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MANAGEMENT | RESEARCH ARTICLE

Entrepreneurship education and self-employment intentions: A conditional effect of entrepreneurial self-efficacy evidence from a developing country

Moses Kisame Kisubi^{1*}, Ronald Bonuke² and Michael Korir¹

Abstract: To determine the moderating effect of entrepreneurial self-efficacy (ESE) in the relationship between entrepreneurship education (EE) and self-employment intentions (SEI). Explanatory survey design together with systematic sampling technique were utilized to collect data from a sample of 458 undergraduate finalists from Makerere and Kyambogo Universities in Uganda. Data were analyzed using Hayes' PROCESS macro vs3.2 (Model 4). Results of the study indicate that entrepreneurship education and entrepreneurial self-efficacy are significant predictors of students' self-employment intentions. The study also found a buffering moderating effect of entrepreneurial self-efficacy significantly in the relationship between entrepreneurship education and self-employment intentions. The study contributes to the extant literature by confirming the relationship between the study variables and supporting both SCT and TPB. Besides, the study provides new insights concerning the moderating role of ESE in the relationship between EE and SEI. Educators, curriculum developers, and university management need to conduct a students' entrepreneurial competence needs assessment before, such that the entrepreneurial course is customized to the needs of the students other than a generalized and standardized entrepreneurial course. The study provides new insights



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PUBLIC INTEREST STATEMENT

Self-employment has been endorsed all over the world as an alternative career option to the unemployed. Therefore, stimulation of Self-employment Intentions is an ideal solution to graduate unemployment crisis. However, the level of student's self-employment Intention has remained low as the majority prefer paid employment. In addition, those who opt for self-employment do it temporarily as they seek for paid employment. This implies that graduates' engagement in self-employment is their last resort. Therefore, there is need to cultivate an entrepreneurial mindset not only to the students but also to the general public. Otherwise, without societal support student's self-employment intentions are hardly realized since most parents/guardians educate with the intention for their children to secure formal jobs.

on the conditional effect of ESE on the link between EE and SEI in the context of a developing country.

Subjects: African Studies; Higher Education; Classroom Practice; Curriculum Studies

Keywords: Entrepreneurship education; entrepreneurial self-efficacy; self-employment intentions; students

1. Introduction

The curb the challenge of graduate unemployment, there is need for developing countries to further enlighten self-employment as a career option for students. The use of entrepreneurship education (EE) to stimulate students' self-employment intentions (SEI) has been widely adopted, but its impact has yielded contrasting results in different contexts. For example, according to Gerba (2012) in the study of Ethiopian business and engineering students, results show that students who had participated in EE had higher entrepreneurial intentions than those who did not. Similarly, Ebewo et al. (2017) concluded that participation in EE positively influences students' intention to become entrepreneurs. Also, Farashah (2013) contends that completion of entrepreneurship courses increases the likelihood of having entrepreneurial Intention by 1.3 times. Besides, Afolabi, Kareem, Okubanjo, Ogunbanjo and Aninkan (2017) assert that EE positively affects self-employment initiatives among Nigerian science & technology students (Mahendra et al., 2017). More researchers have found similar results (Barba-Sánchez & Atienza-Sahuquillo, 2017; Gelaidan & Abdullateef, 2017; Gerba, 2012; Kisubi & Korir, 2021). The argument for such results is that participating in higher education gives a person a resource advantage that enhances a successful career in entrepreneurship.

On the contrary, negative results have been reported on the claim that higher education makes a person become a more desirable employee and may view paid employment as a more attractive alternative than self-employment. According to Michelle and Tendai (2016) EE does not directly affect SEI of South African students. This assertion concurs with the recent findings of Nowiński et al. (2019). They report that the direct impact of EE was positive and significant in only Poland out of the four Visegrád countries studied. These results are in line with the argument of Abdullahi et al. (2017) that the more education an individual acquires, the less the chances of the individual taking entrepreneurship as a career. More empirical evidence exists regarding such results (Henley, 2005; Joensuu et al., 2013; Nabi et al., 2010).

