions of Kampala to be included as part of the sample. This was considered representative enough for this study.

Data collection

Data from the MSEs was collected using a questionnaire method. The questionnaires were partly self-administered and partly research administered depending on the kind of respondent encountered. Those who could read followed the self-administered approach. The others followed a research-administered red approach. A total of 397 questionnaires were sent out to collect relevant data from the target respondents. Before sending out the questionnaires to the field, a cluster sampling design was employed to ensure that all the five divisions of Kampala are included as part of the study. This, therefore, means that questionnaires were sent out to each division of Kampala. Out of the 397 questionnaires sent out, only 373 questionnaires were received back. This represented a response rate of 94% which was representative enough and could be used to make reliable conclusions about the hypotheses that were tested.

Limitations

While the use of a cross-sectional quantitative research design allowed us to establish the moderating influence of self-control on saving behavior among registered MSEs in Kampala, we acknowledge that this approach has its limitations. Specifically, a purely quantitative methodology may not capture the nuanced factors influencing saving behavior, such as personal experiences, emotional responses, and contextual influences. Qualitative interviews or alternative methods could provide deeper insights into these dynamics by allowing participants to share their perspectives, motivations, and challenges in greater detail. This could enrich our understanding of how various factors interact with self-control and ultimately influence saving behavior. In future research, we recommend incorporating qualitative approaches alongside quantitative methods to gain a more comprehensive understanding of the complexities involved in financial decision-making among MSE owners.

Results – sample characteristics

According to the study's sample data, men made up more than half of the respondents at 55.9% while women made up only 44.1% of the sample. This meant that, in comparison to women, more men-owned micro and small businesses. This phenomenon reflects a possibility that women spent most of their time at home taking care of the house. It further means that the research findings were free from any gender bias. Analysis of the age distribution of the respondents revealed that the majority of the respondents are in the age range of 31 to 35 years. This group is followed by those of the age range 26 to 30 years, 36 to 40 years of age as well as 41 to 45 years of age. The age distribution indicates the majority of the respondents are below the age of 35 years. This means that the majority of the respondents that participated in this study were youths. It further means that most of the MSEs in Kampala are owned by the youths.

Education of the respondents revealed that the majority of the respondents had attained a secondary level of education (45%). Those who had attained the tertiary level of education represented 33% of all the respondents considered in this study. The least represented group was that of postgraduate education. Respondents in this category represented only 1.8% of all the respondents that were considered in this study. These results indicate that the majority of the respondents had at least an undergraduate degree qualification to their name. This further confirms that most, if not all the respondents, did not have a good formal educational background.

Results – correlation

Table 1 presents a summary of the reliability, correlation, mean, standard deviations, and results for each study variable. The findings show that self-control has the lowest mean (2.215) and the lowest standard deviation (.626), while saving behavior has the highest mean (6.165) and standard deviation (.564). The correlation analysis indicates that there was a strong correlation between all the variables and self-control ($r = .455$, $p = .001$, $p < .01$), saving behavior ($r = .492$, $p = .001$, $p < .01$), and financial literacy ($r = .364$, $p = .000$, $p < .01$).

Results – reliability of measurement items

When an instrument is connected to validity and yields accurate findings for the variables it was designed to measure, it is utilized to evaluate the internal accuracy of the instrument using the Cronbach alpha coefficient test (Heale & Twycross, 2015). The Cronbach alpha test revealed values ranging from .694 (social influence) to .760 (saving behaviour). These results were in line with the benchmark set forth by Hair et al. (2010). Reliability results presented in Table 2 indicated that the data collection tool for all the variables considered in this study was valid and reliable.

In accordance with Podsakoff et al. (2012), self-reported surveys were utilized to capture individuals' perceptions, beliefs, conclusions, and emotions. To address potential common method bias, we implemented both procedural and statistical techniques. We collected data at two separate times, as suggested by Podsakoff et al. (2003). When assessing covariance statistically using Variance Inflation Factor (VIF), all values were below the recommended cutoff of 2 (see Table 2). The results from Harman's single-factor test showed that a single factor could account for only 34.530% of the common variance, which is well below the 40% threshold (Podsakoff & Organ, 1986). These results indicate that common method bias is unlikely to have influenced the findings of the study. Furthermore, convergent validity was assessed through factor loadings, Average Variance Extracted (AVE), and Composite Reliability (CR). As shown in Table 2, all factor loadings exceeded the minimum threshold of 0.5. AVE values for Saving Behavior (0.521) and Financial Literacy (0.520) indicate strong convergent validity, as they explain more than 50% of the variance in their respective measurement

Table 1. Means, standard deviations, & correlations.

