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Relationship Between an Entrepreneur's Self-Efficacy, Self-Leadership, and Startup Sustainability in Nigeria

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Walden University

College of Management and Human Potential

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Juliet Ehimuan

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Walden University
2023

Abstract

Relationship Between an Entrepreneur's Self-Efficacy, Self-Leadership, and Startup
Sustainability in Nigeria

by

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MBA, London Business School, 2008

PGD, University of Cambridge, 1998

BS, Obafemi Awolowo University, Ile-Ife 1994

Doctoral Study Submitted in Partial Fulfillment
of the Requirements for the Degree of
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Abstract

Self-efficacy and self-leadership have been identified as important indicators of business sustainability. Business owners and investors are concerned about sustainability because most businesses fail within the first five years. Grounded in self-efficacy and self-leadership theories, the purpose of this quantitative correlation study was to examine the relationship between entrepreneurial self-efficacy, self-leadership and startup sustainability. The participants were 156 entrepreneurs who completed the entrepreneurial self-efficacy scale and the abbreviated self-leadership questionnaire delivered via email. The multiple linear regression analysis results indicated the model was able to significantly predict startup sustainability, $F(2, 129) = 432.47, p < .001, R^2 = .87$. Self-efficacy provided a significant contribution to the model ($t = 8.424, p < .001, \beta = .914$). In contrast, the contribution of self-leadership was not significant ($t = 0.185, p = .853, \beta = .20$). A key recommendation is the utilization of mentoring programs and structured leadership internships that enhance self-efficacy by providing startup leaders with exposure to more seasoned corporate leaders, and successful peers who have had similar experiences to theirs. The implications for positive social change include the potential development of training and capacity-building programs that can be provided to entrepreneurs and other startup leaders to enhance their ability to sustain their startups, leading to more successful businesses, job creation, and economic growth.

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Dedication

This thesis is dedicated to my late mother, Justina Iguehi Ehimuan; who taught me courage, self-efficacy, and to strive for excellence.

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Section 1: Foundation of the Study

The importance of small-medium sized businesses (SMBs) in Nigeria cannot be understated as they contribute 48% of national gross domestic product (GDP), account for 96% of businesses, and provide 84% of employment (PwC, 2019). While these businesses hold a significant role in ensuring a strong and growing economy, the challenge that hinders greater contribution is their high failure rate. Four in every five SMBs close down within the first 5 years of operation as a result of various factors in their internal and external environments (Ajike et al., 2015; Ifekandu, 2015; Newman et al., 2019; Olorunshola, 2019; Ziyae & Heydari, 2016). Considering that the external environment is the standard operating environment for these SMBs in one form or the other, the internal factors may then be said to hold greater importance in distinguishing SMBs that fail from those that succeed. Narrowing further, noting that the majority of these SMBs run lean teams, founders have near-absolute control of the internal factors for business success (Kotsch, 2017). The founders' experience, traits, decisions, and attitudes strongly influence the SMBs success.

Some researchers have conducted studies on the determinants of startup success and the role of founders in startup success, and out of this has emerged the importance of "self-efficacy" and "self-leadership" (Newman et al., 2019). In this study, I used a quantitative approach to identify the extent of the relationship between an entrepreneur's self-efficacy, self-leadership, and the success of their startup. This was done by conducting surveys with startup founders in the Nigerian startup ecosystem. This research is important to not only deepen the existing pool of literature on factors influencing

startup success but also specifically to expand on knowledge around Nigerian startup founders and the role these factors play for them.

Background of the Problem

SMBs are seen as the engines of growth and development for local, regional, and national economies as their ease of reach enables economic growth, innovation, competitiveness, and poverty alleviation (Styles et al., 2006; Owoseni & Adeyeye, 2012). Nigeria is home to over 17 million SMBs that contribute over 48% to the nation's GDP and employ 84% of the private workforce (PwC, 2019).

Despite the significant importance of SMBs in Nigeria, a majority of new SMBs fail within their first 5 years of operation and are thus unable to empower the Nigerian economy (Ajike et al., 2015; Ifekandu, 2015; Newman et al., 2019; Olorunshola, 2019; Ziyae & Heydari, 2016). Organizational failure is usually attributed to the internal and/or external natures and environments of SMBs, of which the former is more workable than the latter, and research on how to address both to improve business sustainability has been conducted over the years. Furthermore, while a knowledge base of management and leadership theories on how to prevent organizational failure exists, the limited Nigeria-specific studies may make it difficult for Nigerian startup founders to contextualize the studies due the peculiarities of this region.

Problem Statement

Entrepreneurial self-efficacy and self-leadership impact entrepreneurial motivation, startup innovation and performance, and venture growth (Newman et al., 2019). Eighty percent of SMBs in Nigeria close down their operations within the first 5

years of existence (Ajike et al., 2015; Ifekandu, 2015; Newman et al., 2019; Olorunshola, 2019; Ziyae & Heydari, 2016). The general business problem is that startup sustainability beyond 5 years among Nigerian entrepreneurs is extremely low. The specific business problem is some Nigerian startup entrepreneurs do not know the relationship between entrepreneurial self-efficacy, self-leadership, and startup sustainability.

Purpose Statement

The purpose of this quantitative correlational study was to determine if there is a statistically significant relationship between entrepreneurial self-efficacy, self-leadership, and startup sustainability. The independent variables were entrepreneurial self-efficacy and self-leadership. The dependent variable was startup sustainability. The targeted population consisted of entrepreneurs including leaders of technology startup businesses in Nigeria who had demonstrated startup sustainability (sustained their businesses beyond 5). The implications for positive social change include the potential for increased sustainability of startups, enhanced job security for employees of startups and reduction in poverty levels. The contribution to social change is that sustainability may lead to increased job creation and overall economic growth.

Nature of the Study

The three research methods include qualitative, quantitative, and mixed methods (Yin, 2018). The quantitative method was selected for the purpose of this study. The quantitative method involves testing hypotheses and analyzing independent and dependent variables' relationships or differences using statistical methods (Yin, 2018). The quantitative method was appropriate as hypothesis testing and analysis of variables'

relationships were necessary to address the study's purpose. A multiple linear regression was conducted. Multiple linear regression is appropriate to determine the correlations between two or more variables having cause-effect relations, and to make predictions on the topic by using the relations (Gülden & Neşe, 2013).

An alternative research method is the qualitative approach. Qualitative research is a means for exploring and understanding the meaning that individuals or groups ascribe to social or human problems, whereas quantitative research tests objective theories by understanding the relationship between variables (Creswell, 2009). Researchers use the qualitative method to explore the in-depth perspectives of individuals in a natural context (Houghton et al., 2013; Yilmaz, 2013). The qualitative method was not appropriate as I did not explore the how or why of a phenomenon.

The mixed method is a combination of both quantitative and qualitative methods (Yin, 2018). Since a qualitative method does not generate empirical numbers that may be used in statistical data analysis and the main objective of the study was to test a hypothesis by evaluating relationships between variables, a quantitative method, rather than a qualitative or mixed method, was appropriate.

The quantitative research designs include correlational, experimental, and quasi-experimental approaches (Yin, 2018). I selected the correlational design approach for this study. Correlational research is useful in determining prevalence and relationships among two or more variables, and to forecast events from current data and knowledge (Curtis et al., 2016). Researchers use correlational design to trace the distribution of the dependent variable as a function of one or more predictor variables (Omair, 2015). Correlational

design was chosen over experimental design because the study evaluated relationships between variables. Lucey (1996) noted that a quantitative research method using correlational design is appropriate in business when changes in one factor appear to be related in some way to movements in one or several other factors. Experimental design is appropriate when a study tests the impact of a treatment or an intervention on an outcome (Lucey, 1996) but such testing is not the intent of this doctoral study. Trochim (2006) posited that experimental design is intrusive, is difficult to carry out in most real-world contexts, and may be challenged successfully on ethical grounds. Researchers use experimental and quasi-experimental design to establish cause and effect relationships (Orcher, 2014). However, the purpose of this study was not to seek cause and effect; thus, the experimental and quasi-experimental design methods were not appropriate for this study.

Research Question

Is there a statistically significant relationship between entrepreneurial self-efficacy, self-leadership, and startup sustainability?

H₀1: There is no statistically significant relationship between entrepreneurial self-efficacy, self-leadership, and startup sustainability.

H_a1: There is a statistically significant relationship between entrepreneurial self-efficacy, self-leadership, and startup sustainability.

Theoretical or Conceptual Framework

Bandura's self-efficacy theory was used to assess the self-efficacy variable of this research study, and Manz' self-leadership theory for the self-leadership variable. Bandura

created the self-efficacy theory in 1977. According to Bandura (1977), psychological procedures, whatever their form, alter the level and strength of self-efficacy. Expectations of personal efficacy determine whether coping behavior will be initiated, how much will be expended, and how long the behavior will be sustained in the face of obstacles and aversive experiences (Bandura, 1977). The tenets of self-efficacy theory are (a) performance outcomes, (b) vicarious experiences, (c) verbal persuasion, (d) physiological state, and (e) imaginal experiences (Bandura, 1977). Ahlin (2014) and Joern et al. (2017) confirmed that self-efficacy moderated effects of environmental munificence on an entrepreneur's alertness and commitment to new ventures. As applied to this study, the self-efficacy theory held that I expected the independent variable of self-efficacy, measured by De Noble's (1999) entrepreneurial self-efficacy scale, to partially predict sustainability of a startup firm.

Manz (1986) conceptualizes self-leadership as a comprehensive self-influence perspective responsible for performance improvements and motivation. As it is intrinsically derived from well-established motivation theories, social cognitive theories, and positive cognitive psychology, it comprises specific sets of cognitive and behavioral strategies that are able to shape performance outcomes (Manz, 1986). These strategies are categorized under the three dimensions of self-leadership, which are (a) behavior-focused strategies, (b) natural reward strategies, and (c) constructive thought pattern strategies (Manz & Neck, 2010; Neck & Houghton, 2006). D'Intino et al. (2007) highlights the direct correlation between self-leadership and entrepreneurial success. The Abbreviated

Self-Leadership Questionnaire (ASLQ), designed by Houghton and Neck (2002), was used to partially predict the sustainability of a startup firm.

Operational Definitions

The following key terms were defined for this study as follows:

Entrepreneurial self-efficacy (ESE): ESE is the personal belief held by an individual that he / she can perform roles and functions that lead to entrepreneurial outcomes.

Self-efficacy: Self-efficacy is the belief held by an individual that he or she has the capacity to execute behaviors necessary to produce specific performance attainments (Bandura, 1977).

Self-leadership: Self-leadership is a comprehensive self-influence perspective responsible for performance improvements and motivation (Manz, 1986).

Small and Medium Enterprises Development Agency of Nigeria (SMEDAN): This agency was established by the SMEDAN Act of 2003 to promote the micro, small, and medium enterprises of the Nigerian economy (SMEDAN, 2011).

Startup sustainability: Startup sustainability is the ability of a startup to remain in business for a considerable amount of time. In the context of this study, the length of time evaluated was 5 years. For the purpose of this study, ‘startup sustainability’ and ‘startup success’ were used interchangeably.

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are facts that are key to the research but that are not within the control of the researcher (Marshall & Rossman, 2016). One assumption was that the business founders surveyed provided truthful and accurate responses to the survey questions. Regarding the design of the study, I assumed that the quantitative correlation study was appropriate for exploring the relationship between entrepreneurial self-efficacy and startup sustainability. Another assumption was that the company data used in assessing sustainability was reliable and accurate. Finally, I assumed that the sample was an appropriate representation of startups in Nigeria.

Limitations

Limitations in a study are the features of a design or methodology that impact the application or interpretation of the results (Connelly, 2013). Another limitation was the complete reliance on participants' recollection or account of their experiences. Some may not have been comfortable disclosing information about the operations of their business or even details on their personal experiences. To mitigate such risks, the consent form provided to the participants included assurance of the confidentiality of any information they provided. A third limitation to the study was the cognitive bias of self-enhancement as participants in the study, especially those that have had unsuccessful businesses, may not have assessed themselves as objectively as possible. Finally, the study focused on internal factors impacting an entrepreneur's performance but even within a country there can be external regional factors like gender dynamics, access to funding, culture, and ease

of doing business that can impact startup growth and sustainability. These were not considered in the study.

Delimitations

This study was designed to understand the factors that contributed to the ability of startups and entrepreneurs that have been sustainable beyond 5 years. The study assessed startups that had been sustainable beyond 5 years and those that hadn't. Given that the study established the cut off period of 5 years as the threshold for determining sustainability, there is a possibility that some early-stage startups that did not meet this threshold simply due to their tenure, but could potentially become sustainable in the future were included in the "non-sustainable" pool. The study also did not consider other factors that could have led to sustainability like the quality of the team, market conditions, viability of the product, and the regulatory and competitive landscape.