These findings in the literature are puzzling and warrant further investigations to determine the circumstances under which EE influences SEI. Further, the available literature shows that most of the previous studies have been conducted in middle-income countries like Malaysia and high-income countries such as the USA and Europe (Yıldırım et al., 2016). For instance, the meta-analytical review by (Nabi & Prestin, 2017), reports only 10% of studies from Africa as the majority 52% and 17 % emerged from Europe and the USA respectively. There seems to be little known in low developed countries like Uganda, thus the need for the current study to fill these research gaps.

The subsequent part of the paper is structured in four sections. Section 2 focuses on the theoretical, literature review, and hypotheses. Section 3 describes the methodology while the Section 4 presents the results of the study. Finally, the Section 5 presents the discussion, conclusion, implications, and research direction.

2. Theory, literature review and hypotheses development

2.1. Social cognitive theory (SCT)

Bandura's SCT is one of social psychology's most influential and widely celebrated theories (Bandura, 2005) and its presence has spread to many areas (Nabi & Prestin, 2017), including entrepreneurship learning (Harinie et al., 2017). The theory is grounded on self-efficacy as a predictor of any behavior. Self-efficacy is a person's belief in his/her ability to perform a certain task (Bandura, 1997). The theory

posits that high self-efficacy directs behavior, shapes courses of action, and increases perseverance in the face of obstacles (Bandura, 2005). The association between self-efficacy and career intent has been found to range from 0.3 to 0.6 (Bandura, 1991; Krueger et al., 2000).

Scholars have argued that this correlation is better than most predictors used in entrepreneurship research. For instance, Krueger et al. (2000) has argued that self-efficacy is a critical antecedent of entrepreneurial intent. In the context of entrepreneurship, individuals with high ESE have more intrinsic interests in entrepreneurial activities (Harinie et al., 2017; Liguori et al., 2018). Therefore, ESE is a robust measure for evaluating a person's belief in her/his ability to successfully launch an entrepreneurial venture (Karlsson & Moberg, 2013).

Bandura (1991) state that four principal sources of information exist from which an individual's career intention can be developed: (1) enactive mastery, i.e., one's prior performance accomplishments; (2) vicarious experience, i.e., observing how others perform; (3) verbal persuasion, i.e., feedback from others that one possesses the ability to perform well; and (4) physiological states/arousal, i.e., information about one's physiological state. Scholars like Nowiński et al. (2019) and Dempsey et al. (2014) have shown that these sources can be provided to students through EE.

Vicarious learning and enactive mastery can be attained by students through storytelling by successful entrepreneurs, observing their role models and self-employed parents/guardians performing and performing practical projects like an internship. Students also can meet entrepreneurs through field visits and guest lecturers, watch or discuss stories of successful entrepreneurs among themselves. Therefore, exposure to entrepreneurship training should be according to the theory, produce increasingly higher levels of self-employment intentions (Welsh et al., 2016).

2.2. Theory of planned behavior (TPB)

TPB by Ajzen (1991) argues that the behavior of an individual is determined primarily by the intention of the individual to perform that behavior. The intention in the TPB is the readiness to engage in a given behavior (Ajzen, 2011), and the stronger the intention to carry out an activity, the greater the chance that an individual will carry it through (Ajzen, 1991). According to Baluku et al. (2018), the best predictor of entrepreneurial activity or start-up is entrepreneurial intentions. Consequently, self-employment depends on the decision of the person to pursue or not to do so (Majogoro & Mgabo, 2012).

The theory posits that behavioral intention is determined by three components: (1) attitude towards behavior: the degree to which a person has a favorable or unfavorable evaluation of behavior (Ajzen, 1991). Thus, if self-employment is more appealing to students, the intention to work for themselves will be high and vice versa (Ismail et al., 2013; Liñán, 2004). (2) Perceived social norm (subjective norms), or pressure to perform the behavior. (3) Perceived behavioral control—the perception of ease or difficulty of performing certain behaviors (Krueger et al., 2000).

