

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/324091504>

Entrepreneurs Experience and Firm Innovativeness: Multiple Mediation of Attitudinal and Behavioral Competencies

Article in *Journal of Economics and Business* · April 2018

DOI: 10.31014/aior.1992.01.01.6

CITATION

1

READS

551

4 authors, including:



Bernard Nassiuma
Moi University

30 PUBLICATIONS 35 CITATIONS

[SEE PROFILE](#)



Jamin Masasabi Masinde
Moi University

24 PUBLICATIONS 16 CITATIONS

[SEE PROFILE](#)



Denyse Snelder
Vrije Universiteit Amsterdam

26 PUBLICATIONS 352 CITATIONS

[SEE PROFILE](#)

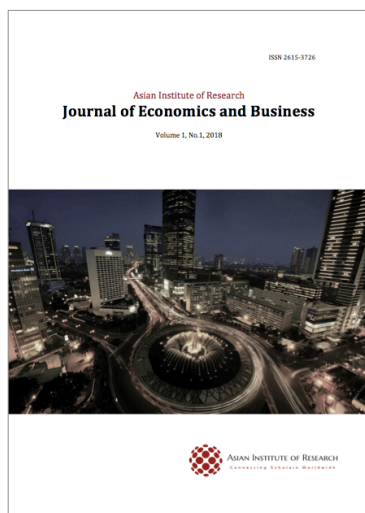
Some of the authors of this publication are also working on these related projects:



Desertation [View project](#)



Renewable Energy in Kenya [View project](#)



Journal of Economics and Business

Nassiuma, Bernard, Masasabi, Jamin Masinde, Snelder, Denyse, and Nangulu, Anne (2018), Entrepreneurs Experience and Firm Innovativeness: Multiple Mediation of Attitudinal and Behavioral Competencies. In: *Journal of Economics and Business*, Vol.1, No.1, 57-70.

ISSN 2615-3726

DOI: 10.31014/aior.1992.01.01.6

The online version of this article can be found at:
<https://www.asianinstituteofresearch.org/>

Published by:
The Asian Institute of Research

The *Journal of Economics and Business* is an Open Access publication. It may be read, copied and distributed free of charge according to the conditions of the Creative Commons Attribution 4.0 International license.

The Asian Institute of Research *Journal of Economics and Business* is a peer-reviewed International Journal. The journal covers scholarly articles in the fields of Economics and Business, which includes, but not limited to, Business Economics (Micro and Macro), Finance, Management, Marketing, Business Law, Entrepreneurship, Behavioral and Health Economics, Government Taxation and Regulations, Financial Markets, International Economics, Investment, and Economic Development. As the journal is Open Access, it ensures high visibility and the increase of citations for all research articles published. The *Journal of Economics and Business* aims to facilitate scholarly work on recent theoretical and practical aspects of Economics and Business.



ASIAN INSTITUTE OF RESEARCH
Connecting Scholars Worldwide



Entrepreneurs Experience and Firm Innovativeness: Multiple Mediation of Attitudinal and Behavioral Competencies

Bernard Nassiuma¹, Jamin Masinde Masasabi², Denyse Snelder³, Anne Nangulu⁴

¹ School of Business and Economics, Department of Entrepreneurship Studies, Moi University, Kenya. Email: bnassiuma2@gmail.com

² Department of Sociology & Psychology. Moi University, Kenya. Email: drjaminmasinde@yahoo.co.uk

³ Vrije Universiteit Amsterdam. The Netherlands. Email: d.j.r.m.snelder@vu.nl

⁴ Commission of University Education and Moi University. Department of History
anangulu@gmail.com

Abstract

This study was anchored on a postpositivism paradigm and the Theory of perceived attributes and individual innovativeness, regarding the multiple serial mediations of attitudinal and behavioral competencies in the relationship between the entrepreneurs' experience and firm innovativeness. To test the hypothesized relationship a cross-sectional design and qualitative approach were employed. The study drew on a sample of 698 Micro and Small-scale entrepreneurs in Western Kenya. Questionnaires were the main data collection tools. Results indicate that entrepreneurial attitudinal and behavioral competencies had a mediating effect on the relationship between the entrepreneurs' experience and firm innovativeness among adult women entrepreneurs while among youth men were partial mediation. The direct effect of entrepreneurial experience on the level of innovativeness was significant for youth respondents but not adult women respondents. This study identifies entrepreneurial attitudinal and behavioral competencies as critical inputs for enhancing firm innovativeness hence, appropriate supportive policies and programmes are required.

Keywords: Attitudinal competencies, Innovative, Entrepreneurial experience, Mediation, Western Kenya.

1. Introduction

1.1 Context of the problem

Innovation is perceived to be highly developed in developed countries in comparison to the developing world (Szirmai, Naudé and Goedhu 2011). However, innovation is an activity which entrepreneurs engage in all the time in the course of running a firm. Szirmai, Naudé, & Goedhu, (2011) argues that not all entrepreneurs are innovative at the same level, neither are firms managed and owned by entrepreneurs are more innovative. Continuous learning is considered to be important in sustaining industrial knowledge and experiences (Wang 2016), which can result in firm innovativeness. Apart from being highly knowledgeable, experienced, and skilled entrepreneurs, also require highly skilled laborers (Szirmai, Naudé and Goedhu 2011). This implies that human

capital is important in the successful operation of a firm. The success of firm demand innovativeness in order to provide competitive value.

In order to upscale, the capacity required for innovative behavior appropriate government interventions and policies, with respect to the operation of markets is vital especially in investment in knowledge and innovation. If the system of innovation is weak then, fewer efforts of individual entrepreneurs will not contribute to accelerated economic development (Goedhuys and Srholec 2010). Adequate innovation performance requires sound policies and appropriate institutions (Szirmai, Naudé and Goedhu 2011). This aspect impacts directly on the existence of not only entrepreneurship policies in a given country but also on innovation policies. A proper investment in education, labor skills, and human capital is vital for the creation of an innovative population (Szirmai, Naudé and Goedhu 2011).

An entrepreneurs' innovative ability is key in the entrepreneurial process given that creation of value is tied to one's ability to innovate hence beat the competition. Innovation is widely recognized as an important variable in creating a competitive advantage and driving economic growth globally. Innovation is also a relatively vague concept, yet its absence results in stagnation and loss of competitive behaviors among firms. Innovativeness is a characteristic of individuals as well as organizations (Ikhlq Sidhu et al., 2016). Hence, an appropriate orientation of individuals and the firm are vital inputs in the innovative process.

Entrepreneurial characteristics have an impact on the innovative capability of a company (Omerzel, 2016). Firm innovativeness can foster the ability of enterprises to survive the turbulent business landscape and contribute to venture a success. Firm innovation is, therefore, core to economic development and social well-being in an economy yet, context specific. According to the Republic of Kenya (2012), innovation in firms is a tool for economic development through enhancing productivity. The Kenya vision 2030 focuses on anchoring adoption of science and technology and innovation as key tools in the economic development process.

There are limited studies in the developing context of the entrepreneurial profile, competencies, and firm innovativeness. However, the entrepreneur's profile seems to play a central role in the innovation process (O'Brien 2015). In addition, a definition of firm innovativeness remains a complex concept in the African context. In most cases, studies on direct relationships in entrepreneurship have been attempted, but not on serial multiple interactive effects hence, the need for this study.