Significance of the Study

Startups are an important segment in the Nigerian economy, contributing 84% to the labor force (SMEDAN, 2015). As one of the traits that has been fused into the Big-5 factor personality model for entrepreneurial work, entrepreneurial self-efficacy is noted to have a significantly positive correlation with firm performance (Kerr et al., 2018; Khedhaouria et al., 2015). On the other hand, as leadership continues to be iterated as a needed skill of startup founders for business success, self-leadership is seen as a needed provision (Pearce & Conger, 2002; Reichard & Johnson 2011). This research study is of potential value to businesses because of its ability to contribute to increased growth and transformation. Startup entrepreneurs can use the results that arise from this study to

enhance their self- efficacy and self-leadership to improve sustainability in the Nigerian business climate.

Contribution to Business Practice

The findings of this research can be incorporated into leadership development programs and lead to a better understanding of the relationship between entrepreneurial self-efficacy and leadership performance. Understanding the roles of entrepreneurial self-efficacy and self-leadership and applying this knowledge to business practice can help entrepreneurs be more effective leaders in business. Becoming more effective as leaders, they would be more equipped to drive business sustainability.

Implications for Social Change

The rate of unemployment in Nigeria is about 37% and increasing (Asaju et al., 2014). SMBs are an important engine for growth and will likely continue to be the largest contributors to job creation (Ebitu et al., 2016). An increase in the rate of success of SMBs will contribute to job creation and provide sources of income for people who are employed in these jobs. More business growth and income earning ability for people will contribute positively to the economy.

A Review of the Professional and Academic Literature

SMBs in Nigeria are very important as they contribute 48% of national GDP, account for 96% of businesses and provide 84% of employment (PwC, 2019). While these businesses hold a significant role in ensuring a strong and growing economy, the challenge that hinders greater contribution is their high failure rate. Four in every five SMBs fail within the first 5 years of operation as a result of various factors in their

internal and external environments (Ajike et al., 2015; Ifekandu, 2015; Newman et al., 2019; Olorunshola, 2019; Ziyae & Heydari, 2016). This study seeks to identify the key factors that impact the sustainability of small businesses in Nigeria beyond the first 5 years.

Several studies have been conducted on the factors impacting the “how” and “why” of entrepreneurial success, for example, Lukeš and Zouhar (2013) and Okrah and Nepp (2018), with the definition of “success” subjectively varying in the different studies. Thus, for the purpose of this study, startup success is interchanged with startup sustainability, and the measure for this was startups that have been in operation beyond 5 years. According to Lee and Kim (2019), startup sustainability refers to the possibility that a startup’s financial and nonfinancial performance can continue to sustain it in the long-term. However, a gap exists in the knowledge on startup sustainability beyond the first 5 years, especially sustainability in Nigeria. The purpose of this quantitative correlational study is to determine if there is a statistically significant relationship between entrepreneurial self-efficacy, self-leadership, and startup sustainability.

This literature review provides an overview of the extensive literature on self-efficacy and self-leadership within the context of startup sustainability. Building upon existing literature, the purpose of this review is to draw information on the definition of startup sustainability and sustainability factors, attributes of self-efficacy and self-leadership, their link to startup sustainability, and how they can be assessed in an entrepreneur. This chapter starts with a discussion of the theoretical framework, Bandura’s self-efficacy theory and Manz’s self-leadership theory, and also includes a

critical analysis of the current literature on self-efficacy and self-leadership and explores effective instruments for conducting self-efficacy and self-leadership surveys and analyses.

Research Strategy

This review included (a) an analysis of existing literature in relation to the core concepts and the components of the theoretical framework, (b) a discussion of gaps in the research literature and (c) a summary of the key points. In the extant literature, I located foundational support to address the central research question of this quantitative study: the relationship between self-efficacy, self-leadership, and firm performance.

Research studies and other scholarly content were found using the following databases: ProQuest, Academic Search Complete/Premier, ProScience, Academic One File, Academic Search Complete, Google Scholar, ProQuest Dissertation and Theses, and Emerald. The phenomenon being studied was startup sustainability and the following search terms were used: *self-efficacy*, *self-leadership*, *small business success*, *sustainability*, *sustainability models*, *entrepreneurship*, *entrepreneurship characteristics*, *performance*, and *small business owners*. Table 1 shows the number and percentage of current and past literature used in this study.

Table 1*Summary of References Used in Study*

	References after 2016	References before 2016	Total
Books	14	8	22
Dissertations	64	18	70
Peer-Reviewed Articles	146	30	140
Other References	30	16	46
Total	254	72	326
Percentage of Total	78%	26%	

Theoretical Foundation

The theoretical frameworks used as a basis for this study are Bandura's self-efficacy theory (1997) and Manz's self-leadership theory (1986). According to Bandura (1977), psychological procedures, whatever their form, alter the level and strength of self-efficacy. The tenets of self-efficacy theory are (a) performance outcomes, (b) vicarious experiences, (c) verbal persuasion, (d) physiological state, and (e) imaginal experiences (Bandura, 1977). As applied to this study, the self-efficacy independent variable was measured by De Noble's (1999) entrepreneurial self-efficacy scale. Manz (1986) conceptualizes self-leadership as a comprehensive self-influence perspective responsible for performance improvements and motivation. Manz's theory of self-leadership comprises specific sets of cognitive and behavioral strategies that are able to shape performance outcomes (Manz, 1986). These strategies are categorized under the three dimensions of self-leadership, which are (a) behavior-focused strategies, (b) natural

reward strategies, and (c) constructive thought pattern strategies (Manz & Neck, 2010; Neck & Houghton, 2006). D'Intino et al. (2007) highlights the direct correlation between self-leadership and entrepreneurial success, and the abbreviated self-leadership questionnaire (ASLQ) designed by Houghton and Neck (2002) was used to predict the sustainability of a startup firm.

Self-Efficacy

As an important component of social cognitive theory (SCT), self-efficacy is the belief held by an individual that he or she has the capacity to execute behaviors necessary to produce specific performance attainments (Bandura, 1977, 1986, 1997). It is an individual's perception about how well they can execute a future action in a future situation (Bandura, 1986; Bandura & Locke, 2003). Progressively, Neck and Houghton add that it is the belief held by an individual to perform a given task that is central to self-efficacy. With keywords being *belief*, *perception* and *feeling*, self-efficacy focuses less on the cognitive, social or behavioral skills an individual has, but rather on what an individual believes they can do with that ability under a variety of circumstances (Bandura, 1997). The *variety of circumstances* refers to the multidimensional nature of self-efficacy as experts agree that it is both task-specific and domain-specific (Newman et al., 2019). There is general self-efficacy, which is the general belief held by an individual that they can perform any future roles and tasks and entrepreneurial self-efficacy (ESE) amongst others. Focus will be given to ESE for the purpose of this study as it is specific to the entrepreneurial domain that is being studied.

While the aforementioned definitions of self-efficacy appear structured to give a positivist approach, self-efficacy may either enhance or undermine performance as it influences thought patterns and can indicate feelings of capability (Bandura, 1990). According to Bandura (1977), self-efficacy affects an individual's decision to expend effort, persist, and participate in an activity as low self-efficacy for accomplishing a certain task may result in avoidance while high self-efficacy results in greater interest in participating, higher persistence, and greater effort in the face of difficulty. The performance outcomes of high self-efficacy are of particular importance as personal success requires personal effort coupled with other factors.

Self-efficacy can potentially provide an advanced view for whether an entrepreneur might be successful or not. There is broad agreement that ESE plays an important role in predicting entrepreneurial activity and behavior (Newman et al., 2019; Chen et al., 1998). ESE is the personal belief held by an individual that he or she can perform roles and functions that lead to entrepreneurial outcomes. ESE is recognized as a key psychological construct in entrepreneurship and has received increasing focus in entrepreneurship research (Miao et al., 2017). Studies have shown that ESE impacts entrepreneurial motivation, intention, behavior, and performance (Newman et al., 2019). Zhao, et al. (2005) carried out a comprehensive study of the mediating effect of self-efficacy on 265 MBA students and found that ESE mediated the effects of perceived learning from entrepreneurship-related courses, previous entrepreneurial experience, and risk propensity.

Theories of Self-Efficacy. Social cognitive theory has been the key theoretical construct that has been used to evaluate ESE and to explain the contributory factors to its evolution (Newman et al., 2019). Social cognitive theory adopts an agentic view of human development, adaptation, and change. Three modes of agency are identified i.e., personal agency which relies on individual actions for advancing outcomes; proxy agency in which desired outcomes are secured by influencing others to act; and collective agency in which people act in concert to shape their future (Bandura, 2002).

Factors that impact on the formation of self-efficacy, the so-called antecedents of ESE have been identified in a broad range of work in the literature. This includes antecedents (factors) such as work experience, education and training, role models and mentors, individual differences, firm characteristics, and the cultural and institutional environment, that yield performance outcomes on entrepreneurial behavior, venture creation and entrepreneurial performance (Newman et al., 2019). Similarly, based on Action Theory and Resource Allocation Theory, the proactive and elaborate plans developed by the resources of energy, motivation - self-efficacy, working memory and knowledge are related to entrepreneurial success (Frese, 2009; Kanfer & Ackerman, 1989).

Several theoretic constructs can be utilized to explain entrepreneurial effectiveness.

However, the self-efficacy theory, anchored in social cognitive theory, has been used to effectively investigate and explain the antecedents of ESE (Bandura, 1997).

Social cognitive theory explains the pathways by which ESE develops. The four pathways are mastery experience, vicarious learning, social persuasion, and judgement of one's physiological states (the “affective state” pathway).

Bandura's Theory of Self-Efficacy. Bandura created the self-efficacy theory in 1977. According to Bandura (1977), psychological procedures, whatever their form, alter the level and strength of self-efficacy. Expectations of personal efficacy determine whether coping behavior will be initiated, how much will be expended, and how long it will be sustained in the face of obstacles and aversive experiences (Bandura, 1977). The tenets of self-efficacy theory are (a) performance outcomes, (b) vicarious experiences, (c) verbal persuasion, (d) physiological state, and (e) imaginal experiences. As applied to this study, the self-efficacy theory holds that the independent variables (self-efficacy constructs), measured by the multifaceted self-efficacy questionnaire, would predict sustainability of a startup firm (Ahlin, 2014). Ahlin (2014) confirmed that self-efficacy moderated effects of environmental munificence on an entrepreneur's alertness and commitment to new ventures.

Individuals can assess their self-efficacy by interpretations of actual performance (Bandura, 1997). Performance outcomes that are viewed as positive will tend to raise an individual's efficacy, while interpretations of failure would negatively impact self-efficacy (Schunk & Pajares, 2009). Vicarious experiences allow individuals to assess their self-efficacy by comparing the similarity of their outcomes to others. Observing others that they consider themselves to be similar to, succeed at a task can raise an individual's self-efficacy, convincing them that if others can perform successfully at a given task, they can as well (Schunk & Pajares, 2009). Persuasion can also be an effective tool for raising self-efficacy (Bandura, 1997). Verbal persuasion is most effective when positive affirmations of ability are reinforced by a cultivation of

individual's beliefs in their capabilities as well as actual successful outcomes (Schunk & Pajares, 2009). Individuals can assess their self-efficacy based on the emotional or physiological states they experience when faced with specific tasks. Tasks that induce fear of failure and anxiety can lower self-efficacy, and by extension lead to poor outcomes. Schunk and Pajares (2009) have suggested that individuals can raise their self-efficacy by improving their physical and emotional well-being and reducing negative emotional states. Imaginal experiences are cognitive self-enactment processes by which individuals form efficacy beliefs by imagining themselves or others behaving successfully or unsuccessfully when faced with specific tasks (Bandura, 1997; Maddux, 2002). Bandura's (1977) conceptualization of self-efficacy stands as a guiding framework for general self-efficacy, and the aforementioned tenets as recommended by him, should be used for domain-specific self-efficacy measures - Entrepreneurial Self Efficacy in this case (Bandura, 1986; Frese, 2009).