Perceived behavioral control relates to Bandura's self-efficacy construct. Perceived behavioral control has been found consistently predicting career-related choices, including self-employment (Krueger et al., 2000). Ajzen's TPB treats ESE as an important predictor of self-employment intentions (Krueger et al., 2000). Empirically, a positive correlation between ESE and SEI among university students from China and Spain was found (Shahab et al., 2019). This association has been empirically tested and verified by many researchers (Garaika et al., 2019; Piperopoulos & Dimov, 2015; Schmutzler et al., 2019).

2.3. Entrepreneurship education (EE) and self-employment intentions (SEI)

EE substantially change participants' SEI (Iglesias-Sánchez et al., 2016). EE equips students with the ability to start new ventures and run their businesses more effectively (Rasmussen & Sørheim, 2006). However, previous studies on EE and SEI have yielded contradicting results. Several findings of the study show a positive relationship, while others indicate a negative or no relationship. For example, Gerba (2012) indicates that students who had completed entrepreneurship training

appear to have higher entrepreneurial intentions than their counterparts who did not. Similarly, Farashah (2013) in Iran argues that the completion of a course in entrepreneurship increases the level of self-employment intentions by 1.3 times.

According to Afolabi et al. (2017) in the study of the effect of EE on self-employment initiatives among Nigerian Science & Technology Students, results show that EE is a good strategy and it has a positive effect on self-employment initiatives. Still, Prodan and Drnovsek (2010) argue that candidates with a degree in entrepreneurship grow exponentially by taking advantage of the opportunity, knowledge of venture creation, and confidence to venture (Mahendra et al., 2017). Many scholars have found a positive contribution of EE to SEI (Barba-Sánchez & Atienza-Sahuquillo, 2017, 2018; Gelaidan & Abdullateef, 2017; Muharam & Serah, 2014).

On the other hand, Nowiński et al. (2019) reveal that the direct impact of EE on SEI was positive and significant in only one country Poland of the four Visegrád countries. The negative results are in line with Abdullahi et al. (2017) findings in Malaysia, who found that the more education an individual acquires, the less the chances of the individual to take entrepreneurship as a career. Additionally, the results of an empirical study by Joensuu et al. (2013) on the diploma, degree, and postgraduate students indicate that self-employment intention seems to decrease with an increase in education. Likewise, Vanevenhoven and Liguori (2013) studied students from seven regions: North America, Eastern Europe, Western Europe, Africa, Middle East, and the Asia Pacific, and results show that exposure to EE was significant and positive to entrepreneurial intentions in all except in the Middle East region where results were negative and non-significant. Findings from the Middle East are in agreement with those from Eastern Cape Province of South Africa where no direct relationship between entrepreneurship education and the entrepreneurial intention was found (Michelle & Tendai, 2016). Such results are not far from Mahendra et al. (2017) who found no direct relationship between entrepreneurship education and entrepreneurial intention among management students from the state university of Malang in Indonesia.

2.4. Conditional effect of ESE and EE on SEI

Due to scanty literature in this area, this study proposes that ESE moderates both the direct and indirect relationship between entrepreneurship education and self-employment intentions. This proposition is made drawing on the moderation effect of self-efficacy that has been consistently found in different related fields. For instance, according to Zhang et al. (2017) self-efficacy has a significantly positive moderating effect on the relationship between perceived usefulness and adoption intention of mobile health services. They also found that Self-efficacy plays an important role in individuals' acceptance of mobile health services, which not only affect their perceived ease of use of mobile Health services but also positively moderate the effects of perceived usefulness on adoption intention

Wang et al. (2016), reports that social self-efficacy positively moderates the relationship between mobile social networking services enjoyment and mobile social networking services. At the same time, Jimmieson (2000) asserts that self-efficacy moderates the main effects of work control on job satisfaction. Chen (2015) also concludes that general self-efficacy shows an enhancement moderating effect, such that it amplifies the mediated relationship between supervisor support and employee innovative behavior via intrinsic motivation. Such results are not different from Brown et al. (2001) who found that joint effects of information seeking and self-regulatory were moderated by self-efficacy, such that high-self-efficacy employees were able to effectively use the combination of inquiry and monitoring to clarify role expectations, whereas low-self-efficacy employees were not. Therefore, we borrowed a leaf from related fields to propose that ESE moderates the relationship between EE and SEI. On the shield of literature and theoretical review above, this study makes the following propositions;