Variable (N = 305)	M	SD (σ)	1	2	3	4
Saving behavior (1)	6.165	.564	1.000			
Social influence (2)	4.648	.807	.492**	1.000		
Financial literacy (3)	5.564	.596	.364**	.233**	1.000	
Self- control (4)	2.215	.626	.455**	.310**	.241**	1.000

Table 2. Reliability.

	Cronbach's Alpha	Number of items
Saving Behaviour	.760	9
Social Influence	.694	10
Financial Literacy	.759	11
Self-Control	.701	10

Source: primary data (2024).

Table 3. CR, AVE, VIF results.

Variable	Composite Reliability	AVE	VIF
Saving Behavior	0.867	0.521	2.000
Social Influence	0.777	0.413	1.818
Financial Literacy	0.865	0.520	2.222
Self-Control	0.768	0.455	1.923

Source: Author's Own Work.

items. However, Social Influence (0.413) and Self-Control (0.455) had AVE values below 0.50, suggesting that while these constructs are still valid, there may be room for refinement in the measurement items. Composite Reliability values were all above the recommended threshold of 0.70, with Saving Behavior (0.867) and Financial Literacy (0.865) showing excellent reliability. Social Influence (0.777) and Self-Control (0.768) also exhibited satisfactory reliability, though slightly lower than the former two constructs. Finally, the VIF values, ranging from 1.818 to 2.222, indicate that there are no significant multicollinearity concerns, ensuring that the relationships examined in the study are not distorted by excessive correlations among the constructs. These findings collectively support the reliability and validity of the measurement instruments used in the study, with minimal concerns regarding multicollinearity (Table 3).

Results – explanatory factor analysis

By utilizing principal component analysis with Varimax and Kaiser Normalization, exploratory factor analysis was also carried out to examine the elements of saving behaviour, social influence, financial literacy, and self-control, which produced factors with Eigen values above 1. The findings demonstrated that the first factor, which related to saving behaviour, accounted for 24.16% of the overall variance, followed by the second factor, which accounted for 20.437%, and the third factor, which accounted for 16.558% as shown in table three below. Consistency in saving, objectives of saving, and attitude toward saving were the first, second, and third types of variables, respectively. The Kaiser-Meyer-Olkin (KMO) score (0.753) was thus acceptable over 0.5 and also significant according to the Bartlett sphericity test (See Table 4).

Table 4. Saving behaviour factor analysis.

	Saving consistency	Saving aims	Saving attitude
SB4: I adhere to and carry out the plan I have for using my money.	.788		
SB5: I always set aside some of my money when I get it.	.742		
SB6: I set aside money to pursue specific objectives.	.703		
SB9: I try to save since it's a good practice.		.778	
SB8: I frequently think about if something is necessary before I make a purchase in order to save money.		.694	
SB7: I always regularly set money aside for the future.		.647	
SB2: I search around for similar, less expensive things before making purchases for myself.			.825
SB3: I have a strategy for handling my finances.			.625
SB1: I'm very conscious of how much money I set aside.			.497
Eigen value	***2.174***	***1.839***	***1.490***
Variance (%)	***24.16***	***20.43***	***16.558***
Variance (%)	***24.16***	***44.59***	***61.151***

Bartlett's Test of Sphericity = 827.812, KMO = .753, df = 36, sig = .000
Method of Rotation: Varimax with Kaiser Normalization, Method of Extraction: Analysis for Principal Component, Rotation converged in 5 iterations.

Source: primary data (2024).