Self-Leadership

Neck and Manz (2010) broadly define self-leadership as "the process of influencing oneself". Consistently with this, Neck and Houghton (2006) argue that it is an important behavioral action consisting of specific behavioral and cognitive strategies of self-influence that enable people to achieve the self-direction and self-motivation necessary for performance (DiLiello & Houghton, 2006). These definitions of self-leadership are based on the precedent of Bandura's (1977) Social Learning Theory and Manz (1991) theory on leadership, as they describe it as a self-influence process and set of strategies that address what is to be done (e.g. standards and objectives), why it is

being done (e.g. strategic analysis), and how it is to be done; incorporating intrinsic motivation and an increased focus on cognitive processes (Stewart et al., 2011). Thus, self-leadership is based on the fundamental idea that internal strategies can influence personal effectiveness. These definitions appear positivist in nature as they allude to achieving the self-motivation necessary for performance, however, they merely are a broad description of the precedents of behavior, which may not lead to successful performance or goal attainment. That is, although people are natural self-regulators in that goal-directedness is inherent in the life process, they are not innately effective – thus, there is a need to view the characteristic of self-leadership as a scale rather than an outright attribute which may be weak or strong in an individual (Latham & Locke, 1991).

Self-leadership strategies are typically classified as behavior-focused strategies, natural reward strategies, and thought-pattern or cognitive strategies (Neck & Houghton, 2006). Boss and Sims (2008) argue that natural reward strategies contribute to the other two, thus, should not be recognized as a standalone classification. Natural reward strategies involve identifying intrinsic value and satisfaction in an activity, or engaging or redesigning an activity to derive this satisfaction; identifying value and satisfaction aligns with thought-pattern strategies while redesigning an activity is a behavioral action (Boss & Sims, 2008).

Behavior-Focused Strategies. Manz (1996) described these as conscious and actionable strategies directed towards managing tasks through self-observation, self-evaluation, self-goal setting, self-reward, self-punishment, cueing, and self-coaching. Rob and Jones (2005) expanded on these to include self-motivation and self-feedback;

however, these could be likened to self-reward and self-punishment. Self-observation involving an individual understanding the ‘how’ and ‘why’ of their behavior in different contexts; self-evaluation assessing said behavior as favorable or unfavorable, necessary or unnecessary; self-goal setting creating a timeline for a desired state of the behaviors; self-reward and punishment tying a personally valuable reward or self-criticism to the outcome of the goals set; cueing involving altering the external environment for a more favorable result; and rehearsals involving practice and repetition to enhance behaviors (Pavlovic, 2019). Moreover, in addition to the strategies being directed at successful completion and management of tasks, they also enable individuals to self-assess for unfavorable behaviors that require addressing (Manz, 1996).

Natural Reward Strategies. This focus attention on the satisfying or personally valuable aspects of a task, and intrinsically motivating tasks, and can be divided into two - modifying tasks and activities to become more appealing and seemingly rewarding to an individual, and shaping perceptions by disregarding or giving less attention to the unpleasant aspects of a task while amplifying the pleasant aspects. These two strategies create a feeling of competence and enhance self-determination which in turn energize performance-enhancing behaviors (Pavlovic, 2019).

Constructive-Thought Pattern/Cognitive Strategies. According to Sim and Manz (1996), these involve an individual’s deliberate efforts to control and enhance their thinking in positive ways. Constructive-thought patterns have been linked to mental performance and fulfilment as they focus on how cognitive patterns are formed and maintained. The three tools involved in shaping these thought-patterns include; self-

analysis and improvement of belief systems, mental imagery of successful performance outcomes, and positive self-talk (Manz & Neck, 2004). These three tools involve individuals examining and identifying irrational dysfunctional thoughts, false assumptions and dialogues, dispelling them and replacing them with positive ones, cognitively creating scenarios or tasks mentally prior to actioning them, or self-talk and reactions (Manz & Neck, 2004).

Self-Leadership Theory

Since appearing in publications by Manz in 1983 and 1986, self-leadership theory has been studied to different degrees in the context of practitioners, students, organizations and business founders, and has been said to be rooted in a variety of theories associated with self-influence, including self-regulation, self-management, self-navigation, self-control, intrinsic motivation, social cognition and cognitive psychology (Manz and Sims, 1980; Ziyae & Heydari, 2016). Self-leadership first appeared as an expansion of self-management in 1983 but was solidified in research three years later in the publication, “Self-leadership: Toward an expanded theory of self-influence processes in organizations” by Manz (1986). The publication laid the theoretical foundations, although underdeveloped, of self-leadership, with focus on behavior-focused strategies and natural reward strategies at the time. Manz (1986) focused majorly on the organizational application of self-leadership, which resulted in further self-leadership research in the 1990s exploring self-managing teams and empowering leadership. In progression of the publication by Manz (1986), Manz and Sims (1987) improved on the highly conceptual publication by taking an empirical outlook to self-leadership in the

context of team leadership - empowerment and self-managing teams as an alternative to heroic top-down leadership (Neck & Houghton, 2006).

Self-Leadership and Self-Regulation. Drawing from the field of cybernetics, the science of communication and automatic control systems in machines and living things, self-leadership partly operates within the wider theoretical framework of self-regulation as an analogous thermostat that monitors performance in different contexts, compares said performance to a predetermined standard or desire and adjusts effort if an unfavorable discrepancy exists (Carver, 1979; Dictionary, 2020; Neck & Houghton, 2006). The logical process behind this underpins the behavior-focused strategy of self-leadership. Self-regulation theory also strongly underpins the cognitive strategies of self-leadership as it specifies the likelihood of irregularities and unfavorable performance in self-regulation and prescribes a number of strategies to increase self-regulatory effectiveness. This is similar to the prescription of specific behavioral and cognitive strategies by self-leadership operating within the broad theoretical framework of self-regulation (Neck & Houghton, 2006; Vohs & Baumeister, 2016).

Self-Leadership and Self-Management. Described as the ability to regulate one's emotions, thoughts, and behaviors effectively in different situations by Bob LaRocca (2017) or the process of selecting a less-attractive but ultimately more desirable behavior from a number of short-term alternatives to improve performance outcomes and meet desired long-term results, self-management was founded upon concepts and strategies of self-control developed in clinical psychology (Manz & Sims, 1980; Neck & Houghton, 2006). These strategies of self-control identified in clinical literature include

self-observation, self-goal setting, cueing, self-reinforcement, self-punishment and rehearsals (Mahoney & Arnkoff, 1978; Mahoney & Arnkoff, 1979). These same strategies which were originally used to manage health-related behaviors were adapted by Manz and other organizational theorists, and ultimately became the basis for self-leadership's behavior-focused strategies (Mahoney & Arnkoff, 1979; Manz, 1986; Manz & Neck, 2004).

Self-Leadership and Intrinsic Motivation. Strategies of self-leadership, natural rewards especially, are seen to be rooted in intrinsic motivation literature and Deci's (1975) cognitive evaluation theory (Deci & Ryan, 2010). According to Deci and Ryan (2010), cognitive evaluation theory is driven by two mechanisms-competence and self-determination-that allow for individuals to draw on natural motivation as they strive for personal improvement; competence as a mechanism being a baseline of capability, and self-determination as another which enables the individual to look to raising their capability baseline without pressures such as contingent reward (Deci & Ryan, 2010).

Self-Leadership and Social Cognitive Theory. According to Norris (2008), Browning (2018) and Ziyae and Heydari (2016), self-leadership is also rooted in Bandura's social learning theory and social cognitive theory (Bandura, 1977; Bandura, 1986). Social learning theory explains human behavior in terms of continuous reciprocal interaction between cognitive, behavioral, and environmental influences; while social cognitive theory explains the continuous interaction between individuals and their environments with unique emphasis on social influence and its emphasis on both internal and external social reinforcement (Bandura, 1977; BUMC, 2019). Coupled with self-

regulation theory, this reciprocal determinism view provides the other major conceptual framework upon which self-leadership strategies are based (Manz, 1986; Neck & Houghton, 2006). While self-regulation theory approaches behavior with the concept of discrepancy reduction, social cognitive theory proposes a system of discrepancy production and increment which is then followed by reduction as individuals control their performance standards (Neck & Houghton, 2006). That is, it posits that individuals reduce discrepancy to meet a certain standard and set new standards with wider discrepancy that are subsequently reduced. Similar to self-regulation theory, social cognitive theory posits that the basic self-regulatory system consists of self-monitoring, self-assessment and self-reactions including satisfaction and self-efficacy processes - a key construct within social cognitive theory.

Entrepreneurship

As one of the 'roads to future prosperity' and a significant national economic contributor, entrepreneurship continues to be a topic of public debate without a precise definition (Iverson et al., 2008). Low and MacMillan (1988) indicate that this imprecision and complexity of entrepreneurship results from overlap with constructs and perspectives such as change management, innovation and industry progression, environmental and technological turbulence, product development, and business management. Thus, entrepreneurship is of economic, social, psychological, behavioral, managerial and anthropological dimensions (Kusumsiri & Jayawardane, 2013). Entrepreneurship is an important component for societal growth and development. As a result, increased emphasis is being placed on entrepreneurial thinking, both from the context of

entrepreneurs acting on their own to create new businesses, or in terms of entrepreneurial behavior (Intrapreneurship) even within large organizations (Newman et al., 2019).

Within a business context, Cunningham and Lischeron (1991) use the term “entrepreneurship” to define an array of activities surrounding the formation and management of ventures, while Schumpeter argues that entrepreneurship refers to innovation by individuals that cause creative disruption and yield equitable wealth redistribution (Spencer et al., 2008). These definitions align with the Kusumsiri and Jayawardane (2013) behavioral approach to defining entrepreneurship. Kusumsiri and Jayawardane (2013) categorize entrepreneurship definitions into (a) psychological approach, and (b) behavioral approach, with the former referring to entrepreneurial traits and the latter, entrepreneurial activities. The psychological approach to defining entrepreneurship is based on the notion that new venture formation transcends activity-driven interpretation and identification of world opportunities but also the actioner with intuitive ability and psychological needs, inherent traits, unique values and attitudes (Foo et al., 2009; Frese, 2009; Kusumsiri & Jayawardane, 2013). This aligns with David McClelland’s psychological theory of entrepreneurship which offers that entrepreneurs possess certain traits and needs that drive entrepreneurial activity (Dontigney, 2018). The causal relationship identified between the traits and activities of entrepreneurs and the meta-analytical evidence asserting that entrepreneurial actions need to be studied from a psychological perspective indicates the important role of entrepreneurs in the success and sustainability of business ventures (Baron et al., 2007; Carton et al., 1998; Foo et al., 2009; Rauch & Frese, 2007). Some of these traits include the knowledge,

decision making, leadership styles and environment of entrepreneurs and their ventures. Van Stel, Carree, and Thurik (2005) have demonstrated that entrepreneurial activity affects economic growth, and that entrepreneurship plays a different role in countries in different stages of economic development.

Entrepreneurial capacity can be a factor in determining which ventures survive and which ones do not. Knowing what behavioral factors are associated with successful entrepreneurship can help in identifying individuals with the potential for entrepreneurial success, and perhaps most importantly in identifying the concepts that will be included in training programs intended to enhance and develop entrepreneurial capacity. Beyond functioning in individual capacities, the entrepreneur must also support or enable the functioning of an organization (Newman et al., 2019). Baum and Locke (2004), Cressy (2006), DiLiello and Houghton (2006) and Neck et al. (2006) study the multidimensional nature of entrepreneurial success and categorize these traits and factors into cognitive issues, individual behavior and the environment.

Types of Entrepreneurs

The definition of an entrepreneur varies. The most standard definition of a small-business owner is the proprietor of a firm with fewer than 500 employees (Small Business Association, 2016). An entrepreneur could also be defined as a ‘starter’, ‘driver’ or ‘accountable and responsible individual’ for the establishment of a business venture (Juan Jose de la Torre, 2015). While there are varying definitions of who an entrepreneur is, themes of ownership, business formation and business size could be identified in the definitions. Similarly, to the existence of varying definitions of entrepreneurship, types of

entrepreneurs could also be classified in several ways based on the ‘nature vs nurture’ debate, ‘operator vs visionary’ debate, tenure of entrepreneurship (nascent or habitual), or industry of operation. For the purpose of this study, focus was limited to the ‘nature vs nurture’ and tenure of entrepreneurship classifications.

Factors Influencing Entrepreneurial Success

According to Radzi et al. (2017), business and financial performance is influenced by management practice and market, as overarching internal and external factors, respectively. Newman et al. (2019) and Ajike et al. (2015) support this categorization, emphasizing the distinguishing role internal compositions of startups which include the startup founders, teams, strategies, capital, operations, innovation, infrastructure and values, play within the context of an external environment of policy, wider economy, competition, demand and technology (MagePlaza, 2017). The “external environment” is similar for business ventures in a particular region, sector or stage of business, and is also a subjective representation of the outlook of startups to the context in which they play and how their internal positions interact with these elements beyond their control (Chatterjee & Das, 2015). Furthermore, while internal and external factors influence business performance, both sets of variables are also influenced by the traits and characteristics of the manager or entrepreneur as an antecedent variable (Cragg & King, 1988).