1.2 Theoretical orientation

This study was anchored on two theories, the theory of perceived attributes and theory of individual innovativeness. The diffusion of innovations in the trade sector can be very limited owing to the nature of the sector, which deals in the conveyance of goods and services. Kumar & Kaur (2014) suggests that different theories can be used to study firm innovativeness, owing to the interactive effects of many aspects. The assertion suggests that for a productive study on firm innovativeness multiple theories have to be examined. Majorly, all these theories have weaknesses and strengths which are unique in every aspect. The current study focused on the respondent's perceptions of their firm innovativeness with respect to the product, process, marketing and organizational. The theory of diffusion of innovation is applicable in various disciplines.

1.2.1 Theory of perceived attributes

The theory of perceived attributes is anchored on the belief that entrepreneurs will adopt an innovation if the innovation has some relative advantage over an existing innovation, it is compatible with existing values and practices, it is not too complex, and it has trialability, and the innovation must offer observable results (Rogers, 1995). Entrepreneurs adopt innovations depending on its effectiveness (Musa, Ezra and Monsurat 2015). The diffusion approach has some limitations, for example, an innovation may be rejected in spite of the knowledge level of the user. It is construed in this study that the entrepreneurs' ability to adopt an innovation is dependent on the entrepreneurial experience and firm innovativeness.

1.2.2 Individual Innovativeness Theory

According to the theory of individual innovativeness, individuals are categorized depending on their innovative ability (Kumar and Kaur 2014). There are four categories according to the classification of innovators, by

Rogers, early adopters, early majority, late majority, and laggards. Despite the classification on the basis of innovativeness, inconsistencies have been noted in individual innovativeness. In this study, the focus was on the product, process, marketing and organizational. Firm innovativeness perspectives can be very diverse in the four aspects depending on the entrepreneurial orientation of an individual.

2. Related Literature

2.1 Entrepreneurial experience and firm innovativeness

Entrepreneurs work experience is perceived to contribute minimally to students' entrepreneurial attitudes (Al Bakri & Mehrez, 2017). This perspective implies that entrepreneurial experience can equally, influence firm Innovative in some contexts. Several studies conducted on the effect of entrepreneurial experience on the determination of entrepreneurial attitudes have yielded mixed results (Singh, 2014; Khan, Malekifar, & Jabeen, 2013). However, a higher work experience promotes a higher, innovative capacity. Saleh & Salhieh (2014) alludes that entrepreneurial intentions of students was higher for those with work experience in comparison to those without such entrepreneurial experience. Experience thus constitutes a driver to one being entrepreneurial, and by extension, this could result in firm innovativeness as a strategy to sustain competitiveness. Entrepreneurial experience, increases with age, hence boosts the performance of the enterprise (Strangler and Marion 2013). Generally, the idea that an entrepreneur or firm pursues is in most cases based on the experience of an individual or the firm (Link 2014). The human capital that goes into the firms' innovative ability includes experience among other factors hence to achieve innovativeness one requires increasing managerial experience (Tehseen 2015).

While examining gender differentials in firms operated by male entrepreneurs, it was found that men owned firms performed than those operated by women (Sagire 2017). An entrepreneurial experience gained over a period of time in relation to the age of the entrepreneurs enhances enterprise performance (ibid). Equally, gender comparisons show that men had a higher work experience than women (Varamäki et al. 2015). This may be attributed to gender roles in society that may put heavier demands on women in comparison to men. On the aspect of gaining technical experience, it has been found that innovative entrepreneurs obtained it through work experience while working in large companies. In most cases when such entrepreneurs come up with innovative ideas, they then left the company to go out on their own (Manocha 2012).

Firm innovativeness is realized in firms when employees contribute to an advantage, encourage innovation, and use their knowledge to make the firm to work successfully (Schmitz, Lapolli and Lapolli 2014). The owner-manager plays a key role in firm innovativeness especially family firms given that the owner-managers spend a relatively long time in the firm, hence accumulates knowledge and experience in the operation of a firm (Varamäki et al. 2015). An entrepreneurs' context and their prior experience is a major source of creativity and knowledge for innovation (Adhama et al. 2012). The entrepreneurs experience for example in production is important in fostering innovative potential in a firm (Pollock, Chen, Jackson, & Hambrick, 2010). The gain in entrepreneurial experience can result in product improvements and cost declines in a firm.

The most successful experiences are associated with a gradual building-up of eco-innovation networks over time from the bottom-up (Greenacre, Gross and Speirs 2012). Experience as a dimension of the demographic characteristics of entrepreneurs defines their behaviors with respect to entrepreneurship (Welmilla et al., 2011). While, Lai, Nathan, Tan, & Chan, (2010) allude that innovation and experience are equally important aspects of a successful firm.

Education and exposure to the actual entrepreneurship experience were seen to supersede indoctrination (Hameed et al. 2016). Grassroots innovations are commercialized or scaled-up only rarely as innovators experience lack of tangible and intangible resources (Centre for Social Innovation (ZSI) 2016). In this regard access to both knowledge and physical resources in supportive in the firm innovativeness. Successful frugal innovation is facilitated by having local people on the R&D team that brings personal experience to the environment in which the product will be used (Zeschky, Widenmayer and Gassmann 2015). This aspect of R&D in small-scale firms could not be a reality given that most of them employ up to 10 employees on average.

Lack of expertise, skills, and experience with new products and services and lack of familiarity with technology can result in lack of firm innovativeness (Hissa, Pekkala and Lammi 2016). Entrepreneurial experience thus takes a center stage in the firms' innovativeness. According to Pansera & Sarkar, (2016) entrepreneurs use their previous experience to create innovations with minimal resources. Hence, innovation is important when it is deeply experienced and is a matter of its cultural or organizational context, and its degree of generalization. The extent to which entrepreneurs are experienced (Autioa et al. 2014) defines their innovative ability in entrepreneurial firms.

Lack of involvement of others, and a lack of key knowledge and experience input from other perspectives. Entrepreneurial experience is a measure of enterprise performance (Md Isa, Bakar and Ahmad 2016), this could equally imply that firm innovativeness is affected by the level of entrepreneur experience. The personality traits of an entrepreneur have been found to be of significant impact on the firm innovative capability in Malaysia (Alam 2011). An entrepreneur's ability to identify and exploit opportunities is a critical trait that influences a micro-enterprise performance (Al Mamun and Ekpe 2016). In this regard, firm innovativeness is considered to be an integral dimension of a firm's performance.