Before moving on to a more in-depth analysis, a social influence factor analysis was done to make sure the items were reliable and consistent. The following social influence elements stood out: my parents are/were strong role models for money management; if I choose to save money, my immediate family would support that choice; and others. Only one item (SI7) failed to load, hence it was disqualified from further analysis. Peer influence, parental influence, and close family impact were pointed out as factors 1, 2, and 3, respectively. The first component accounted for 23.491% of the overall variation, whereas the third and second factors each contributed 20.75% and 16.878%. Testing sampling appropriateness involved using the KMO measure, which assesses sampling adequacy. As shown in Table 5 below, KMO was higher than 0.5, and the Bartlett Test showed significance.

For additional data analysis, factors with loadings greater than 0.5 were retained as being relevant in

Table 5. Social influence factor analysis.

	Peer influence	Parents influence	Close family influence
SI4: I sense pressure from society to save money for the future.	.725		
SI10: I always participate in money management activities with my close friends and family.	.686		
SI9: I consistently evaluate my friends' savings and spending habits.	.670		
SI5: It matters to me that my closest friends approve of what I do.	.575		
SI8: My colleagues would support my choice to save if I made it.	.538		
SI6: My parents have taught me to manage my money responsibly since I was a young child, therefore I do.		.930	
SI1: My parents set an excellent example for me when it comes to handling money.		.929	
SI2: My immediate family would support my choice for me to save money.			.834
SI3: People that matter to me believe that I should save			.772
Eigen value	***2.114***	***1.867***	***1.519***
Variance (%)	***23.491***	***20.75***	***16.878***
Variance (%)	***23.491***	***44.241***	***61.119***

Bartlett's Test of Sphericity = 88.824, KMO = .739, df = 36, sig = .000
Method of Rotation: Varimax with Kaiser Normalization, Method of Extraction: Analysis for Principal Component, Rotation converged in 4 iterations.

Source: primary data (2024).

the context of financial literacy. A total of ten out of 11 items were loaded, except for item FL 8 which did not load thereby eliminating it for further analysis. Knowledge of managing personal finances, comprehension of managing credit consumption, and other factors were among the task's components. Three variables, financial skills, financial knowledge, and financial ability were loaded. The first component contributed 20.284%, the second 19.618%, and the third 18.588% of the total variation, respectively. The acceptability of the sampling was evaluated using the KMO test for sampling adequacy. KMO exceeded 0.5, and Bartlett's Test was significant, as shown in Table 6 below.

Among the self-control items were the ability to resist the want to spend money and financial discipline. Only 9 items were loaded after item SC 7 was eliminated because it was not loaded. Self-control was correlated with three components, with factor one accounting for 21.573% of the variation, factor two for 17.635% and factor three for 16.471% of the

Table 6. Financial literacy factor analysis.

	Knowledge	Skills	Ability
FL1: I am proficient in handling personal funds.	.841		
FL2: My knowledge of how to control my credit use has improved.	.758		
FL4: I am capable of handling my finances.	.532		
FL6: I stick to a budget when making purchases.		.753	
FL5: I get financial training before I get any money.		.715	
FL7: I am capable of creating my own weekly (monthly) budget.		.690	
FL11: I am able to talk easily about money and financial matters.			.835
FL10: I am able to keep accurate records of my income and expenses.			.594
FL9: I am able to effectively handle my finances.			.575
Eigen value	***1.826***	***1.766***	***1.673***
Variance (%)	***20.284***	***19.618***	***18.588***
Variance (%)	***20.284***	***39.901***	***58.490***

Bartlett's Test of Sphericity = 642.983, KMO=.782, df = 36, sig=.000
Method of Rotation: Varimax with Kaiser Normalization, Method of Extraction: Analysis for Principal Component, Rotation converged in 4 iterations.

Source: primary data (2024).

variance as indicated in Table 7 below. Self-control, willpower, and foresight were the factors' respective names. The Bartlett result was significant when measured by the KMO sampling adequacy test above 0.5 as shown in Table 7.

Results from moderation analysis

H_1: The moderation role of self-control in the association between financial literacy and saving behavior

Hayes (2018) Model 15 was used to test for moderation. The conditional process analysis of the study using PROCESS Macro version 3.2 is displayed in Table 8. According to the results shown in Table 8, model 2, marital status and age were deemed to be unimportant. However, because they had $p < .05$., gender, education, business type, income level, and geography were judged to be important. Furthermore, the findings indicate that social influence has a significant impact on financial literacy (β = .273, pv =.001). The moderation hypotheses (H01 and H02) were tested using the results in model 3 of the same table. Gender, age, marital status, education, and business type were all shown to be negligible for the model's control variables. Location and income level, however, were found to be important. Most significantly, it was discovered that self-control had a

Table 7. Self-control factor analysis.