According to Chatterjee and Das (2015), the external - economic, social, demographic and cultural factors influence the decision to establish a new startup but these factors hold no weight in venture formation until an individual - an entrepreneur is

placed in the mix and decides to make it possible. Moreover, as several scholars have emphasized the strong dependence of entrepreneurial success on how the actioning entrepreneur manages his internal environment and navigates the external, this study will maintain the psychological approach to defining entrepreneurship and limit the deep-dive to the factors - cognitive issues, individual behavior and the environment, influencing entrepreneurial success to the entrepreneur (Baum & Locke, 2004; Cressy, 2006; DiLiello & Houghton, 2006; Neck et al. 2006).

Cognitive Psychology and Style. If the ‘heart’ of entrepreneurship is an orientation toward seeing opportunities, then from where do perceptions of opportunity derive? Krueger (2003) and Sanchez-Garcia (2014) conduct theory-driven research on the nature of entrepreneurial thinking and cognitive phenomena that differentiate entrepreneurs, to support existing literature that reiterate the similarities in risk-taking propensity of entrepreneurs. Furthermore, they argue that it is counterintuitive to ignore psychological differences when investigating behaviors of successful entrepreneurs as cognition and thoughts are antecedent to behavior. The study conducted by Sanchez Garcia (2014) concludes that the most successful entrepreneurs received higher scores in cognitive ability, willingness and arrangements. Thus, there is a need to understand the cognitive differences in entrepreneurs within the Nigerian context for this study.

According to Sternberg and Sternberg (2016), cognitive psychology is the study of perceptions, learning process, memory and individual thought as antecedents to behavior (Johnson et al., 2008). That is, the mental processes through which information is acquired, stored and utilized, influence everything that individuals think, say or do

(Baron, 2004). In an entrepreneurial context, cognitive theory provides valuable tools for the study of entrepreneurial behaviors, activities, opportunity identification, problem solving, venture formation and business success (Baron, 2007; Sanchez Garcia, 2014). Thus, as entrepreneurial success is based on entrepreneurial activities which are based on cognitive styles, cognitive psychology is increasingly useful in identifying the phenomena associated with success (Sanchez et al., 2011). Moreover, Frese and Gielnik (2014) posit that while entrepreneurial behaviors and activities appear to instigate success, entrepreneurship research should not focus majorly on them as their meta-analytic findings show that personality and cognitive dimensions such as self-efficacy and entrepreneurial orientation are highly associated with success.

A theory that majorly incorporates cognitive factors is SCT, which stems from Social Learning Theory dating back to the 1800s. The concept of SCT is attributed to Albert Bandura's 1986 book, *Social Foundation of Thought and Action: A Social Cognitive Theory*, and it argues that cognitive process plays a significant role in constructing reality, encoding information and imposing structure, through feedback and reciprocity (Bandura, 2014). SCT defines human behavior as a dynamic interaction between cognition, behaviors and environment, and a social cognitive model, "self-efficacy", based on this is used as a theoretical framework to illustrate the relationships between the three within the context of entrepreneurship (Wood & Bandura, 1989).

Entrepreneurship and Self-Efficacy

An extensive amount of research is underway with a view towards understanding how to better support entrepreneurial activities (Hisrich et al., 2007; Newman et al.,

2019). When studying entrepreneurship and the factors that can predict potential success for entrepreneurs, several constructs can be utilized (Brandstätter, 2011).

Entrepreneurs operate within two environments. There is an internal environment that comprises of the actions and activities that are taken to organize their firms, and to coordinate the functions and activities within their organizations to get tasks done. Then there is an external environment that includes all of the externalities that a company will face. These include factors such as competition, macro-economic variables (e.g., recessions), policy, and other factors; some influence able by the entrepreneur (e.g., response to competition) and others not. This implies that successful entrepreneurs must learn how to cope with uncertainty, and must be adept at dealing with a variety of issues management, risk taking, marketing, financial control, developing new product and market opportunities, building and nurturing innovative environments, initiating investor relationships, coping with unexpected challenges, developing critical human resources, searching, planning, and marshalling people and resources to achieve stated end goals (Chen et al., 1998; DeNoble et al., 1999; McGee et al., 2009).

Bird and Vozikis (1994) have shown that self-efficacy influences the development of entrepreneurial intentions and behaviors. A critical question is whether the absence of self-efficacy is a major factor of small and medium-sized enterprise failure (Shonesy and Gulbro, 2018). Between 2012 and 2015, 80% percent of Nigerian startup businesses failed in less than five years (Small and Medium Enterprises Development Agency of Nigeria [SMEDAN], 2015). The general business problem is that a lack of self-efficacy is a contributing factor to entrepreneurial failure beyond five years.

Measurement of Entrepreneurial Self-Efficacy

There are six (6) tools reported in the literature as being generally used for the measurement of ESE (Newman et al., 2019). These tools are from Chen et al. (1998), DeNoble et al. (1999), Zhao et al. (2005), McGee et al. (2009), Barbosa et al. (2007) and Barakat et al. (2014). One of the most widely used measures is the 22 item multi-dimensional tool developed by Chen et al. (1998). In a recent literature review (Newman et al., 2019), this tool was found to be the most widespread tool for ESE measurement. The major differences across the measurement systems is the focus of the tools. Factor analysis has been used to determine the sub-dimensions in three of the tools, i.e., Chen et al. (1998), DeNoble et al. (1999), and McGee et al. (2009).

The measurement tools and sub-dimensions are: Chen et al. (1998): 22 items and five sub-dimensions, namely; management, risk taking, marketing and financial control. DeNoble et al. (1999): 23 items and six sub-dimensions namely; developing new product and market opportunities, building an innovative environment, initiating investor relationships, defining core purpose, coping with unexpected challenges, developing critical human resources. McGee et al. (2009): 19 items and 5 sub dimensions, namely; searching, planning, marshalling, implementing - people, implementing – financial. See Table 2 for key measures.

Table 2*Key Measures of Entrepreneurial Self-Efficacy*

Measure	Number of items	Sub dimensions (ESE in relation to)
Chen et al. (1998)	22 items	Marketing (6 items) Innovation (4 items) Management (5 items) Risk-taking (4 items) Financial control (3 items)
DeNoble et al. (1999)	23 items	Developing new product and market opportunities (7 items) Building an innovative environment (4 items) Initiating investor relationships (3 items) Defining core purpose (3 items) Coping with unexpected challenges (3 items) Developing critical human resources (3 items)
Zhao et al. (2005) McGee et al. (2009)	4 items 19 items	Global scale (no sub dimensions) Searching (3 items) Planning (4 items) Marshalling (3 items) Implementing: people (6 items) Implementing: financial (3 items)
Barbosa et al. (2007)	18 items (not clear how many items fall under each sub dimension)	Opportunity identification Relationship Managerial Tolerance Innovation Financial value Teamwork Product development Start-up processes Leadership Creativity
Barakat et al. (2014)	7 items (one item for each sub-dimension)	

Note. Adapted from “Entrepreneurial Self-Efficacy: A Systematic Review of the Literature on its Theoretical Foundations, Measurement, Antecedents, and Outcomes, and an Agenda for Future Research”, by A. Newman, M. Obschonka, S. Schwarz, M. Cohen, & I. Nielsen, 2019, *Journal of Vocational Behavior*, 110, pp. 403-419.

Behavior

Bandura’s social cognitive theory positions behavior as the second element of the SCT triad of person-behavior-environment responsible for organizational behavior and success (Neck & Houghton 2006). He argues that human behavior is generally purposive and resultant of interconnecting cognition and experiences, personal or vicarious,

moderated by self-motivation and decision (Bandura, 1986; Endres & Woods, 2006). That is, prior to behavioral action, expectations of possible outcomes may be created and these may influence the likelihood that the behavior will be performed (Bandura, 1986; Mulki et al., 2008). Thus, as behavior plays a part in organizational success, it is important for individuals to possess the ability to self-regulate their behavior (Bandura, 1986). Moreover, given the role of cognitive processes on behavior and environment, the importance of self-regulation of behavior becomes more apparent - thus the need for self-control and self-leadership.

Self-Leadership

Neck and Manz (2010) broadly define self-leadership as “the process of influencing oneself”. Consistently with this, Neck and Houghton (2006) argue that it is an important behavioral action consisting of specific behavioral and cognitive strategies of self-influence that enable people to achieve the self-direction and self-motivation necessary for performance (DiLiello & Houghton, 2006). These definitions of self-leadership are based on the precedent of Bandura’s (1977) Social Learning Theory and Manz (1991) theory on leadership, as they describe it as: “a self-influence process and set of strategies that address what is to be done (e.g. standards and objectives) why [it is being done] (e.g. strategic analysis) as well as how it is to be done... [it] incorporates intrinsic motivation and has an increased focus on cognitive processes” (Stewart et al., 2011). Thus, self-leadership is based on the fundamental idea that internal strategies can influence personal effectiveness. These definitions appear positivist in nature as they allude to achieving the self-motivation necessary for performance, however, they merely

are a broad description of the precedents of behavior, which may not lead to successful performance or goal attainment. That is, “although people are natural self-regulators in that goal-directedness is inherent in the life process, they are not innately effective” - there is a need to view the characteristic of self-leadership as a scale rather than an outright attribute which may be weak or strong in an individual (Latham & Locke, 1991).

Self-leadership strategies are typically classified as behavior-focused strategies, natural reward strategies, and thought-pattern or cognitive strategies (Neck & Houghton, 2006). Boss and Sims (2008) argue that natural reward strategies contribute to the other two, thus, should not be recognized as a standalone classification. Natural reward strategies involve identifying intrinsic value and satisfaction in an activity, or engaging or redesigning an activity to derive this satisfaction; identifying value and satisfaction aligns with thought-pattern strategies while redesigning an activity is a behavioral action (Boss & Sims, 2008).

Behavior-Focused Strategies

Manz (1996) described these are conscious and actionable strategies directed towards managing tasks through self-observation, self-evaluation, self-goal setting, self-reward, self-punishment, cueing, and self-coaching. Rob and Jones (2005) expand on these to include self-motivation and self-feedback; however, these could be likened to self-reward and self-punishment. Self-observation involving an individual understanding the ‘how’ and ‘why’ of their behavior in different contexts; self-evaluation assessing said behavior as favorable or unfavorable, necessary or unnecessary; self-goal setting creating a timeline for a desired state of the behaviors; self-reward and punishment tying a

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Entrepreneurship and Self-Leadership

According to D'Intino et al. (2007), entrepreneurship may be seen as social in nature, especially in the formative years of business as it tends to focus on the individual actions and decisions of the founding entrepreneur, and self-leadership within this context can influence this self-directed nature of growing a new venture. Moreover, this position is predicated on the concept of "individual difference" by D'Intino et al. (2007) which as implied refers to the differentiating characteristics of individuals - some of these including personality traits, gender, age, past experience, emotions and self-leadership. Progressively, Neck et al. (2013) explores the nature of this supposed influence of self-leadership and concludes that the three resources of who entrepreneurs are, what they know, and whom they know play a significant role during venture formation (Neck et al.,

2013; Sarasvathy 2001). Furthermore, the study argues that cognitive, family-based and task-based resources contribute to lowering the possibility or event of negative loss spirals; self-leadership being the focal cognitive resource in this study (Neck et al., 2013).

The studies by D'Intino et al. (2007) and Neck et al., (2013) also explore the ways in which innate or learned self-leadership play a role through the founder in venture formation and success, indicating that self-leadership enables an entrepreneur to evaluate and seek value proposition opportunities - exploration and innovation, improve their efficacy beliefs, contribute to greater performance, and create a positive gain spiral working in tandem with other resources. While self-leadership may influence venture formation and success as aforementioned, it is important to note that the characterization made in both studies refer to “entrepreneurs who develop better self-leadership skills” and “entrepreneurs with strong self-leadership skills” - thus the need to assess the degree of self-leadership in entrepreneurs needed to reap these positive outcomes.