H1: Entrepreneurship education positively influences entrepreneurial self-efficacy

H2: Entrepreneurial self-efficacy positively influences self-employment intentions

H3: Entrepreneurial self-efficacy moderates the relationship between entrepreneurship education and self-employment intentions

3. Methodology

3.1. Design and sample

The study employed a cross-sectional and explanatory research design to collect and analyze data from a sample of 458 undergraduate finalists from Makerere and Kyambogo Universities. The sample was proportionate distributed as follows: College of business (151) and college of engineering (93) for Makerere university while faculty of management and entrepreneurship (136) and faculty of engineering (78) for Kyambogo university. Colleges/faculties were purposively selected to explore if there were significant differences in the self-employment intentions between business students and engineering students.

Data were collected using a close-ended self-administered questionnaire in the English language from a population of 6,408 final year undergraduate students in the academic year 2019/2020. The sample size was determined using (Yamane, 1973) formula at a 95.5 confidence level, thus 4.5 sampling error. A systematic sampling technique was employed as recommended by (Tharenou et al., 2007) for large populations to identify the final participants for the study.

3.2. Sampling procedure

The study used a multistage sampling technique to collect data from two selected universities, namely Kyambogo and Makerere universities. The sample size was proportionately distributed among the two universities and thereafter among the selected faculties/colleges. At the next stage, the faculties/colleges population was divided by the respective proportionate sample size to determine the K^{th} number. A sampling frame was obtained from the selected faculties/colleges on which the interval was applied to identify the participants of the study. Only willing participants were considered as those who declined were replaced. Questionnaires in the English language were physically distributed during common courses.

3.2.1. Measurements

SEI was measured by adopting and modifying items of (Liñán & Chen, 2009). The following items were included: “I am ready to do anything to startup my own business”, “I will make every effort to start and run my own business” and “I am determined to create a firm in the future”. EE was operationalized using the 10 items (Puni et al., 2018), that contain opportunity recognition and entrepreneurship knowledge acquisition. Sample Items included; “I have learned several methods to generate basic business ideas” and “Education enables me to recognize alternative career options”. ESE was measured by adapting 17 Items (De Noble et al., 1999; Shook & Bratianu, 2010). Sample items include “I can work productively under continuous stress, pressure, and conflict” and “I can originate new ideas and products. All items for the three variables were anchored on a 7-point Likert scale from strongly disagree (1) to strongly agree (7)

3.2.2. Covariates

Research has found that individual characteristics are associated with SEI. For instance, females are more likely to report low self-employment intentions than men due to attitudinal barriers (Liñán & Rodríguez-Cohard, 2015; Nowiński et al., 2019). Regarding age, mature students report high self-employment intentions than their counterparts (Tkachev & Kolvereid, 1999). According to Ayalew and Zeleke (2018) students whose parents were owners of small firms tended to follow their parents’ footsteps and became business owners. Lastly, Solesvik (2013) identifies that

students who majored in business reported higher SEI than the engineering students in Ukraine. We, therefore, controlled for age, gender, family background, and program.

3.3. Participants' demographic characteristics

Out of 402 (88%) returned questionnaires, 388 were found usable and considered for analysis. Table 1 results show that the majority of the respondents were female 50.8% while 49.2% were male. For the age, 88.9% of the participants ranged from 20 to 25, followed by 26–30 (9.3%) then above 30 years at 1%, and finally, only 0.8% were below 20 years. Concerning the program offered, the majority of the students 72.2% offered business programs while 27.8% offered engineering programs. Lastly, most of the students' parents or guardians 62.6% are self-employed and only 37.4% are employed.

3.4. Descriptive, reliability, and correlation results

Table 2 results reveal that SEI has the highest mean of 5.97 with a standard deviation of .877 followed by EE of 5.86 and .830 while ESE has the lowest mean of 5.83 with a standard deviation of .787. Additionally, a reliability test was performed and results reveal that all the study variables were found reliable with Cronbach's alpha above .7 which is the threshold (Nunnally, 1978). Table 2, correlation results indicate that variables positively and significantly correlate with each other. ESE and ESE have the highest association of $r = .626, p < .01$, EE and SEI have the lowest correlation of $r = .539, p < .01$ while ESE and SEI report $r = .591, p < .01$.