	Self-Regulation	Willpower	Foresightedness
SC1: I'm great at avoiding financial temptation.	.743		
SC3: When it comes to spending money, I am more cautious.	.716		
SC2: When I have money, I make decisions that I later come to regret.	.654		
SC8: I'm more anxious about the near term than the long term when it comes to money.	.573		
SC5: At times, when I have money, I continue to act in a wrong way while knowing it is.		.753	
SC6: I find it difficult to break my spending habits.		.706	
SC4: When I have the money, I frequently put off doing my work for fun and pleasure.		.660	
SC10: I am ready to spend money today while letting the future take care of itself.			.839
SC9: I like to instantly spend all of my money.			.769
Eigen value	***1.942***	***1.587***	***1.482***
Variance (%)	***21.573***	***17.635***	***16.471***
Variance (%)	***21.573***	***39.208***	***55.679***

Bartlett's Test for Sphericity = 490.157, KMO = .707, df = 36, sig = .000
Method of Rotation: Varimax with Kaiser Normalization, Method of Extraction: Analysis for Principal Component, Rotation converged in 4 iterations.

Source: primary data (2024).

Table 8. Moderation results of self-control on other variables.

	M2 (FL)		M3 (SB)	
Predictors	B	Pv	B	Pv
Age	.029	.310	.004	.854
Gender	.134	.015*	−.018	.677
Education	.192	.000***	.038	.156
Marital Status	−.102	.075	.071	.123
Income	.158	.000***	−.111	.001**
Location	.060	.000***	.031	.017*
Business form	.098	.004**	.043	.114
SI	.273	.000***	.504	.000***
FL			.234	.000***
SC			.095	.000***
Int1 (SI*SC)			−.089	.003***
Int2 (FL*SC)			−.137	.000***
R2	.287		.524	
F	19.403***		35.104***	

Source: primary data (2020). Note:
*p <.05,
**p <.01,
***p <.001.

strong moderating effect on saving behavior and financial literacy (β = −.137, pv = .000). R2 = .524, Significant F (12,382) = 35.104, and pv = .000 are the model's results.

According to the R2, 52.4% of the variation in saving behavior can be explained by this model. These findings lead to the rejection of H02. These findings are further supported by Figure 2, which shows that business owners with high levels of self-control had higher saving behaviors than those with low levels of financial literacy. However, both groups' saving habits improve as financial literacy rises, but the increase is greater for owners with low self-control than for those with good self-control.

Figure 2, which shows that business owners with high levels of self-control had higher saving behaviors than those with low levels of financial literacy. However, both groups' saving habits improve as financial literacy rises, but the increase is greater for owners with low self-control than for those with good self-control.

This finding suggests that financial literacy may indeed compensate for low self-control, as it provides individuals with the knowledge and skills necessary to make informed financial decisions. For owners with low self-control, enhanced financial literacy could lead to better planning and budgeting, thereby promoting savings despite their inherent challenges in resisting immediate gratification. Mechanisms that might explain this compensatory effect include improved financial decision-making, increased awareness of the benefits of saving, and the ability to set and achieve financial goals. In contrast, those with high self-control may already have effective saving strategies in place, resulting in a more moderate increase in saving behaviors as financial literacy improves. These dynamic highlights the importance of both self-control and financial literacy in fostering positive saving behaviors among business owners.