Measurement of Self-Leadership

As self-leadership theory developed over the years and its potential importance became more apparent to university students and in the work environment, it became evident that it needed to be measured and an instrument to do this needed to be developed (Anderson & Prussia, 1997). The result of this - the Self Leadership Questionnaire developed by Anderson & Prussia (1997) based on previous research (Manz, 1986; Manz & Sims, 1980). This 50-item questionnaire takes a deep dive into investigating behavior, natural reward and constructive thought-pattern strategies of self-leadership (Houghton &

Neck, 2002). In progression and improvement of this, the Revised Self-Leadership Questionnaire (RSLQ) was developed by Houghton and Neck (2002) to partly condense the existing questionnaire and improve on the coefficient alphas for each factor. In its original form, the RSLQ contains 36 items that measure 9 factors of (a) visualizing successful performance ($\alpha = .85$), (b) self-goal setting ($\alpha = .84$), (c) self-talk ($\alpha = .92$), (d) self-reward ($\alpha = .93$), (e) evaluating beliefs and assumptions ($\alpha = .78$), (f) self-punishment ($\alpha = .86$), (g) self-observation ($\alpha = .82$), (h) focusing on natural rewards ($\alpha = .74$), and (i) cueing ($\alpha = .91$; Houghton & Neck, 2002; Ioannis, 2019). Based on an exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) conducted on the RSLQ in the Houghton and Neck (2002) study show, the RSLQ stands as a reliable and valid measurement instrument that effectively reflects self-leadership theory. While this is a solid tool when assessing self-leadership as a singular variable, it may be impractical when self-leadership is one variable in the context of a larger model - thus the consideration of the ASLQ (Houghton et al., 2012). The ASLQ is a 9-item scale with three items each focusing on the factors of behavior awareness and volition, task motivation and constructive cognition (see table 3). As self-leadership will be assessed alongside self-efficacy in this study, the ASLQ form was used.

Table 3*The Abbreviated Self-Leadership Questionnaire (ASLQ)*

SN	Item	Factor 1 Behavior Awareness & Volition $\alpha = .70$	Factor 2 Task Motivation $\alpha = .67$	Factor 3 Constructive Cognition $\alpha = .54$
1	I establish specific goals for my own performance (self-goal setting)	.798	.124	.118
2	I make a point to keep track of how well I'm doing at work (self-observation)	.737	.024	.128
3	I work toward specific goals I have set for myself (self-goal setting)	.787	.208	.137
4	I visualize myself successfully performing a task before I do it (visualizing successful performance)	.198	.881	.118
5	Sometimes I picture in my mind a successful performance before I actually do a task (visualizing performance)	.081	.899	.126
6	When I have successfully completed a task, I often reward myself with something I like (self-reward)	.202	.626	.121
7	Sometimes I talk to myself (out loud or in my head) to work through difficult situations (evaluating beliefs and assumptions)	.061	.112	.871
8	I try to mentally evaluate the accuracy of my own beliefs about situations I am having problems with (self-talk)	.301	.024	.768
9	I think about my own beliefs and assumptions whenever I encounter a difficult situation (evaluating beliefs and assumptions)	.207	.147	.844

Note. Adapted from “The Revised Self-Leadership Questionnaire: Testing a Hierarchical Factor Structure for Self-Leadership”, by J. D. Houghton, & C. P. Neck, 2002, *Journal of Managerial Psychology*, 17(8), pp. 672-691.

Environment

Based on the social cognitive model, there is a reciprocal interaction between cognition, behavior where people, entrepreneurs in this case, are products and producers of their environment (Bandura, 1986; Chatterjee & Das, 2015; Gibson, 2004). Moreover, while environments broadly possess the same factors, on a singular level, they are shaped by individuals selecting from a range of possibilities (Bandura & Locke, 2003). Behavior and cognition play a major role in determining which of the numerous potential environmental influences manifest and the forms in which they will take (Bandura, 1986).

Self-Efficacy and Self-Leadership

According to Goldsby et al. (2006) and Prussia et al. (1998), there are strong positive relationships between self-leadership, self-efficacy perceptions and success with self-efficacy standing as the primary differentiator between self-leadership and success (Neck & Houghton, 2006). While some studies argue that self-efficacy enhances self-leadership, others such as Houghton and Yoho (2005) also argue that self-leadership enhances self-efficacy - thus the existence of a positive reciprocal relationship between the two (Goldsby et al., 2006).

As the single most commonly mentioned outcome variable of self-leadership, self-efficacy is enhanced especially by natural reward and constructive cognition in advance of success (Goldsby et al., 2006; Houghton & Yoho, 2005). Moreover, a study by Neck and Manz (1996) indicated a significant difference in self-efficacy levels for individuals that had received self-leadership training and those that had not, while the

results of a study by Prussia et al. (1998) indicated a strong relationship between self-leadership strategies, self-efficacy perceptions and activity performance. Putting these together, these studies show that self-efficacy may function as the primary mechanism through which self-leadership affects performance (Neck & Houghton, 2006). In an entrepreneurial context, D'Intino et al. (2007) explains that higher engagement and greater venture performance (such as positive cash flow), may be attained by entrepreneurs that develop better self-leadership skills, and a positive outcome spiral may also be achieved as this may yield positive feedback and enhance self-efficacy.

In summary, self-leadership is a normative concept that may operate within several theoretical contexts, and application of its strategies may result in performance mechanisms including self-efficacy amongst others, that may in turn yield higher levels of individual, team and organizational performance (Sesen et al., 2017).

Startup Sustainability

Several studies have been conducted on the factors impacting the “how” and “why” of entrepreneurial success, for example, Lukeš and Zouhar (2013) and Okrah and Nepp (2018), with the definition of “success” subjectively varying in the different studies. McGowan (2018) subjectively defines startup success in terms of operational efficiency, impact, customer satisfaction, growth, disruption and innovation, and other success metrics based on the perspectives from various startup founders. While startup success can be defined in these dimensions, they are mostly qualitative and may subjectively vary across startups as each define their critical success factors - thus the need to explore other suitable definitions. According to Lee and Kim (2019) however,

startup sustainability refers to the possibility that a startup's financial and non-financial performance is enough to and can continue to sustain it in the long-term - long-term being the benchmark 5 years in which startups fail or are sustained for the purpose of this study (VentureBeat, 2019). Thus, for the purpose of this study, startup success will be interchanged with startup sustainability, and the measure for this will be startups that have been in operation beyond 5 years.

Sustainability has become relevant to business, pertaining to operational models and practices. Originally, the concept of sustainable development was developed to guide business practice and alleviate the failure rate of startups in the early years (DesJardins, 2016; Shetty & Mathew, 2013). As a pledge to sustainable development, businesses do both less than and more than what should be required; consequently, they jeopardize the ethical and practical solutions to sustainability (DesJardins, 2016). According to DesJardins (2016), Kim et al. (2018) and Shetty and Mathew (2013), several models have been developed by researchers around factors such as human capital, financial management, operations, management and innovation, to enable an understanding of how to establish businesses that can meet existing and future needs for future generations. In each case, weight is placed on one or multiple models as being most important for sustainability. Standards for sustainability are tools for regulating social and environmental tasks; however, such tools fail to meaningfully contribute to the development of sustainable practices because they are often open-ended or too restrictive (Christensen et al., 2017). Moreover, Taylor and Fayol argue that regardless of the quality of operations, technicality or other aspects, weak managerial function impedes

sustainability (Rahman, 2012; Srividya, 2017). This introduces the dimension of an individual startup founder or manager's role in sustenance.

Managers are expected to implement sustainability standards as shared, authoritative, and recognized reference points at both local and global levels of operation (Christensen et al., 2017). Drawing on a research convention that emphasizes the significance of communicative mechanisms to stimulate transparency, Christensen et al. (2017) presented a managerial philosophy in the application of standards. The concept was designed to involve both managers and employees, mobilize and develop their knowledge about sustainability, and accentuate it for the benefit of both the organization and the environment (Christensen et al., 2017).

Research on sustainability standards provides information as to what specific standards better serve to create a positive difference. Various trends in the existing literature reflect performance and sustainability measures of Small Medium Enterprises (SMEs). Some small businesses employ different strategies than larger firms with free access to resources and economic advantages (Farsi & Toghraee, 2014). Financing operations and implementing alternative strategies for sustainability, the small business owner encounters numerous challenges (Farsi & Toghraee, 2014). Debt and equity in small business operations is reflected in the literature as to the sufficiency of finance, strategic responses, and patterns of awareness (Dwyer & Kotey, 2015). Researchers argue that SMEs stress the need for finance and do not make appropriate use of all available funding sources. Primary sustainability challenges include awareness and availability of

established models, tangible benefits, time schedules, economic limitations, and resources (Leech, 2016).

Transition

Section 1 provided the purpose of this study, its usefulness, and the manner the study would be carried out. It also provided review of existing literature on the subject, and what the study would achieve in reducing the gap in understanding of the relationship between self-efficacy, self-leadership, and sustainability of technology start-ups in Nigeria beyond 5 years. Section 2 provides the study model including data collection, organization, and analyses. It will also specify ways in which the data would be tested for validity and reliability. Section 3 presents the findings from the study, applications to professional practice, and implications for social change. It also concludes the study, makes recommendations for actions to be taken, and identifies gaps in the study and opportunities for further research.

Section 2: The Project

This section presents the research design and steps used in carrying out this study on the relationship between self-efficacy and sustainability of technology start-ups in Nigeria beyond 5 years. It involves the procedure, method, plan, and system used in administering, collecting, and analyzing data for this research project. It also addresses the reliability of the data collection instrument and threats to validity.

Purpose Statement

The purpose of this quantitative correlational study was to determine if there is a statistically significant relationship between self-efficacy, self-leadership, and startup sustainability. The independent variables were entrepreneurial self-efficacy and self-leadership. The dependent variable was startup sustainability. The targeted population consisted of entrepreneurs, including leaders of technology startup businesses in Nigeria who had demonstrated startup sustainability (sustained their businesses beyond 5 years) as well as those with business below the 5-year threshold. The implications for positive social change include the potential for increased income earning ability for employees of startups, and reduction in poverty levels. The contribution to social change is that sustainability may lead to job creation and overall economic growth.

Role of the Researcher

According to Yin (21014), the researcher is responsible for designing the study, data collection, analyzing the data collected, and reporting on findings. Therefore, my role as the researcher was to administer the survey and support participants as they answered the survey questions. I drove the data collection process and ensured proper

identification of research participants, administration of survey, and collection of responses while making sure that ethical principles were followed. I also organized and processed the data using PASW Statistics GradPack Version 18, formerly known as SPSS. The information obtained from the processed data was used to make inferences about the studied population. As an active player in the Nigerian entrepreneurial and tech ecosystem, I leveraged my network and relationships with start-up accelerator programs to connect with entrepreneurs broadly, and technology start-up founders.

Participants

The target population was technology start-ups that had survived beyond 5 years. The contact addresses of the study participants were sourced through physical identification, connection with start-up accelerator programs, and public media. The participants were invited to participate in the study via personalized emails and over the phone. The start-up accelerators provided a fast and efficient way of obtaining contact details of the start-ups and reaching out to them. Prior to the distribution of the survey, an introductory email to the participants highlighted the purpose and importance of the study. A lot of effort was made on this step, as it served an important purpose to provide context and support to participants, and to get them comfortable before they received the questionnaires.

Research Method and Design

Research design deals with procedures and plans for research, while research method is primarily concerned with the collection of data for the research study. The following research method and design were used for the study.

Research Method

The research method was quantitative. This method was chosen because the study evaluated the relationship between self-efficacy, self-leadership, and start-up sustainability. Trochim (2006) noted that a quantitative research method enables a researcher to test theories and assumptions stated in the form of hypotheses. A quantitative approach was considered for this study because the research involved the collection and processing of numerical data. Gareth (2009) noted that quantitative study depends on gathering and processing numerical data. The chosen research method enabled data to be collected through structured surveys, giving participants the freedom to express their opinions without my influence as researcher. Both primary and secondary data were used in the study. Primary data was collected using surveys. Secondary data was collected from company and agency bulletins, industry reports, textbooks, journals, and seminar papers. A quantitative method was chosen for primary data collection because it allowed the testing of hypotheses. Additionally, live interactions with participants were not critical to the success of the research.

Research Design

This research was a quantitative study using correlational design. Correlational design is considered appropriate because the study evaluates the relationship between variables. An alternative quantitative technique such as experimental design was not appropriate for the study. Experimental design is intrusive and difficult to carry out and may be challenged successfully on ethical grounds (Trochim, 2006). It may be perceived as an intrusion, and researchers make attempts to set up artificial situations in order to

assess causal relationships with high internal validity. The quantitative research method using correlational design is appropriate for occasions in business when changes in one factor appear to be related in some ways to movements in one or several other factors (Lucey, 1996). Lucey noted that experimental design is appropriate when the impact of a treatment or an intervention on an outcome is tested, which was not the intent of this doctoral study. Simon (2006) observed that the main purpose of a quantitative study using a correlational design is to evaluate relationships between two or more variables.

Population and Sampling

The population from which the sample was drawn was composed of indigenous entrepreneurs whose start-up businesses were classified as small and medium enterprises according to the definition of SMEs provided by the Central Bank of Nigeria. The research method was quantitative, and a stratified random sampling was used in collecting data for the study. Random sampling ensures representative samples where each participant in the choice population would have an equal probability of being selected (Creswell, 2009; Macdonald & Headlam, 2008; Yin, 2018). According to Yin, randomization is more desirable than non-probability sampling methods, and it provides the ability to generalize to a population.