An entrepreneur's innovation ability stems from expert knowledge and entrepreneurial experience with the firm (Yun and Kyungbae 2016). The impact of entrepreneur's demographic characteristics varies in different contexts, Yet opportunity and the right orientation are core in the process of innovation (Sajilan, Noor Ul, & Shehnaz, 2015). Lwamba, Bwisa, & Sakwa, (2013) suggests product innovativeness, process innovativeness, and organizational innovativeness affected the financial performance of manufacturing firms in Kenya. In a study in Western Kenya, statistically, significant differences were found between adult women and youth men respondents on work experience (Nassiuma, Masasabi and Nangulu 2017). Innovative new firms constitute the core of economic development in most nations especially with start-ups (Agarwal & Shah, 2014). Generally, the start-up entrepreneurs think through the models of the kind of ventures they intent to start. The conceptualization stage harnesses experiential learning from successful entrepreneurs. The preceding discussion shows that a relationship exists between entrepreneurial experience and firm innovativeness, hence as stated in the hypotheses:

H₁ Entrepreneurial experience is positively related to firm innovativeness

2.2 Entrepreneurial competencies and firm innovation

Entrepreneurial competencies could fall into three categories; as attitudinal, behavioral, and managerial competencies (Mitchelmore and Rowley 2010). According to Kahan (2012) entrepreneurial competencies include the psychological characteristics of entrepreneurs, the locus of control, attitude towards risk-taking and innovativeness. Some studies have shown that many entrepreneurial competencies are strongly associated with the average time an entrepreneur spend on the firm in a week (Shenura, Haile and Negash 2016). Equally, entrepreneurial characteristics and entrepreneurial competencies are positively related to venture performance (Mahadalle and Kaplan 2017). This suggests that ventures which are innovative, have a high stock of entrepreneurial competencies. The business start-up experiences of the leaders of the enterprise are related to the relationship competence. Other studies have suggested a direct and indirect relationship between different competencies and the firms' long-term performance. While other studies have suggested that entrepreneurial competencies in the relationship with firm performance are not moderated by gender (Nassiuma, 2017). This finding suggests that the gender of the entrepreneur does not have much influence on firm success and by extension firm innovativeness. Tehseen (2015) on the other hand asserts that entrepreneurial competencies alone cannot ensure firm survival and success. Experience and innovation constitute some of the core factors which determine the birth and death of entrepreneurial firms (Braunerhjelm 2010). The two factors can thus not be ignored in examining the entrepreneurial process.

Studies have suggested that women are handicapped in their ability to network as extensively as men owing to their role in society and within the family unit. This has translated into Female entrepreneurs networking less in comparison to men. There are a number of factors which influence behavior for example ability, previous experience, age, education, family history, and environment; this enhances the entrepreneur's decision to be an innovative entrepreneur (Sudi, Edith, & Christopher, 2013). Garud, Gehman, & Paco (2014) argue that

entrepreneurs' simply try to contextualize innovation through ongoing narratives. The entrepreneur's experience as a result of one's success in earlier ventures can enhance the type of entrepreneurial innovation undertaken. Entrepreneurial competencies can be those that deeply rooted in a person's background or those gained through experience (Mitchelmore, Siwan and Rowley 2013). Other scholars allude that the more successful experienced entrepreneurs believe that they have learned aspects of the ecosystem (Autio, Erkkö Kenney, Martin Mustar, Philippe Siegel, Don Wright, Mike, 2014). The ecosystem essentially envelopes the context within which entrepreneurial activities take place. The preceding discussion demonstrates that a relationship exists between entrepreneurial competencies and firm innovativeness, hence as stated in the hypotheses:

H₂ Entrepreneurial attitudinal competencies mediate in the relationship between entrepreneurial experience and firm Innovative

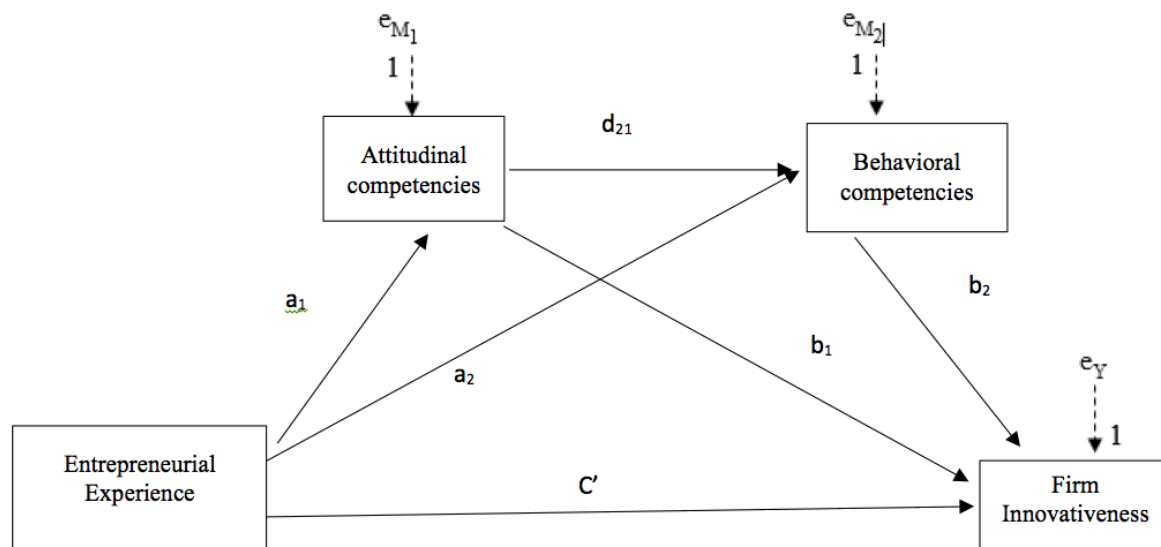
H₃ Entrepreneurs entrepreneurial behavioral competencies mediate in the relationship between entrepreneurial experience and firm innovativeness

H₄ Entrepreneurs entrepreneurial attitudinal and behavioral competencies mediate in the relationship between entrepreneurial experience and firm innovativeness

2.3 The Conceptual Mediation Model

The conceptual serial multiple mediation models for this paper is presented in Figure 1. This study was conceptualized on a mediation process model 6 (Andrew Hayes, 2013). The predictor variable in the study was entrepreneurial experience, measured on a metric scale. The dimensions of entrepreneurial competencies were attitudinal competencies and behavioral competencies. The outcome variable was firm innovativeness as measured by the dimensions, product innovation, market, process and organizational innovation (See Figure 1).

Figure 1: The Serial Multiple Mediation Model



The predictor variable in this model was the entrepreneur's experience (Adult women, youth women, and youth men), the mediating variable, entrepreneurial competencies (Attitudinal & Behavioural), and the outcome variable is firm innovativeness (product, process, marketing and organizational innovativeness). The aim of this study was to examine the interactive effect of entrepreneurial competencies in the relationship between entrepreneurial experience and firm innovativeness in the trade sector, in Western Kenya.

3. Method

3.1 Philosophical paradigms

The need for an appropriate philosophical paradigm to guide entrepreneurship research is vital in enhancing an understanding of the meaning and to bring out clear philosophical orientation (Punch 2013). This study was based on a post-positivist paradigm (Bryman 2012). It holds a deterministic philosophy in which causes determine effects or outcomes (Creswell 2014). The study aimed at discovering the relationship between entrepreneurs' experience and firm innovativeness through the effects of entrepreneurial competencies that are generalizable. The philosophical underpinnings of the study were informed by realism, idealism and critical realism (Blundel, 2007). While, the ontological assumptions were based on reality, knowable within probability. Nature of knowledge was based on objectivity. The study was based on the precise measurement that is verifiable. The methodology for the study was Quantitative; correlational; causal comparative; survey. The data was captured using a questionnaire (Creswell 2014).

3.2 Research Design

There is growing evidence for researchers in the field of entrepreneurship to acknowledge the need for carrying out entrepreneurship research at multiple levels of analysis (Wiklund et al. 2011). This essentially helps in enhancing an understanding of entrepreneurship phenomena. Entrepreneurial competencies in a number of studies have been found to have a profound influence on the entrepreneurial activities. This study was a correlational design; it examined the relationships which were based on hypotheses that it existed. A cross-sectional design was used, meaning that questionnaires were administered only at a single point in time (Singleton, and Straits 2010).