While financial literacy has a more pronounced impact on saving behavior for individuals with low self-control, the effect on individuals with high self-control is less significant. This suggests that traditional financial literacy programs may be more beneficial for entrepreneurs with low self-control, as they stand to benefit the most from the increased financial knowledge. However, behavioral finance approaches, such as nudges or commitment savings plans, could be more effective for individuals with low self-control. These strategies can help individuals with low self-control commit to saving by providing structured incentives and automatic savings mechanisms, which could complement or even enhance the impact of financial literacy. Nudges, such as automatic enrollment in savings plans or setting up regular reminders, can help mitigate the tendency to procrastinate or succumb to immediate consumption urges. Similarly, commitment savings plans that restrict access to funds for a

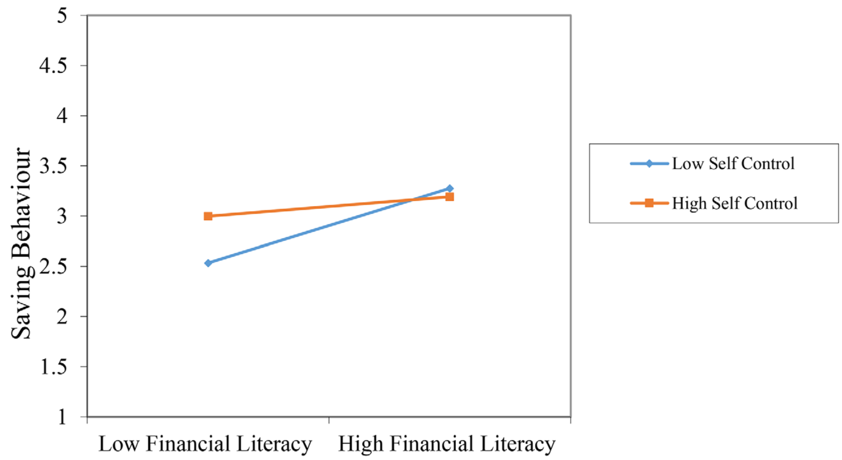

Figure 2. Nature of the moderating influence of self-control on saving behavior and financial literacy.

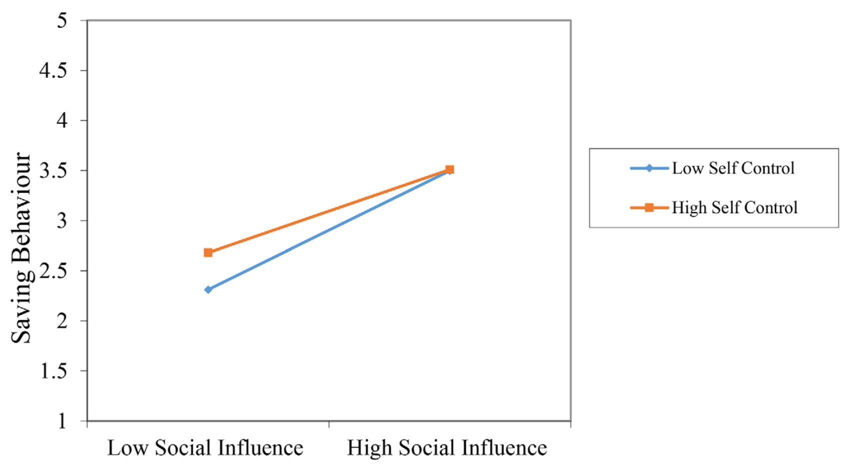

Figure 3. Self Control interaction on saving behavior and social influence.

predetermined period can encourage saving by leveraging the self-control deficits of individuals with lower self-control. These approaches could be a valuable addition to financial education programs, particularly for those with limited self-control, as they offer a practical and behaviorally informed solution to saving challenges.

H_2: moderation of Self-control on the association of Social Influence and Saving Behaviour

In a second regression study, the researcher examined whether self-control moderates the relationship between owner saving behavior and social influence (Model 3). With β = –.089, p = .003, the results in Table 8 showed that self-control reduced the relationship between social influence and the business owner's saving behavior. This outcome leads to the rejection of H03.

Figure 3 provides additional illustrations of these findings. At modest levels of social influence, this graph demonstrates that owners with strong self-control save more than those with weak self-control. Though the rise is larger for owners with strong self-control, both groups save more as social influence increases.