Following the definition of SME by the Central Bank of Nigeria, it was envisaged that the population of study would be varied in characteristics such as annual turnover of each business unit, years of operation, and the number of employees hired by each entrepreneur. This study used a large sample size of the population in order to ensure

ample representation and cross-sectional sampling spread. Yin (2018) posited that quantitative methods can involve longitudinal or cross-sectional sampling.

According to Yin (2018), the cross-sectional sampling technique allows samples to be taken from a given population within a specified period. This sampling approach was appropriate for the study because the study was focused on the relationship between existing government regulations and industry requirements (institutional frameworks) and the growth of small and medium enterprises. The eligibility criteria for the study participants were delineated by the Central Bank of Nigeria's definition of SMEs.

The geographical location of all participants was Nigeria, and the stratified random sampling technique was used in data collection and aggregation before processing. Random sampling gives all potential participants an equal opportunity of being selected (Creswell, 2009). This sampling technique was used in categorizing data. Based on multiple filters on a list of African startups exported from Crunchbase, a platform that aggregates and consolidates public and private company data, I derived an estimated population size of 400 that met the criteria of "tech", "startup", "Nigeria", "Date founded: Before 2017".

G*Power was used to calculate the necessary sample size and statistical power for the study. G*Power is a tool to compute statistical power analyses for many different t tests, F tests, χ^2 tests, z tests and some exact tests. G*Power can also be used to compute effect sizes and to display graphically the results of power analyses (Faul *et al.*, 2007; Faul *et al.*, 2009). The default medium effect size (f^2) of 0.15, alpha level of .05 and an acceptable power level of .85 which is higher than Cohen's F of .80 (Faul *et al.*, 2009).

The medium effect size was chosen to avoid a too small or too large sample size, considering the estimated population of 400 start-ups that had been identified that met the required criteria. Using two predictor variables (self-efficacy and self-leadership) and the aforementioned figures, a sample size of 76 was derived (see Figure 1). The calculation using G*Power was as follows:

- *F* tests: Linear multiple regression: Fixed model, R^2 increase
- Type of Power Analysis: A priori: Compute required sample size

- Input Parameters

Effect size $f^2 = 0.15$

α err prob = 0.05

Power (1- β err prob) = .85

Number of tested predictors = 2

Total number of predictors = 2

- Output Parameters

Noncentrality parameter $\lambda = 11.4000000$

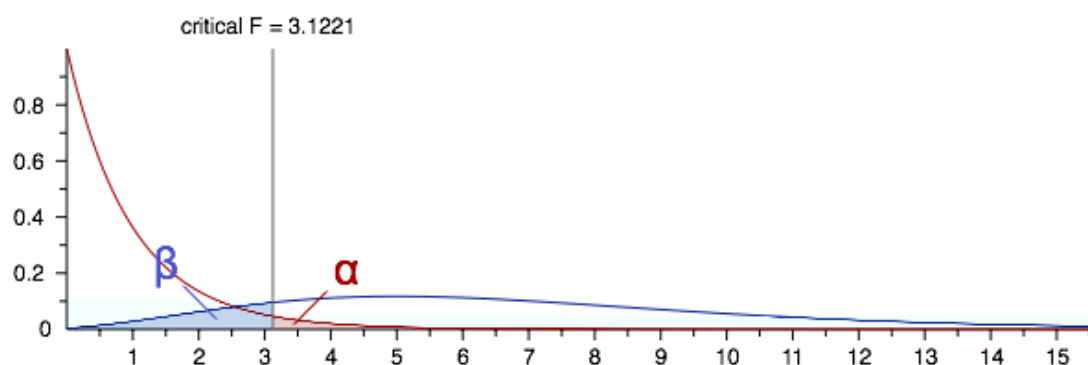
Critical F = 3.1221029

Numerator $df = 2$

Denominator $df = 73$

Total sample size = 76

Actual power = 0.8505024

Figure 1*G*Power Calculation*

The choice of the confidence level implied that this study had a 5% (0.05) chance of not being true. It also guarded against the probability of making Type 1 and Type 2 errors.

Ethical Research

Researchers have a responsibility to preserve the integrity of a research study by protecting the research participants and to develop and maintain trust with the participants (Hay & Israel, 2006). Following the Belmont Report which guides on ethical conduct during research, several considerations were made to ensure the basic ethical principles of “respect for persons”, “beneficence” and “justice” were met during the study. These considerations include the need to receive informed consent from participants, conduct a risk/benefit assessment and intentional selection of subjects for research (USDHHS, 1979).

Informed Consent: the participants were informed of the purpose of research in an easily digestible manner before being required to sign a consent form as proof of their willingness to participate in this research study. A confidentiality agreement was also

signed with participants. **Assessment of Risks and Benefits:** while the process of conducting the research brought about no tangible risk or reward, the potential risks of participants disclosing certain information around their journeys as business founders was weighed against the benefits of disclosure, and upon receiving responses from the participants, a case-by-case assessment was also conducted. **Selection of Subjects:** the research did not use participants within the 66 categories of vulnerable populations. Vulnerable populations, as described by Yin (2018), include pregnant women, minors (individuals under the age of 19), and mentally incompetent participants (victims and persons with neurological impairment).

In addition to the aforementioned considerations, the highest level of confidentiality was maintained by ensuring that the identities of participants were not known to any individual or group of persons other than me. The study did not offer financial rewards or thank-you gifts to participants; as such incentives could be interpreted as inducement that could go against the integrity of the study. To mitigate bias, participants with which a relationship is held were intentionally excluded from the selection group. No names or personally identifiable information of individuals or groups were used in the study, and respondents were at liberty to voluntarily withdraw from the exercise. In order to protect the identities of respondents, names were not collected in the survey and the only personal identifying information, the respondents' email addresses, was removed and replaced with serial numbers. With regard to the withdrawal procedure, participants were able to withdraw interest prior to submission of the study by sending a

note to the contact email provided in the informed consent form. Data used for the study was stored in a secured environment for 5 years and thereafter will be destroyed.

Data Collection Instruments

Structured surveys were used as data collection instruments. The use of structured surveys resulted in a high degree of validity of the data collected. This was due to the confidential nature of the surveys and their characteristics that supported privacy as respondents answered questions. An electronic structured survey was shared with participants as this offered more convenience than the traditional physical surveys distributed on paper (McCoyd & Kerson, 2006). This also improved the speed and accuracy of data collection as it eliminated the need to factor in delivery and survey return time, and responses could be validated. The survey was straightforward and easy to complete, requiring little time. Respondents enjoyed independence of opinion and convenience in expressing their feelings without any influence (Baridom, 1990). The strategy employed to address threats to external validity involved random sampling procedure and ensured that samples taken were truly representative of the population of study. Trochim (2006) posited that a random selection procedure is a guaranteed way of improving external validity. Internal validity did not apply to this study, as the study was not a quantitative study with an experimental design.

To ensure the reliability of the data collection instrument, already validated surveys were used after permission was granted by authors of the respective surveys. To ensure authenticity of secondary data, information was sourced from peer reviewed journals and current studies in the area of study.

To ensure maximum survey completion by participants, constant reminders were sent after a specified period. Primary data required for the study was available when respondents completed and returned the surveys. This study was a quantitative study using a correlational design, and it examined the relationship between variables such as self-efficacy (independent variable), self-leadership (independent variable) and start-up sustainability (dependent variable). Trochim (2006) posited that internal validity is relevant to experimental studies. This study was a correlational study, and internal validity was not required. The sampling technique chosen for this study was random sampling. This sampling technique addressed external validity threats. According to Trochim (2006), random selection rather than a non-random procedure reduces threats to external validity.

Data Collection Technique

This study evaluated the relationship between self-efficacy (independent variable), self-leadership (independent variable) and start-up sustainability (dependent variable) beyond five years. Baridom (1990) posited that the survey method may involve personal interviews, mail interviews, telephone interviews, and surveys. The primary data was collected through surveys. The study used random sampling from a pool of startup founders that had succeeded and failed in the past to ensure both perspectives of the spectrum were taken into consideration (Trochim, 2006).

This study did not use pilot study as already validated instruments were used for the survey. The surveys were delivered primarily via email. Completed surveys were automatically gathered in a spreadsheet by the survey tool for analysis. Measurable

quantities such as length of the business, success at raising capital, annual company turnover, company tax paid to the government, number of employees etc., provided indication for growth. This study was a correlational study and internal validity did not apply to it. Trochim (2006) cautioned that internal validity is relevant in experimental studies. However, external validity threats were handled by taking a representative sample with sufficient statistical power using a random sampling model.

For the purpose of this study, multiple quantitative research methods were considered including structured interviews, polls and surveys (Entrepreneur Handbook, 2019). Structured interviews: differing from unstructured or semi-structured interviews where a participant can expatiate by providing context on the “why” behind a rationale, virtual structured interviews were strongly considered but deemed inappropriate as the individual participants’ schedules would need to have been factored in, which would extend the potential timeline of the data collection phase. Polls: while this is similar to structured interviews and surveys, it was deemed inappropriate for this study as it is usually utilized when gathering data from large sample sizes, and less than 100 individuals will be participating in this study. Surveys: upon consideration of the other two instruments, close-ended surveys were most appropriate for three reasons - more timely responses from participants as they are able to complete the survey within a specific time period, easily interpretable and collatable responses based on the structured questions, and a validated measurement model for the variables of self-efficacy and self-leadership. The advantages of utilizing close-ended surveys for the study, electronic close-ended surveys in this case, are the ease in preparing the survey form, ease for

participants in responding, ease in comparing the different responses, and easy collation and codification of results, while some disadvantages of this survey are the fact that participants have to select from a list of preset responses that may not entirely represent their perspectives and the seeming simplification of concepts the respondents may view as complex that require supporting clarification.

Data Analysis

According to Babbie (1990), the essence of survey is to obtain data that will aid a researcher in generalizing from a sample to a population so that inferences can be made about the behavior of the population. The research question and hypotheses were:

Research Question: Is there a statistically significant relationship between entrepreneurial self-efficacy, self-leadership, and startup sustainability?

H_0 1: There is no statistically significant relationship between entrepreneurial self-efficacy, self-leadership, and startup sustainability.

H_a 1: There is a statistically significant relationship between entrepreneurial self-efficacy, self-leadership, and startup sustainability.

This research study used surveys in the collection of data. It combined De Noble's entrepreneurial self-efficacy scale and the ASLQ to assess the independent variables of self-efficacy and self-leadership. In addition to these, contextual questions led the surveys and were used for categorization during analysis.

Data obtained from primary sources were statistically analyzed using PASW Statistics GradPack Version 18, previously known as SPSS software. The stated hypotheses were tested using multiple linear regression. Chen, et al. (2014) noted that

multiple linear regression is used to examine the relationship between multiple independent variables and a dependent variable. It was therefore used in this study to examine the degree to which the dependent variable, startup sustainability, is explained by the independent variables self-efficacy and self-leadership. The research method was quantitative, and used coding in categorizing data. Coding is a process for categorizing qualitative data, and describing the implications and details of these categories (Trochim, 2006).

The data obtained from the Crunchbase database of African startups was cleaned up to remove duplicates. It was combined with desk research to identify and remove invalid entries for example businesses that were listed under “Nigeria” because they targeted the Nigerian market but were not Nigerian businesses. Structured surveys were used as data collection instruments and administered via email. Missing data have the potential to bias future research findings and can occur due to refusal to respond, partial response, loss of data, and indecipherable responses (Gorard, 2020). Missing data can negatively impact the reliability and validity of this study (Mohajan, 2017). For this study, cases that were missing a response to any of the core and demographic questions were removed. The responses were cleaned up by removing duplicates and incomplete entries. The survey was sent to a sample size much larger than the minimum sample size required for this study. This provided a buffer and ensured that after incomplete entries were removed the remaining dataset still met the required sample size. To ensure the reliability of the data collection instrument, already validated surveys were used after permission was granted by authors of the respective surveys. To ensure authenticity of

secondary data, information was sourced from peer reviewed journals and current studies in the area of study. The data assumptions of this study are (a) archival data collected is valid, credible, and reliable; (b) all data was collected ethically; (c) data was not manipulated to create a specific outcome; (d) all data was obtained voluntarily; (e) data was unchanged and raw.