In this study, it was hypothesized that entrepreneurial attitudinal and behavioral competencies could play an important serial multiple mediating roles in the relationship between entrepreneurial experience and firm innovativeness. In examining a number of studies in entrepreneurship robust quantitative analysis remain limited (Marlow 2014). Most of the existing studies focus on direct relationships which are limited to understanding the entrepreneurship phenomenon (Wiklund et al. 2011). The intervention of erroneous factors impacts heavily in most cases on the hypothesized relationship, justifying the inclusion of a third variable.

3.3 Participants

The study sample was 698 respondents comprising of adult women (85, 12%), youth women (277, 40%) and youth men (336, 48%) entrepreneurs in the trade sector in western Kenya. The two major categories in the study were Women aged above 35 years and youth aged between 18-35 years. A sampling frame of entrepreneurs in the two counties was obtained from Uasin Gishu and Bungoma County governments. The frame was then organized on the basis the respondent categories in the study before selecting a sample using simple random sampling strategy.

3.4 Instruments

The main data collection instrument was a questionnaire. It was divided into sections covering the respondents' entrepreneurial experience, the attitudinal competencies, behavioral competencies and the firm innovativeness. The predictor variable entrepreneurs experience was measured on a metric scale and had a cronbach alpha reliability test was Adult women experience ($\alpha=.665$), Youth women ($\alpha=.683$) and Youth men ($\alpha=.683$).

Elements of firm innovativeness were four (product, process, marketing and organizational innovation) measured on a likert type scale. The Cronbach alpha reliability test for firm innovativeness indicated a high level of reliability ($\alpha=.929$). The dimension of owner's attitudinal competencies had seven indicators (self- confidence, self-esteem, dealing with failures, tolerance for ambiguity, performance, concern for high quality and locus of control) measured on a likert type scale. The cronbach alpha reliability test for attitudinal competencies indicated a high level of reliability ($\alpha=.944$). Behavioral competencies had ten indicators (initiative, acting on opportunity, persistence, assertiveness, need for achievement, need for autonomy, risk-taking, drive and energy, innovation and creativity) measured on a likert-type scale. The cronbach alpha reliability test for behavioral competencies indicated a high level of reliability ($\alpha=.917$). All measures for the likert type scale was on a five-point scale.

Predictive validity of the variables was examined, the KMOs for firm innovativeness was .926, attitudinal competencies .926, behavioral competencies .681, while entrepreneurs experience was .504. The measures for firm innovativeness, attitudinal competencies, and behavioral competencies was on a Likert five-point type scale. While work experience was measured on a metric scale. The predictive validity was well above the threshold except for work experience which was relatively lower than the rest.

3.5 Data Analysis

Data analysis was undertaken in two parts; firstly, the descriptive statistics, mean, standard deviation, correlation, the cronbach alpha and factor analysis (Field 2012). Secondly, the serial multiple mediation process models 6 (Hayes, 2012; Hayes, 2013) using SPSS software. The hypothesized serial multiple mediated relationships were investigated with a cross-sectional research design. The statistical significance tests were executed using the process macro model 6 developed by Hayes (2013). Direct and specific indirect effects were examined in the serial mediation model using 10000 bootstrap samples. The significance level of the study was set at 95% confidence. Data analysis was undertaken using IBM SPSS software Version 20.

4. Results

4.1. Descriptive statistics

Table 1. Shows descriptive statistics, reliability test, and Pearson correlation analysis. The results indicate a positive significant relationship between work experience and attitudinal competencies, behavioral competencies and firm innovativeness variables.

Table 1
Descriptive Statistics, Cronbach Alpha Coefficients and Pearson Correlation Coefficient Values

Sno.	Variable	Mean	S.D	Cronbach Alpha	1	2	3	4	5	6
1	Adult Women Experience	8.45	7.943	.665	1					
2	Youth Women Experience	4.8757	5.21276	.683	-.149**	1				
3	Youth Men experience	7.8601	7.04705	.770	-.159**	-.342**	1			
4	Attitudinal Competencies	3.0065	1.25627	.944	.026	.184**	.196**	1		
5	Behavioural Competencies	2.1732	.92037	.917	.255**	.091*	-.096*	.503**	1	
6	Firm innovativeness	2.8725	1.34040	.929	.060	.153**	.224**	.881**	.484**	1

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Adult women entrepreneurs constituted 12% of the study respondents. The profile of respondents in this category indicates a mean work experience of 8.45 years, mean age of 45 years, the majority (37,44%) had a secondary level of education, followed by college level (19, 22%) and ownership mode was one proprietor (73%) followed by joint ownership with the husband (18%).

Youth women entrepreneurs constituted 40 % of the study respondents. The respondents in this category had a mean entrepreneurial experience of 4.8 years, marital status married, the mean age of 32 years, the majority (144,52%) had college level of education, and ownership mode was one proprietor (209,76%) followed by joint ownership with the husband (28, 10%).

Youth men entrepreneurs constituted 336, 48 % of the study respondents. The profile of respondents in this category shows a mean entrepreneurial experience of 7.8 years, marital status married, mean age of 31 years, most (154, 46%) had college level of education, followed by first degree (69, 21%) and the ownership mode was one proprietor (260, 77%) followed by multiple proprietors –blood related (34, 10%).

The profile of respondents in this study shows that the majority 56% were married and had pursued college (45%) level education. The ownership arrangement differed with gender among the respondents in the study. Women entrepreneurs were either sole proprietorships or jointly owned the firm with the spouse. The male sole proprietorship was the highest (39%). While the male respondents, apart from sole proprietorships, had multiple

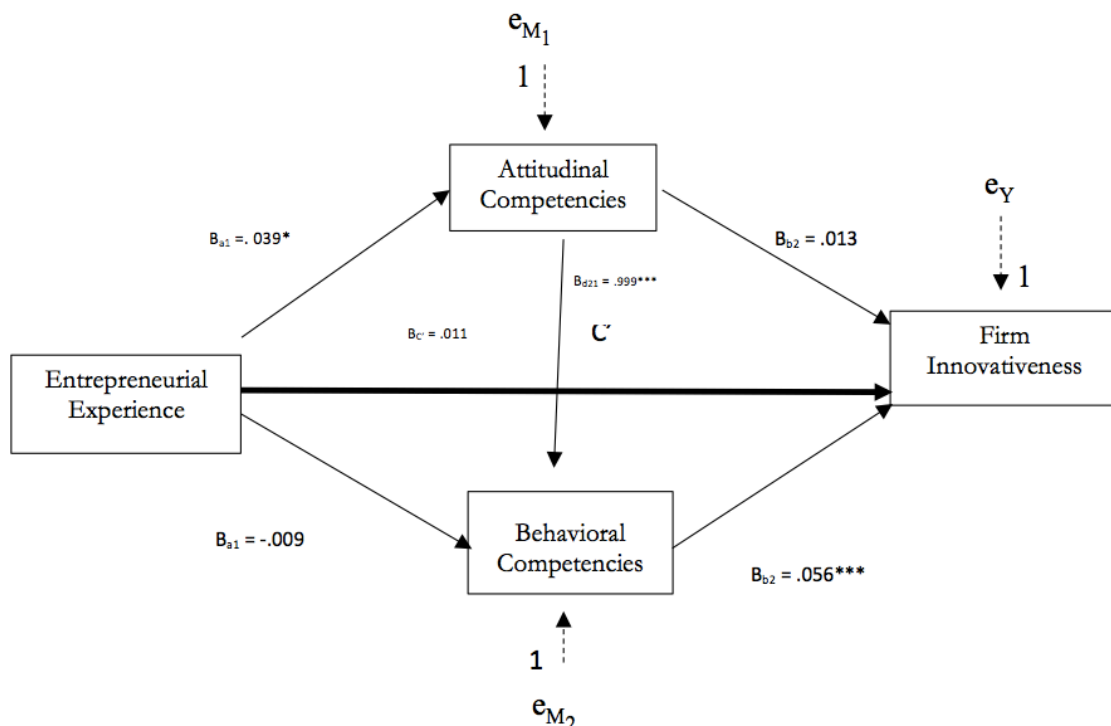
proprietors, who were blood-related. This can be construed to be a gender socialization issues in society that confines women to the family cycles. The challenge arising in limited ownership can result in less access to growth opportunities. Hence, male-owned enterprises have the potential to access more knowledge and resources as compared to the female-owned enterprises.