Where,

SC = Self-Control, FL = Financial Literacy, SI = Social Influence

Int1 (SI*SC) =Interaction of Social Influence and Self-Control

Int2 (FL*SC) =Interaction of Financial Literacy and Self-Control

M2 = Model 2, M3 = Model 3

Discussion

The moderation role of self-control in the association between saving behavior and financial literacy

According to Hypothesis H_{01}, self-control has no moderating influence on the relationship between saving behavior and financial literacy. The results of the study show that self-control (β = .095, p = .001) and financial literacy (β = .234, p = .001) both significantly influence saving behavior. However, our data on the moderator's interaction shows that self-control moderates the relationship between financial literacy and saving behavior (β = −.137, p = .001 and CI = −.189,−.084), rejecting hypothesis H_{01}. At both high and low levels of self-control, the data show an increasing moderating link between financial literacy and saving behavior. The results of the study showed that moderation becomes hostile when a person's self-control reaches an optimal level. According to the study's findings, entrepreneurs who lack self-control should, among other things, attend workshops and trainings to increase their financial literacy and save more money. However, if people have a high degree of self-control, financial literacy has little effect on their saving habits because they are already self-regulated in their financial management. This implies that high levels of control by businesspeople are enough to provide the required saving behavior; hence, there is no need to raise financial literacy as it will only slightly affect saving behavior.

According to this study and other researchers, people's saving habits can only be influenced by financial literacy if they possess the requisite financial knowledge, skills, and capacity to manage their money (Esmail Alekam et al., 2018; Satsios & Hadjidakis, 2018). Yet, according to a study by Davydenko et al. (2021), those who exhibit strong self-control appear to plan and save more for retirement, suggesting that having strong self-control would improve one's saving culture. Furthermore, according to Achtziger et al. (2015), integrating psychological traits like self-control would guarantee appropriate financial behavior because its absence would leave a person in debt and unable to save.

Furthermore, in order to influence an individual's awareness of economic and financial principles, which guarantees ethical financial behavior, Strömbäck et al. (2017) employed models to predict financial outcomes by including both financial literacy and self-control. In addition to having a solid understanding of finance, owners of MSEs must be able to control their spending and have a clear understanding of why they save money for the success of their companies.

Self-control's moderating function in the association between social influence and saving behavior

In Hypothesis H_{02}, the researcher investigated if self-control could strengthen the link between business owners' saving behavior and social impact. Hypothesis H02 is rejected by the results, which show a statistically significant and positive interaction with β = −.089, p = .003, and CI = −.147, −.030. The findings show that persons with high levels of self-discipline are less influenced by their social surroundings, which means that they have control over their saving behavior. On the other side, when entrepreneurs lack self-control, their saving habits are often impacted by their social surroundings, which include peers, family, and the media, among other things. According to Jamal et al. (2015), increasing peer socializing during social time encourages consumption behavior, which in turn influences saving behavior. These findings are in line with their findings. However, Mucha et al. (2020) found that self-controlling people were more likely to participate in appropriate financial activities. Similar to this, Baumeister et al. (2007) claimed that people who could control their own behavior were able to avoid interpersonal distractions and, consequently, behaved correctly.

While our study focuses on self-control as a moderator, it is essential to acknowledge that external factors can significantly influence saving behaviors. Macroeconomic variables, such as inflation rates and economic stability, directly impact individuals' disposable incomes and their ability to save (Sachs, 2015). For instance, high inflation can erode purchasing power, leading individuals to prioritize immediate consumption over savings, regardless of their self-control levels (Mishkin, 2007). Additionally, government policies, such as tax incentives for savings or financial literacy programs, can create an environment that either encourages or discourages saving behaviors among MSE owners (Thaler & Sunstein, 2008).

Conclusion

According to the study's findings, business owners' saving behavior is positively and significantly impacted by self-control, social influence, and financial literacy. This suggests that having appropriate social networks, financial knowledge, and some self-control are necessary for saving. Additionally, financial literacy is positively and significantly impacted by social influence, which means that one's network provides information, ideas, and expertise that can be utilized in decision-making. The results of the study also show that among business owners, self-control moderates the relationship between social influence and saving behavior as well as the relationship between financial literacy and saving behavior. This implies that depending on an individual's degree of self-control, the effects of social influence and financial literacy on saving behavior may either increase or worsen.