Study Validity

Yin (2003) posited that threats to validity are of two types – internal and external validity threats. Internal validity is relevant in studies that try to establish a cause-and-effect relationship and is most appropriate in observation studies (Trochim, 72 2006). Thus, internal validity is required in experimental study but was not required in this research study since the method was a quantitative study with correlational design. External validity threats arise when a researcher draws an incorrect inference from the sampled data to other settings, persons or future situations (Yin, 2003). External validity threats were mitigated in this study through the use of a random sampling model, which ensured that the sample for a study was truly representative of the population. It also strived to reduce decline rate among participants once samples had been selected. Trochim (2006) posited that random selection rather than a non-random procedure is a guaranteed way of improving external validity. Trochim also suggested that researchers should make participants' dropout rates low as a step in overcoming external validity threats.

The ASLQ measures 9 subscales including (a) visualizing successful performance ($\alpha = .85$), (b) self-goal setting ($\alpha = .84$), (c) self-talk ($\alpha = .92$), (d) self-reward ($\alpha = .93$),

(e) evaluating beliefs and assumptions ($\alpha = .78$), (f) self-punishment ($\alpha = .86$), (g) self-observation ($\alpha = .82$), (h) focusing on natural rewards ($\alpha = .74$), and (i) cueing ($\alpha = .91$), that have been tested for reliability and validity using Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) in previous studies, and results show that it effectively reflects self-leadership theory (Houghton & Neck, 2002; Ioannis, 2019). Similarly, the measured dimensions of the Entrepreneurial Self-Efficacy Questionnaire developed by De Noble including : (1) developing new product and market opportunities ($\alpha = .88$), (2) building an innovative environment ($\alpha = .80$), (3) initiating investor relationships ($\alpha = .87$), (4) defining core purpose ($\alpha = .89$), (5) coping with unexpected challenges ($\alpha = .89$), and (6) developing critical human resources ($\alpha = .90$) had Cronbach alpha scores above the recommended lower limit of 0.6 in previous studies, as well as convergent validity scores above the lower limit of 0.5, indicating good reliability and validity of the questionnaire as an effective way to measure self-efficacy.

A multiple linear regression analysis was undertaken in SPSS using startup sustainability as the dependent variable and self-efficacy and self-leadership as the independent variables. The minimum sample size necessary to ensure statistical validity and fair representation of the population was calculated using an online sample size calculator and was verified using the G*Power tool designed by Ingre and Nilsonne (2018; Creative Research System, 2011). Based on a computation using an estimated population of 400 technology start-ups in Nigeria that have been in existence for over 5 years, a level of significance and confidence of 0.95*, a minimum sample size of 78 was

concluded on. Thus, it was necessary to identify 78 startup founders that met all criteria for this study.

Transition and Summary

Section 2 has provided the study model that involved data collection, organization and analyses. It also discussed data collection instruments, reliability and validity of data collection instruments, data organization techniques and how collected data will be analyzed. Section 3 presents the findings from this study, applications to professional practice, and implications for social change. The section identifies gaps in the area of study, and opportunities for further research. It also concludes the study and provides recommendations for actions.

Section 3: Application to Professional Practice and Implications for Change

The purpose of this quantitative correlation study was to determine if there is a statistically significant relationship between entrepreneurial self-efficacy, self-leadership, and startup sustainability. The independent variables were entrepreneurial self-efficacy and self-leadership. The dependent variable was startup sustainability. Section 1 shed light on the business problem, purpose of study, research questions guiding this study, hypotheses, nature of the study and a review of relevant literature while Section 2 gave detailed information on the methodological approach taken: quantitative analysis and multiple linear regression. Additionally, Section 2 included the ethical considerations taken, data collection method, and reliability and viability of the study. Section 3 covers the outcome of the study, its application to professional practice, and implications for social change. It presents the research findings, assumptions, statistics, and results before presenting the conclusion, and recommendations for action and further research based on the conclusion.

Presentation of the Findings

In this subheading, I will discuss testing of the assumptions, present descriptive statistics, present inferential statistical results, provide a theoretical conversation pertaining to the findings, and conclude with a concise summary. I employed Bootstrapping, using 1,000 samples, to address the possible influence of assumption violations. Thus, bootstrapping 95% confidence intervals are presented where appropriate.

Tests of Assumptions

The assumptions of multicollinearity, outliers, normality, linearity, homoscedasticity, and independence of residuals were evaluated. Bootstrapping, using 1,000 samples, enabled combating the influence of assumption violations. Multicollinearity was evaluated by viewing the correlation coefficients among the predictor variables. Bivariate correlations between the independent variables were high (Table 4); therefore, the violation of the assumption of multicollinearity could not be eliminated.

Table 4

Correlation Coefficients Among Study Predictor Variables

Variable	Self-efficacy	Self-leadership
Self-efficacy	1.00	-.956
Self-leadership	-.956	1.00

Note. $N = 132$.

Given the relatively high correlation between self-leadership and self-efficacy, I evaluated the collinearity diagnostics to provide further insights on potential concerns about collinearity (IBM, 2023). Table 5 shows the collinearity diagnostics summary with sustainability as the dependent variable. A single eigenvalue in the diagnostic table was found to be close to 0, indicating a possible issue with collinearity. Next I assessed the condition indices. Condition indices greater than 30 indicate a serious problem with

collinearity (IBM, 2023). No condition indices were greater than 30, indicating that there aren't serious problems with collinearity.

Table 5

Collinearity diagnostics (dependent variable: sustainability)

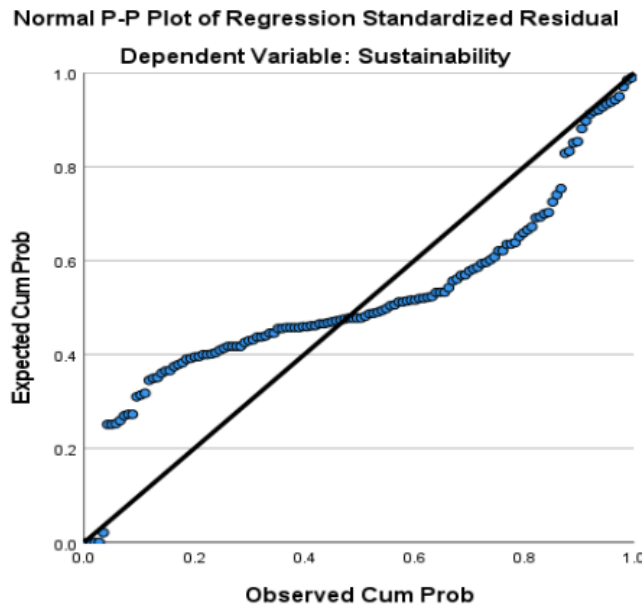
Model	Dimension	Eigenvalue	Condition Index	(Constant)	Variance Proportions	
					Self-leadership	Self-efficacy
1	1	2.847	1.000	.01	.00	.00
	2	.146	4.410	.26	.00	.06
	3	.007	20.288	.74	1.00	.94

Outliers, Normality, Linearity, Homoscedasticity, and Independence of Residuals

Outliers, normality, linearity, homoscedasticity, and independence of residuals were evaluated by examining the Normal Probability Plot (P-P) of the Regression Standardized Residual (Figure 2). The P-P plot compares the observed cumulative distribution function (CDF) of the standardized residual to the expected CDF of the normal distribution. The tendency of the points to lie systematically around the straight line (Figure 2) diagonal from the bottom left to the top right, provides supportive evidence that the assumption of normality has not been grossly violated (Pallant, 2010). Furthermore, 1,000 bootstrapping samples were computed to combat any possible influence of assumption violations and 95% confidence intervals based upon the bootstrap samples are reported where appropriate (see Table 6).

Figure 2

Normal probability plot (P-P) of the regression standardized residuals



Descriptive Statistics

In total, I received 156 surveys. Twenty-four records were eliminated due to missing data, resulting in 132 records for the analysis. Table 6 contains descriptive statistics of the study variables.

Table 6

Mean and Standard Deviations for Quantitative Study Variables

Variable	M	SD	Bootstrapped 95% CI (M)
Sustainability	1.485	0.502	[1.402, 1.568]
Self-Leadership	3.091	1.187	[2.883, 3.297]
Self-Efficacy	2.755	1.656	[2.473, 3.028]

Note: $N = 132$. Bootstrap results were based on 1,000 samples.

Inferential Results

Standard multiple linear regression, $\alpha = .05$ (two-tailed), was used to examine the efficacy of self-leadership and self-efficacy in predicting startup sustainability. The independent variables were self-efficacy and self-leadership. The dependent variable was startup sustainability. The null hypothesis was that self-leadership and self-efficacy would not significantly predict startup sustainability. The alternative hypothesis was that self-leadership and self-efficacy would significantly predict startup sustainability. Preliminary analyses were conducted to assess whether the assumptions of multicollinearity were met; no serious violations were noted (see *Tests of Assumptions*).

As previously noted, 1,000 bootstrapping samples were computed to combat any possible influence of assumption violations and 95% confidence intervals based upon the bootstrap samples are reported (Table 6). The model was able to significantly predict startup sustainability, $F(2, 129) = 432.47, p < .001, R^2 = .87$. The $R^2 (.87)$ value indicated that approximately 87% of variations in startup sustainability is accounted for by the linear combination of the predictor variables (self-leadership and self-efficacy). In the final model, self-efficacy was statistically significant ($t = 8.424, p < .001$) accounting for a higher contribution to the model than self-leadership. Self-Leadership did not explain any significant variation in startup sustainability ($t = .185, p < .853$). The final predictive equation was:

$$\text{Startup Sustainability} = .696 + .008 (\text{Self-Leadership}) + .277 (\text{Self-Efficacy})$$

Self-Leadership. The positive slope for self-leadership (.008) as a predictor of sustainability indicated there was about a .008 increase in startup sustainability for each one-point increase in self-leadership. In other words, startup sustainability tends to increase, albeit slightly as self-leadership increases. The partial correlation coefficient that estimated how much in sustainability was predictable from self-leadership was .016, indicating that 1.6% of the variance in sustainability is uniquely accounted for by self-leadership when self-efficacy is held constant.

Self-Efficacy. The positive slope for self-efficacy (.277) as a predictor of sustainability indicated there was about a .277 increase in sustainability for each one-point increase in self-efficacy. In essence, the analysis shows that sustainability increases as self-efficacy increases. The partial correlation coefficient that estimated how much in sustainability was predictable from self-efficacy was .596, indicating that 59.6% of the variance in sustainability is uniquely accounted for by self-efficacy when self-leadership is held constant. Table 7 depicts the regression summary table.

Table 7*Regression Analysis Summary for Predictor Variables*

Variable	<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>t</i>	<i>p</i>	<i>B</i> 95% Bootstrap CI
Self-Leadership	.008	.046	.020	0.185	.853	[.082, .099]
Self-Efficacy	.277	.033	.914	8.424	<.001	[.212, .342]

Note. $N = 132$.

Analysis Summary

The purpose of this study was to examine the efficacy of self-leadership and self-efficacy in predicting startup sustainability. I used standard multiple linear regression to examine the ability of self-efficacy and self-leadership to predict startup sustainability. Assumptions surrounding multiple regression were assessed with no serious violations noted. The model as a whole was able to significantly predict startup sustainability, $F(2, 129) = 432.47$, $p < .001$, $R^2 = .87$. Self-efficacy provided the most useful predictive information about startup sustainability. The conclusion from this analysis is that self-efficacy is significantly associated with startup sustainability, even when self-leadership is held constant.

Theoretical Conversation on Findings

The theoretical frameworks used as a basis for this study are Bandura's self-efficacy theory (1997) and Manz's self-leadership theory (1986). As applied to this study, the self-efficacy independent variable was measured by De Noble's (1999) entrepreneurial self-efficacy scale. The findings of the study align with Manz's conceptualization of self-leadership as a comprehensive self-influence perspective responsible for performance improvements and motivation (Manz, 1986). D'Intino et al. (2007) highlights the direct correlation between self-leadership and entrepreneurial success, which is further supported by the positive correlation between self-leadership and startup sustainability observed in this study.

There is broad literature confirming that entrepreneurial self-efficacy (ESE) plays an important role in predicting entrepreneurial activity and behavior (Newman et al., 2019; Chen et al., 1998). ESE is recognized as a key psychological construct in entrepreneurship and has received increasing focus in entrepreneurship research (Miao et al., 2017). Studies have shown that ESE impacts entrepreneurial motivation, intention, behavior, and performance (Newman et al., 2019). Zhao, et al. (2005) carried out a comprehensive study of the mediating effect of self-efficacy on 265 MBA students and found that ESE mediated the effects of perceived learning from entrepreneurship-related courses, previous entrepreneurial experience, and risk propensity. Bird and Vozikis (1994) have shown that self-efficacy influences the development of entrepreneurial intentions and behaviors. All these studies are further supported with the results of this

research that shows a positive and significant correlation between an entrepreneur's self-efficacy and startup success.