4.2 Structural equation modeling

Process macro model 6 was used to determine the serial –multiple mediations of attitudinal and behavioral competencies in the relationship between entrepreneurs experience and firm innovativeness. The three categories in the study were Adult women and female and male youth. The analysis was based on a regression-based approach (Hayes, 2012).

The results on adult women are presented in Figure 2, total effect ($c=.011$, $SE=.008$, $t=1.382$, $p=.171$) of entrepreneurs experience on firm innovativeness was not significant (step 1). The direct effects of entrepreneurs experience on Attitudinal competencies ($B=.039$, $SE=.017$, $t=2.321$, $p=.023$) was at significant level while behavioural competencies ($B=-.004$, $SE=.006$, $t=-.599$, $p>.009$) was at a significant level. The direct effect of Attitudinal competencies as the first mediating variable on the second mediating variable of behavioral competencies ($B=.999$, $SE=.039$, $t=25.658$, $p<.001$) was significant (Step 2). The direct effects of the mediating variables on firm innovativeness on the other hand, indicated the effects of attitudinal competencies ($B=.013$, $SE=.152$, $t=.087$, $p>.005$) was not significant and while behavioural competencies ($B=.856$, $SE=.144$, $t=5.963$, $p<.001$) was significant (Step 3). When the entrepreneur's experience was entered in the equation (Step 4), the relationship between entrepreneurs' experience, in relation to direct effect, was not at a significant level ($c'=.042$, $SE=.017$, $t=2.424$, $p<.005$). The model on overall was seen to be at a significant level ($F_{(81.0)}=119.66$, $P<.001$). And explained 31 % of the variance in firm innovativeness.

Figure 2: Adult Women entrepreneurs' mediation model for entrepreneurial attitudinal competence influence on innovativeness



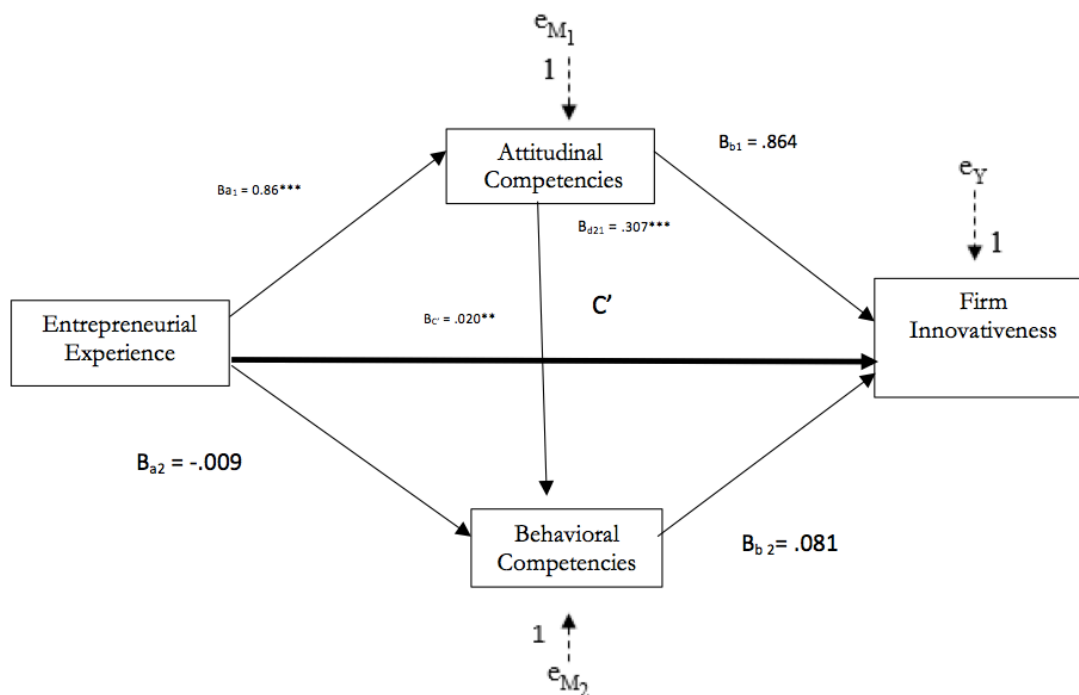
The multiple serial mediations of attitudinal and behavioral competencies in the relationship between entrepreneurs experience and firm innovativeness for youth women are presented in Figure 3 and Table 3. The results in Figure 3, total effect, ($c=.020$, $SE=.008$, $t=2.646$, $p=.009$) of entrepreneurs experience on firm innovativeness was significant (step 1). The direct effects of entrepreneurs experience on attitudinal competencies ($B=.086$, $SE=.014$, $t=6.361$, $p<.001$) was at significant level while behavioral competencies ($B=-$

.009, $SE=.010$, $t=.974$, $p > .005$) was not at a significant level. The direct effect of attitudinal competencies as the first mediating variable on the second mediating variable of behavioral competencies ($B=.307$, $SE=.040$, $t=7.640$, $p < .001$) is significant (Step 2).

The direct effects of the mediating variables on firm innovativeness on the other hand, indicated the effects of attitudinal competencies ($B=.864$, $SE=.035$, $t=24.488$, $p < .001$) was significant and behavioural competencies ($B=.081$, $SE=.048$, $t=1.679$, $p > .005$) was not significant (Step 3).