Practical implications

The findings of this study provide valuable insights for the Ugandan government, financial institutions, and other stakeholders aiming to improve saving habits among micro and small enterprises (MSEs). Given the significant role of self-control in moderating the relationship between financial literacy and saving behavior, targeted interventions can be developed to foster better saving habits among entrepreneurs.

For entrepreneurs with low self-control, the government and relevant stakeholders should implement workshops and training programs designed to enhance financial literacy. These programs should focus on practical financial management skills, budgeting, and the importance of saving, equipping MSE owners with the necessary knowledge to make informed financial decisions. Conversely, for business owners exhibiting high levels of self-control, the focus should shift to promoting and maintaining these self-regulatory behaviors. Financial institutions can create tailored products and services that encourage disciplined saving practices, such as automated savings plans or incentive programs for consistent saving, which can reinforce good financial habits and motivate entrepreneurs to save more effectively.

Recognizing that social influence significantly impacts individuals with low self-control, the government and financial institutions should encourage community-based initiatives that foster positive financial behaviors. Peer support programs could be established to create environments where individuals motivate each other to save and make informed financial decisions, leveraging social networks to promote accountability and shared learning among entrepreneurs. Additionally, policymakers should consider introducing incentives for MSEs that demonstrate improved saving behaviors or participation in financial literacy programs. Tax benefits, grants, or subsidized training programs can encourage entrepreneurs to engage more actively in saving and financial planning.

Comprehensive financial literacy campaigns targeting the broader MSE community can help raise awareness of the importance of saving and self-control. These campaigns should utilize various media platforms to reach a wider audience and incorporate real-life success stories to inspire other entrepreneurs. Furthermore, partnerships between the government, NGOs, and educational institutions can enhance the reach and effectiveness of financial literacy initiatives. By leveraging resources and expertise, these collaborations can develop comprehensive programs that address the unique challenges faced by MSE owners in Uganda.

By addressing the diverse needs of MSE owners based on their levels of self-control, these entities can create a more conducive environment for improving saving behaviors. Ultimately, this multi-faceted approach will contribute to the financial stability and growth of the MSE sector, fostering broader economic development in Uganda.

Theoretical implications

First, the study backs up the Social Capital Theory (SCT), which holds that learning occurs inside a social text. The hypothesis states that peer-to-peer, interpersonal, socioeconomic, and environmental factors all have an impact on social learning. Furthermore, social influence plays a crucial role in the growth of social capital in corporate communities. Relationships with parents (family capital), peers (peer capital), and the community (community capital) were the sources of support for small business owners. These relationships allowed them to share information and provide them with practical, financial, emotional, and knowledge assistance. Social capital changes depending on the learning environment and is essential for maximizing learning outcomes across time. Depending on the learning context and developmental stage, social capital's contribution to bettering learning outcomes varies throughout time. Colleague interactions and social support are crucial for assisting people in adjusting to the work environment and gaining social comfort. The Unified Theory of Behavior is supported by the research. Since the research constructs of social influence, financial literacy, self-control, and saving behavior either fall into the first dimension of the theory which describes immediate determinants or the second dimension which describes increasing the likelihood of a person engaging in the actual behavior, the two dimensions of the theory describe the research constructs.

Limitations and future research

While the study achieved a high response rate of 94%, it is important to consider that the self-reported nature of the data collection could have led to response bias. Participants may have provided socially desirable answers, especially regarding sensitive topics like saving behavior. Although steps were taken to mitigate this risk (e.g. ensuring anonymity and confidentiality), response bias cannot be entirely ruled out. Future studies could address this limitation by employing alternative data collection methods, such as interviews or behavioral data, to capture more accurate representations of saving behavior.

Additionally, while the study was conducted in Kampala, the results may not be fully generalizable to MSE owners in other regions of Uganda or other countries. Kampala is an urban setting, and its MSE owners may have different financial behaviors compared to those in rural areas or other cities with distinct economic conditions. The findings may, therefore, be more applicable to urban MSE owners in similar contexts, but caution is advised when generalizing to broader populations. Further research could explore the same phenomenon in other regions to test the robustness and applicability of these results across diverse settings.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Informed consent

Informed consent was obtained from all participants involved in the study by writing.

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Data availability statement

The data that supports the findings of this study are available from the corresponding author (M.K) upon reasonable request.

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