Studies by Goldsby et al. (2006) indicate a strong positive relationship between self-efficacy and self-leadership. Prussia et al. (1998) also illustrated a positive relationship between self-leadership, self-efficacy perceptions, and success; with self-efficacy standing as the primary differentiator between self-leadership and success (Neck & Houghton, 2006). These studies are supported by the findings of this research that show some correlation between self-leadership and self-efficacy.

D'Intino et al. (2007) and Neck et al., (2013) explore the ways in which innate or learned self-leadership play a role through the founder in venture formation and success, indicating that self-leadership enables an entrepreneur to evaluate and seek value proposition opportunities - exploration and innovation, improve their efficacy beliefs, contribute to greater performance, and create a positive gain spiral working in tandem with other resources. While self-leadership may influence venture formation and success as aforementioned, it is important to note that the characterization made in both studies refer to "entrepreneurs who develop better self-leadership skills" and "entrepreneurs with strong self-leadership skills" - thus the need to assess the degree of self-leadership in entrepreneurs needed to reap these positive outcomes. This study showed a positive but not very significant relationship between self-leadership and startup sustainability, which is an indicator that the degree of self-leadership could be an important factor in

mobilizing towards starting an entrepreneurial venture, and that the sustainability of that venture is driven more by self-efficacy factors

Other studies also show that startup performance is impacted by an entrepreneur's personal attributes. Taylor and Fayol argue that regardless of the quality of operations, technicality or other aspects, weak managerial function impedes sustainability (Rahman, 2012; Srividya, 2017). This introduces the dimension of an individual startup founder or manager's role in sustenance. The study confirms the fact that an entrepreneur's personal attributes (as reflected in self-efficacy and self-leadership in this study) do positively impact startup performance.

Institutional theory of entrepreneurial self-efficacy and self-leadership, and the limited extant literature on startup sustainability in Nigeria are consistent with the results of this study. The entrepreneurial capacity of small business founders plays a major role in the success and sustainability of their ventures (Radzi et al., 2017). According to Cragg & King (1988), the internal environment of a small business, which includes the nature of the business founders, strategies, innovation and values, and more, influence business performance. While this is consistent with literature, the significance of the relationship between the variables of self-efficacy, self-leadership and startup sustainability that were identified in this study can be seen as supplementary to existing literature.

Applications to Professional Practice

The purpose of this quantitative study was to understand the relationship between self-efficacy, self-leadership and the sustainability, used in place of success, of small

businesses in Africa. The results gathered from this study indicate that startup sustainability is reasonably well predicted by self-efficacy and self-leadership. The study also indicates a significant relationship between self-efficacy and startup sustainability.

The findings of this research can be incorporated into leadership development programs and lead to a better understanding of the relationship between entrepreneurial self-efficacy and leadership performance. Understanding the roles of entrepreneurial self-efficacy and self-leadership and applying this knowledge to business practice can help entrepreneurs be more effective leaders in business. Becoming more effective as leaders, they would be more equipped to drive business sustainability.

Implications for Social Change

The rate of unemployment in Nigeria is over 37% and increasing (Asaju et al., 2014). Small and medium businesses are an important engine for growth and will continue to be the largest contributors to job creation (Ebitu et al., 2016). An increase in the rate of success of small and medium businesses will contribute to job creation, and provide sources of income for people who are employed in these jobs. Additionally, more business growth and income earning ability for people will contribute positively to the economy. As the external business environment in Nigeria remains constant, or may improve or worsen, the internal nature of business founders becomes more important for survival, differentiation and success. The results of the study indicate that there is a positive and significant correlation between startup sustainability and self-efficacy, thus, more interest and deliberate actions should be directed at improving the multiple

dimensions of self-efficacy of business owners to ultimately increase the sustainability of their businesses.

Ultimately, considering the limited research on the impact of self-efficacy and self-leadership on startup sustainability in the context of Nigeria, the results of this study could significantly contribute to the macro-economy through higher business success and sustainability, greater productivity and increased number of small businesses. The empowerment of business owners and small businesses could contribute to an improved socioeconomic situation, higher standard of living and further increase in the national GDP.

Recommendations for Action

The study findings indicated that there is a positive and significant correlation between self-efficacy and startup sustainability, and a positive but not significant correlation between self-leadership and startup sustainability. Thus, increases in self-efficacy could improve startup sustainability and contribute to social change.

Additionally, the mere knowledge that self-efficacy correlate with startup sustainability may provide information to improve startup success rates.

The results of this study would be useful for human resource personnel, leaders and managers within startups and small medium businesses, and development organizations providing capacity building to startups. Business coaches, particularly those that specialize in supporting entrepreneurial leaders may also find this study useful.

The findings of this study will also be presented at business conferences, startup accelerator programs, and owner founder forums. Literature containing developments and learnings from the research would be published in a startup guidebook, and articles in leading publications.

Recommendations for Further Research

There is a need for further research on the role of self-efficacy in the success of startups, and the impact of internal and external factors. Further research can also explore the impact of multiple entrepreneurial ventures on self-efficacy. For example, does self-efficacy increase as entrepreneurs gain experience from one startup to the next?

A mixed methods study approach would also be beneficial so that more context can be added to the quantitative data findings. All the participants had founded at least one business in the past. Forty percent of participants had founded 2 or 3 businesses in the past, and 4% of participants have founded five or more businesses. Considering the relatively young age of participating startup founders, distribution based on businesses founded calls three things to question: the average lifespan of each business, the likely short rebound time between businesses, and the possibility of participants running multiple startups concurrently. A mixed methods study can help unpack some of these factors and their impact. The information would lead to further ideas on how to guide startup founders and leaders.

Reflections

My interest in researching the relationship between factors such as self-efficacy and self-leadership with startup success stems from my personal belief that ability to mobilise oneself and resources, and shifts in mindset, could influence an individual's performance. Additionally, my background working in the technology space and serving in an advisory capacity for numerous startups provided context for the decision to study this subject. In conducting this study, I primarily hoped to derive insights that could benefit the Nigerian tech startup ecosystem and inspire economic growth.

In reviewing relevant literature and gaining deeper interest in the aforementioned themes, I had expected that there might be a positive and significant correlation between self-efficacy, self-leadership and startup sustainability, to validate the preconceptions I had. Whilst the overall model proved to positively and significantly impact startup sustainability, only self-efficacy was a significant contributor. The results demonstrated that self-leadership and startup sustainability are not significantly correlated. The quantitative research method allowed for objectivity in obtaining these confirmatory results and prevented me from embedding my preconceptions in the study.

Conclusion

The study involved an investigation of the relationship between self-efficacy and self-leadership on startup sustainability. This study performed regression analyses to address the research questions. A positive and significant correlation was found between self-efficacy and startup sustainability. A positive but non-significant correlation was found between self-leadership and startup sustainability. The high levels of self-efficacy

in successful startups suggests a huge impact of self-belief and experience in navigating challenges and feeling confident enough to go beyond those challenges. The study mentioned other factors that may impact startup sustainability such as internal realities and external factors. These factors, though not easily quantifiable, can contribute to the success and sustainability of startups in Nigeria. Limitations, sampling methodology, and research design, also discussed, may impact study findings and generalizableness.

Suggestions for future research included conducting further research to gain insight into the role of self-efficacy in startup sustainability using a more comprehensive framework. Implications for social change at the policy, administrative, and instructional level were presented. This study extends prior research on self-efficacy, and self-leadership, to improve the sustainability of entrepreneurial ventures in Nigeria.

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Appendix A: Entrepreneurial Self-Efficacy Questionnaire by De Noble (1999)

Developing new product and market opportunities

1. I can see new market opportunities for new products and services.
2. I can discover new ways to improve existing products.
3. I can identify new areas for potential growth
4. I can design products that solve current problems.
5. I can create products that fulfill customers' needs.
6. I can bring product concepts to market in a timely manner
7. I can determine what the business will look like

Building an innovative environment

8. I can create a working environment that lets people be more their own boss.
9. I can develop a working environment that encourages people to try out something new.
10. I can encourage people to take initiatives and responsibilities for their ideas and decisions, regardless of outcome.
11. I can form partner or alliance relationship with others.

Initiating investor relationships

12. I can develop and maintain favorable relationships with potential investors.
13. I can develop relationships with key people who are connected to capital sources.
14. I can identify potential sources of funding for investment

Defining core purpose

15. I can articulate vision and values of the organization

16. I can inspire others to embrace the vision and values of the company.

17. I can formulate a set of actions in pursuit of opportunities.

Coping with unexpected challenges

18. I can work productively under continuous stress, pressure and conflict.

19. I can tolerate unexpected changes in business conditions.

20. I can persist in the face of adversity.

Developing critical human resources

21. I can recruit and train key employees.

22. I can develop contingency plans to backfill key technical staff

23. I can identify and build management teams

Appendix B: The Abbreviated Self-Leadership Questionnaire (ASLQ)

The questions below are part of the abbreviated self-leadership. Questionnaire by Houghton et al. (2012).

1. I establish specific goals for my own performance (self-goal setting)
2. I make a point to keep track of how well I'm doing at work (self-observation)
3. I work toward specific goals I have set for myself (self-goal setting)
4. I visualize myself successfully performing a task before I do it (visualizing successful performance)
5. Sometimes I picture in my mind a successful performance before I actually do a task (visualizing performance)
6. When I have successfully completed a task, I often reward myself with something I like (self-reward)
7. Sometimes I talk to myself (out loud or in my head) to work through difficult situations (evaluating beliefs and assumptions)
8. I try to mentally evaluate the accuracy of my own beliefs about situations I am having problems with (self-talk)
9. I think about my own beliefs and assumptions whenever I encounter a difficult situation (evaluating beliefs and assumptions)

Appendix C: Approval to use the Entrepreneurial Self-Efficacy Questionnaire

----- Forwarded message -----

From: **Alex Denoble** <adenoble@sdsu.edu>

Date: Mon, Mar 15, 2021 at 5:52 AM

Subject: Re: Approval Request to use the Entrepreneurial Self-Efficacy Questionnaire

To: Juliet Ehimuan <julietehimuan12@gmail.com>

Juliet

It sounds like you have a very interesting study underway. You have my permission to use the instrument. Thanks for asking.

I would appreciate seeing the results of your work when complete

Have you considered attending the virtual California Entrepreneurship Educators conference? <https://lavincenter.sdsu.edu/programs/entrepreneurship-conference/2021-conference>

Alex

Appendix D: Approval to use the ASLQ

----- Forwarded message -----

From: **Jeffery Houghton** <Jeff.Houghton@mail.wvu.edu>

Date: Fri, Feb 19, 2021 at 2:57 PM

Subject: Re: Approval Request to use the ASLQ in doctoral research

To: Juliet Ehimuan julietehimuan12@gmail.com

Dear Juliet,

Thanks for your interest in self-leadership! Your research topic sounds very interesting and you are certainly welcome to use either the Revised Self-Leadership Questionnaire (RSLQ) or the Abbreviated Self-Leadership Questionnaire (ASLQ) in your work. We ask only that you cite our work appropriately and share your results, especially any scale reliability data. I have attached a .pdf file containing a copy of the JMP article (Houghton & Neck, 2002) in which we published the RSLQ and a .pdf file containing a copy of the IJLS article (Houghton et al., 2012) in which we published the ASLQ. I have also attached two MS Word documents containing both scales for your convenience.

As you will see from the papers, you can calculate a score for each of the SL strategy dimensions using the RSLQ (behavior focused, natural reward and constructive thought) or an overall score for self-leadership using either scale. There's no magic scoring formula...you can just use the items the best way they fit within your research design. I usually just total all of the items when I want to get an overall score for self-leadership. But it's a large number...somewhere in the 70 to 140 range for the RSLQ or in the 9 to 45 range for the ASLQ. You can also divide by the total number of items to convert the overall SL score back to a 5-point scale. This may be desirable, especially if you measure your other constructs with a similar metric.

It is not appropriate to use the three dimensions of the ASLQ in isolation; the scale should be used only as a global measure of SL. If you are interested in any of the subdimensions of SL, the full RSLQ should be used.

The relationship between self-leadership and entrepreneurship is an underexplored area in my opinion, so I think your research has strong potential. I have attached a few self-leadership entrepreneurship papers for your consideration. Finally, I have also attached a file containing an updated list of self-leadership references that may be helpful to you. Please let me know if you have any questions about the RSLQ, the ASLQ, or self-leadership in general. I wish you all the best with your research endeavors.

Kind regards,

Jeff

/ Jeffery D. Houghton, Ph.D.

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