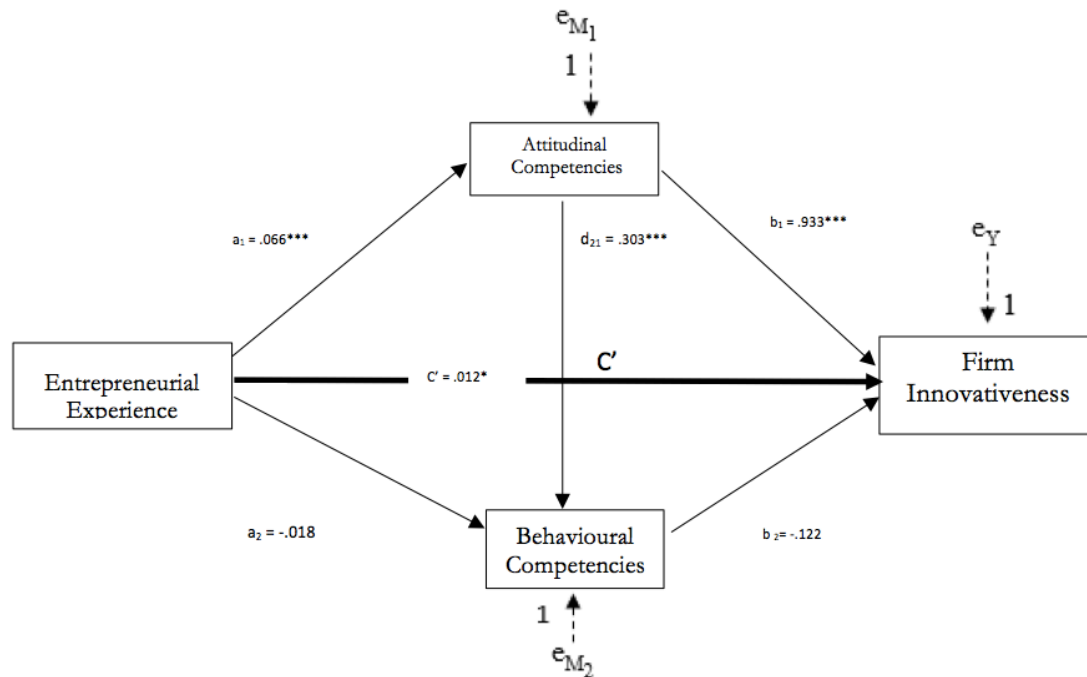
When the entrepreneur's experience was entered in the equation (Step 4), the relationship between entrepreneurs' experience, in relation to direct effect, was at a significant level ($c'=.086$, $SE=.014$, $t=6.968$, $p < .001$). The model on overall was seen to be at a significant level ($F_{(2273)}=319.069$, $P < .001$) and explained 79 % of the variance in firm innovativeness.

Figure 3: Youth women mediation model for entrepreneurial attitudinal competence influence on innovativeness



The multiple serial mediations of attitudinal and behavioral competencies in the relationship between entrepreneurs experience and firm innovativeness for male youth are presented in Figure 4 and Table 4. The results in Figure 4, total effect, ($c=.012$, $SE=.005$, $t=2.378$, $p=.018$) of entrepreneurs experience on firm innovativeness was significant (step 1). The direct effects of attitudinal competencies on entrepreneurs experience on ($B=.066$, $SE=.009$, $t=7.120$, $p < .001$) was at a significant level. While behavioural competencies ($B=-.018$, $SE=.006$, $t=-3.145$, $p=.002$) was at a significant level. The direct effect of attitudinal competencies as the first mediating variable on the second mediating variable of behavioral competencies ($B=.303$, $SE=.031$, $t=9.772$, $p < .001$) is significant (Step 2). The direct effects of the mediating variables on firm innovativeness, on the other hand, indicated the effects of attitudinal competencies ($B=.933$, $SE=.032$, $t=28.767$, $p < .001$) was significant and behavioral competencies ($B=.064$, $SE=.051$, $t=1.274$, $p=.204$) was not significant (Step 3). When the entrepreneur's experience was entered in the equation (Step 4), the relationship between entrepreneurs' experience, in relation to direct effect, was at a significant level ($c'=.074$, $SE=.010$, $t=7.375$, $p < .001$). The model on overall was seen to be at a significant level ($F_{(332.0)}=448.83$, $P < .001$) and explained 84 % of the variance in firm innovativeness.

Figure 4: Youth men mediation model for entrepreneurial attitudinal competence influence on innovativeness



4.2.1 Summary of Indirect Effects

Comparison of indirect effects and specific effects of adult women entrepreneurial experience on their firm innovativeness through attitudinal and behavioral competencies are presented in Table 5. The total indirect effect of entrepreneurial experience (adults women) was .735, which was accounted for by H₂ (Entrepreneurial experience *attitude*firm innovativeness) .012, H₃ (Entrepreneurial experience *attitudinal competencies*behavioural competencies*firm innovativeness) .798). While the H₄ (entrepreneurial experience *behavioural*firm innovativeness) -.076. This finding implies that the multiple serial mediators in the model played a significant role in the relationship between entrepreneurial experience and firm innovativeness as compared to the individual mediators.

The indirect effects for the youth women were examined in three path models. The H₂ (entrepreneurial experience *attitudinal competencies*Firm innovativeness) accounted for .761 of the total indirect effects of .791. The H₃ (Entrepreneurial experience *attitude*behavioural*Firm innovativeness) accounted for .022 of .791, and finally, H₄ (Entrepreneurial experience *behavioural*firm innovativeness) accounted for .008 of .791.

Indirect effects for the youth men entrepreneurs were examined in three path models. The H₂ (entrepreneurial experience *attitudinal competencies*Firm innovativeness) accounted for .821 of the total indirect effects of .831. The H₃ (Entrepreneurial experience *attitude*behavioural*Firm innovativeness) which had the full indirect effect accounted for .017 while the H₄ (entrepreneurial experience *behavioural*firm innovativeness) accounted for -.015 of the .821.

In evaluating the serial mediation models, it is evident that among adult women, the two mediators in the serial mediation played a significant role, while among the youth behavioral competencies played a dismal role. This finding suggests that behavioral competencies counted least to the youth in the entrepreneurial experience and firm innovativeness relationship. The elements used to measure attitudinal competencies were self-confidence, self-esteem, dealing with failures, tolerance for ambiguity, performance, concern for high quality and locus of control. While behavioral competencies were measured through, initiative, acting on opportunity, persistence, assertiveness, need for achievement, need for autonomy, risk-taking, drive and energy, innovation and creativity. In examining the size of the mediation effects, it was observed to be higher among the youth in comparison to adult women. This finding could point to the intensity of maturity and exposure to various aspects of the

entrepreneurial process. Given the fact that entrepreneurship draws greatly, on experiential learning, as a key driver in the success of firms. Nevertheless, all aspects concerning the behavioral competencies were either negative or very low. This raises issues with respect to the comprehension or the entrepreneurial competencies capacity status (See Table 2, 3, and 4 respectively).

5. Discussion

5.1 Summary

This study analyzed the serial multiple mediating effects of attitudinal and behavioral competencies in the relationship between entrepreneurs' experience and firm innovativeness among women and youth entrepreneurs in western Kenya. A summary of the results shows attitudinal and behavioral competencies had an interactive effect on the relationship between entrepreneurs' experience and innovativeness among adult women entrepreneurs in western Kenya. This finding is supported by the finding of Strangler & Marion (2013) on the correlation between the increase in age and its effects entrepreneurial experience and enterprise performance. The serial mediation effect was full of adult women entrepreneurs' entrepreneurial experience through entrepreneurial competencies to firm innovativeness. The results on the path through behavioral competencies to firm Innovative was significant. While through attitudinal competencies was not supported.

The youth women respondents in the serial mediation through attitudinal competencies and behavioral competencies was partially supported. While through entrepreneurial experience through attitudinal competencies to firm innovativeness was fully supported. The path through behavioral competencies was not supported. Youth men respondents in the serial mediation through attitudinal competencies and behavioral competencies was partially supported. While through entrepreneurial experience through attitudinal competencies to firm innovativeness was fully supported. Through behavioral competencies to firm innovativeness was not supported. These findings are supported by various studies (Mahadalle & Kaplan, 2017; Saleh & Salhieh, 2014; Ikhlaq Sidhu et al., 2016).

The direct effects of entrepreneurial experience on firm innovativeness for adult women were not supported, the path a_2 was supported, while path a_1 was supported. The youth women path a_1 , c_1 , a_2 were all supported. Youth men respondents' path c_1 , a_1 were significant while path a_2 was not significant. This finding supports that of Szirmai, Naudé, & Goedhu, (2011) which suggests that not all entrepreneurs can be innovative at the same level. Entrepreneurs can possess all the required competencies yet may not succeed owing to lack of highly skilled laborers (Szirmai, Naudé and Goedhu 2011). At the heart of innovation in the entrepreneurial ventures lies the aspect of human capital that cannot be ignored.

5.2 Managerial Implications

This finding brings in the gender differential effects in the operation of entrepreneurial firms which cannot be ignored. Entrepreneurial competencies are thus critical in attaining firm innovativeness in small firms. These findings are supported by the findings of Nager, Hart, Ezell, & Atkinon, (2016) who argues that innovators are not found in the category of dropouts but experienced and highly educated individuals.

The findings further suggest that in order to develop firm innovativeness among entrepreneurs an appropriate entrepreneurial attitudinal and behavioral competencies should be developed. Variations found among women and male entrepreneurs on the effects point to emotional orientation perspectives. The newness in this study is founded on the premise that this is among the few studies undertaken in the developing country context to examine the serial multiple interactive effects of attitudinal and behavioral competencies in the relationship between entrepreneurs' experience and firm innovativeness.

This study concludes that the multiple serial mediations of attitudinal competencies and behavioral competencies in the relationship between entrepreneurs experience and firm innovativeness was significant for women entrepreneurs while partial for men. The hypothesized direct relationship for youth women and men was supported by the study. Entrepreneurial competencies hence had a mediating effect with gender differentials on firm innovativeness. The study thus considers entrepreneurial competencies as critical inputs in enhancing firm innovativeness. It identifies attitudinal and behavioral competencies as drivers of firm innovativeness in the trade

sector. This study contributes to a better understanding of the role of competencies in the entrepreneurial process. It thus raises the need for supportive policies and programmes to enhance the entrepreneur's capability through experiential exposure with a specific focus on gender differentials.

5.3 Study limitations

This study was limited in a number of ways including; firstly, very few studies were found on the subject of this study in literature. Secondly, the study didn't include the male adult entrepreneurs thus the findings may only be generalized to women adults and youth, thirdly, the study was based on a sample selected from a specific location owing to ASALI site, and therefore generalization issues can arise even though a probability sampling strategy was adopted. Fourthly, the study was limited to the features assessed by the tool used. Hence the responses from participants may not have conveyed their true feelings. Fifthly, the managerial competence was not included in this study on assumption that its contribution to firm innovativeness was dismal. Sixthly, the drivers for firm innovativeness are diverse and may not necessarily be tied to experience and competencies. Equally, owners may not have been interested in firm innovativeness at the outset. It, therefore, demands any evaluator of this study to consider the limitations as mentioned above.

5.4 Directions for future studies

In light of the limitations faced in this study future studies could focus on:

- i. Enhancing the multiple serial mediations to a moderated mediated analysis in order to capture a wide range of potential indicator that can influence firm innovativeness.
- ii. This study was limited to the ASALI project sites hence could have raised some shortcomings concerning coverage of the study. Future studies should focus on a national level in order to capture a diverse respondent group
- iii. Future studies could consider using mixed method approach in order to capture the soft aspects of entrepreneurship

Acknowledgment

This study was funded by ASALI project, collaborating project partners; Vrije Universiteit Amsterdam (VU), Moi University (MU) and South Eastern University (SEKU), Kenya. ASALI project is supported by the late MS Grietje Wille legacy fund. I am grateful to Prof. Enno Masurel, and Prof, Dankit Nassiuma for their contribution to this study. Finally, I thank all respondents.

References

- Al Bakri, Anas, and Ahmed Mehrez. "Factors influencing entrepreneurial intentions among Arab students." *International Journal of Entrepreneurship* 21, no. 3 (2017).
- Al Mamun , Abdullah , and Isidore Ekpe. "Entrepreneurial traits and micro-enterprise performance: a study among women micro-entrepreneurs in Malaysia." *Development in Practice* 26, no. 2 (February 2016): 193-2002.
- Alam, Syed Shah. "Entrepreneur's traits and firm innovation capability: an empirical study in Malaysia." *Asian Journal of Technology Innovation* 19, no. 1 (August 2011): 53-66.
- Md Isa, Yusrinadini Zahirah, Azizi Abu Bakar, and Shuhymee Ahmad. "Determinant factors of women entrepreneurs' business performance: a conceptual framework." *Global Business and Social Entrepreneurship* 1, no. 1 (2016): 55-67.
- Adhama, Akmaliah Khairul, Fuaad Mohd Said, Nur Sa'adah Muhamad, and Inayah Noor Yaakubd. "Technological innovation and entrepreneurship from the western and Islamic perspectives." *International Journal of Economics, Management and Accounting* 20, no. 2 (2012): 109-148.
- Autioa, Erkko, Martin Kenney, Philippe Mustard, Don Siegel, and, Mike Wright. "Entrepreneurial innovation: The importance of context." *Business Venturing* (Published by Elsevier B.V.), May 2014.
- Blundel, Richard. *Critical realism: a suitable vehicle for entrepreneurship research? In: Neergaard, Helle, and Ulhoi, John Parm eds. Handbook of Qualitative Research Methods in Entrepreneurship*. Cheltenham: Edward Elgar, 2007.

- Braunerhjelm, Pontus. "Entrepreneurship, Innovation and Economic Growth: Past Experiences, Current Knowledge and Policy Implications." Swedish Entrepreneurial forum and the royal institute of Technology, 2010.
- Bryman, Alan. *Social research methods*. 4th. New York: Oxford University Press Inc, 2012.
- Centre for Social Innovation (ZSI). "Funding frugal innovation: Lessons on design and implementation of public funding schemes and stimulating frugal innovation." *INDIGO Policy*, September 2016.
- Creswell, John W. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. 4th. London: SAGE Publications. Inc, 2014.
- Field, Andy. *Discovering Statistics using IBM SPSS Statistics*. 4th. New Delhi: SAGE, 2012.
- Goedhuys, M., and M. Srholec. "Understanding Multilevel Interactions in Economic Development'." *Working Paper 2010-003*. Maastricht: UNU-MERIT, 2010.
- Greenacre, Philip, Robert Gross, and Jamie Speirs. *Innovation Theory: A review of the literature*. Imperial College Centre for Energy Policy and Technology, 2012.
- Hameed, Irfan, Muhammad Babar Khan, Atif Shahab, Imran Hameed, and Faisal Qadeer. "Science, Technology, and Innovation through Entrepreneurship Education in the United Arab Emirates (UAE)." *sustainable and renewable*, 2016.
- Hayes, A F. *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press, 2013.
- Hayes, A. F. "PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]." <http://www.afhayes.com/public/process2012.pdf>. 2012.
- Hissa, Annika, Janne Pekkala, and Miia Lammi. "Design for localization in India: Experiences and practices of nine Finnish SMEs." *MUOVA Design Research 1/2016*, December 2016.
- Kahan, D. *Entrepreneurship in farming*. Food and Agriculture Organization of the United Nations, 2012.
- Khan, Rasli, A, S Malekifar, and S Jabeen. "Factors affecting entrepreneurial intentions among graduate students of Universiti Teknologi Malaysia." *International Journal of Business and Social Science* 4, no. 2 (2013): 182-189.
- Kumar, Pankaj, and Prabhjot Kaur. "An Analysis of Theories of Diffusion." *American International Journal of Research in Humanities, Arts and Social Sciences* (International Association of Scientific Innovation and Research (IASIR), USA), 2014: 178-185.
- Lai, Kim Piew, Robert Jeyakumar Nathan, Khong Sin Tan, and Boon Bun Chan. "Effect of Innovation to the Success of Female Entrepreneurs." *Journal of Innovation Management in Small and Medium Enterprises*, 2010.
- Link, Albert N. "Ideation, Entrepreneurship, and Innovation." *Conference on Entrepreneurship, Innovation, and Enterprise Dynamics*. 2014.
- Lwamba, Ngozi M., Henry Bwisa, and Maurice Sakwa. "Exploring Innovativeness Dimension of Corporate Entrepreneurship on Financial Performance of Manufacturing Firms in Kenya." *International Journal of Business and Social Science* 4, no. 17 (December 2013).
- Mahadalle, Abdullahi, and Burcin Kaplan. "Entrepreneurial Characteristics and Competencies as Determinants of Corporate Performance: A Study on Small Enterprises in Mogadishu, Somalia." *International Journal of Research - Granthaalayah* 5, no. 5 (May 2017): 243-254.
- Manocha, Sanjay. "Innovation and Entrepreneurship in today's Scenario." *International Journal of Marketing, Financial Services & Management Research* 1, no. 8 (August 2012).
- Marlow, Susan. "Exploring future research agendas in the field of gender and entrepreneurship ." *Journal of Gender and Entrepreneurship* 6, no. 2 (2014): 102-120.
- Mitchelmore, S, and J Rowley. "Entrepreneurial competencies: a literature review and development agenda." *International Journal of Entrepreneurial Behavior & Research* 16, no. 2 (2010): 92-111.
- Mitchelmore, S., and Rowley, "Entrepreneurial competencies: a literature review and development agenda." *International Journal of Entrepreneurial Behaviour & Research* 16, no. 2 (2010): 92-111.
- Mitchelmore, Siwan, and Jennifer Rowley. "Entrepreneurial competencies of women entrepreneurs pursuing business growth." *Journal of Small Business and Enterprise Development* 20, no. 1 (2013): 125-142.
- Morse, S, and N McNamara. *Sustainable livelihood approach: a critique of theory and practice*. Springer, 2013.
- Musa, Abdullahi I., Gbaje S. Ezra, and Mohammed F. Monsurat. "Perceived Attributes of Diffusion of Innovation Theory as a Theoretical Framework for understanding the Non-Use of Digital Library Services." *Information and Knowledge Management* 5, no. 9 (2015).
- Nager, Adams, David Hart, Stephen Ezell, and Robert D. Atkinson . *The Demographics of Innovation in the United States*. Information Technology and Innovation Foundation, 2016.
- Nassiuma, B. K. "Entrepreneurial Competencies and Livelihood Improvement: The Moderating Role of Gender." *Advances in Social sciences Research Journal*. 4, no. 22 (November 2017): 78-87.
- Nassiuma, Bernard Kibeti, Jamin Masinde Masasabi, and Anne Nangulu. "Differential Effects of Gender Groups on Entrepreneurship in a Developing Country Context." *Journal of Small Business and Entrepreneurship Development* (American Research Institute for Policy Development) 5, no. 2 (December 2017): 1-6.

- O'Brien, Seamus. "Innovation and Its Drivers in SMEs Seamus." *Change Management* 14, no. 3-4 (2015).
- Panera, Mario , and Soumodip Sarkar. "Crafting Sustainable Development Solutions: Frugal Innovations of Grassroots Entrepreneurs." *Sustainability*, January 2016.
- Pollock, T. G., G. Chen, E. M. Jackson, and D. Hambrick. "How much prestige is enough? Assessing the value of multiple types of high-status affiliates for young firms." *Journal of Business Venturing* 25, no. 1 (2010): 6-23.
- Punch, K. F. *Introduction to social research: Quantitative and qualitative approaches*, 4th. London: Sage., 2013.
- ROK. "Sessional paper of 2012." *A Policy Framework for science, Technology, and Innovation*. Government printer, 2012.
- Sagire, Lucas. "The Impact of Demographic and Social Factors on Firm." *Journal of Business and Economic Development* 2, no. 4 (October 2017): 255-261.
- Sajan, Sulaiman, Noor UI Hadi, and Shehnaz Tehseen. "The Impact of Demographic Factors of Entrepreneurs on Development of SMEs in Tourism Industry in Sri Lanka." *Rev. Integr. Bus. Econ. Res.* (Faculty of Commerce and Management Studies, University of Kelaniya, Sri Lanka.) 4, no. 2 (2015).
- "Saleh, W. & Salhieh, L. (2014). An investigation of entrepreneurial intentions among Arab University students. *International Journal of Business and Management*, 9, no. 12: 197-209.
- Schmitz,, Ana Lucia Ferraresi , Paulo César Lapolli, and Édis Mafra Lapolli. "Proposal for Entrepreneurial Innovation Management: An Integrative Systematic Revi." *International Journal of Humanities and Social Science* 4, no. 7 (May 2014).
- Shimura, Shabudin, Ashenafi Haile, and Emnet Negash. "Prospects of Entrepreneurial Competencies of Micro and Small Enterprise in Jimma Zone, Ethiopia." *Global Journal of Management and Business Research: B Economics and Commerce* (Global Journal Inc) 16, no. 2 (2016).
- "Singh, I. (2014). Role of demographic variables in the formation of entrepreneurial intentions. *IOSR Journal of Business and Management*," 16, no. 12: 20-25.
- Singleton, Royce A, and Bruce C. Straits. *Approaches to Social Research*. 5th. New York:: Oxford University Press, 2010.
- Strangler, Dane, and Ewing Marion. "The Age of the Entrepreneur: Demographics and Entrepreneurship." *Summit March 2013*. 2013. 1-27.
- Szirmai, Adam, Wim Naudé, and Micheline Goedhu. "Entrepreneurship, Innovation, and Economic Development: An Overview." *Entrepreneurship, Innovation, and Economic Development*, 2011.
- Tehseen, Shehnaz. "Entrepreneurial competencies and SMEs Business Success: the contingent Role of External Integration." *Mediterranean Journal of Social Sciences* 6, no. 1 (2015).
- Tetteh, Emmanuel Kodjo, and George Owusu Essegbey. "Firm-level innovation: The case of Ghanaian Firms." *European Journal of Business and Innovation Research* (European Centre for Research Training and Development UK) 2, no. 2 (May 2014): 1-18.
- Varamäki, Elina, Sanna Joensuu, Erno Tornikoski, and Anmari Viljamaa. "The development of entrepreneurial potential among higher education students." *Journal of Small Business and Enterprise Development* 22, no. 3 (2015): 563-589.
- Wang, Yong. "Environmental dynamism, trust and dynamic capabilities of family businesses." *International Journal of Entrepreneurial Behavior & Research* 22, no. 5 (2016): 643-670.
- Wiklund, Johan, Per Davidsson, David B. Audretsch, and Charlie Karlsson. "the future of entrepreneurship research." *Entrepreneurship Theory and Practice* 35, no. 1 (January 2011).
- Yun, Joseph jinhyo, and Park Kyungbae. "How User Entrepreneurs Succeed: The Role of Entrepreneur's Caliber and Networking Ability in Korean User Entrepreneurship." *Science, Technology and Society* 21, no. 3 (October 2016): 391-409.
- Zeschky, Marco, Bastian Widenmayer, and Oliver Gassmann. "Frugal Innovation in Emerging Markets." *Research-Technology Management* 54, no. 4 (December 2015): 38-45.