3.5. Factor analysis

A principal component factor analysis was conducted to check on the adequacy of the sample data. The Kaiser–Meyer–Olkin (KMO) for the three study variables was above the minimum threshold of 0.5 as recommended by (Taherdoost, 2016), this indicates that the sample was adequate for factorability. The Bartlett's Test of Sphericity was significant (chi-square = 3035.096, df 91, $p = .000$) for ESE, (chi-square = 679.065, df 10, $p = .000$) for SEI and, (chi-square = 559.245, df 6, $p = .000$) for EE. Thereafter, exploratory factor analysis with Varimax rotation was conducted on each construct to determine the latent variables. From the six items for SEI that were factored, the analysis yielded a single component with Initial Eigenvalues of 2.497. Five factors were found

Table 1. Participants' demographic characteristics

Variable	Factor	Frequency	Valid percent
Gender	Female	197	50.8
	Male	191	49.2
	Total	388	100.0
Age	<20 years	3	.8
	20–25 years	345	88.9
	26–30 years	36	9.3
	>30 years	4	1.0
	Total	388	100.0
Program	Non-business	108	27.8
	Business	280	72.2
	Total	388	100.0
Family background	Employed parents/ guardian	145	37.4
	Self-employed parents/ guardian	243	62.6
	Total	388	100.0

Note: Research data.

Table 2. Descriptive, reliability and correlation results

Variable	Mean	SD	Reliability	SEI	EE	ESE
Self-employment intention (SEI)	5.97	.877	.845	1		
Entrepreneurship education (EE)	5.86	.830	.849	.539**	1	
Entrepreneurial self-efficacy (ESE)	5.83	.787	.930	.591**	.626**	1

**Correlation is significant at the .01 level (two-tailed).

to better explain the biggest total variance of 62.42%. On the other hand, the 10 items for EE were also factored; the analysis yielded only one factor with an initial eigenvalue of 2.984 and explained a total variance of 59.673% for the five variables that loaded. Lastly, fifteen items loaded under ESE as a single-component variable with a 7.287 Eigen value explaining 60.009% common variance (Table Table 3).

4. Results and discussion

We explored using one-way ANOVA whether there were significant differences between business and engineering student’s self-employment intentions. The results in Table 4 reveal that though business students reported a higher mean of 5.99 with a standard deviation of 1.00 compared to engineering students who reported a mean of 5.89 and a standard deviation of .82. There were no statistically significant differences in the self-employment intentions between the two groups ($F = 1.173, p > .05$).

4.1. Regression results

To test for the two direct hypotheses, hierarchical regression analysis using the enter method was performed as presented in Table 4. This was preferred to simple linear regression because it has the potential to provide the individual contribution of each independent variable in predicting Self-employment Intentions. In Model 1, we tested for the effect of the covariates on self-employment intentions (SEI), results indicate that age and program are insignificant, while gender and family background significantly influence student’s SEI $\beta = .296, p < .01$ and $\beta = .253, p < .01$, respectively. The four covariates explain a total variance of 5.7% ($R^2 = 0.057$). In model 2, we controlled for the covariates and determined the effect of entrepreneurship education (EE) and SEI. Results show that EE significantly and positively influences SEI $\beta = .557, p < .001$, while gender and family background remained significant $\beta = .215, p < .01$ and $\beta = .202, p < .05$, respectively. Therefore, EE together with the covariates predict 32.3% variance in SEI (R Square = 0.323). Lastly, in Model 3 after controlling for the covariates and EE, results indicate that entrepreneurial self-efficacy (ESE) significantly predicts SEI $\beta = .448, p < .001$. This implies that the overall regression model predicts 41.8% ($R^2 = 0.418$) variance in SEI and 58.2% is explained by other predictors not included in this model. The adjusted R^2 of 0.409 indicates that the study regression model if replicated in other contexts has the ability to predict 40.9% variance in SEI. Therefore, hypotheses 1 and 2 are supported (Table 5).

To test for the moderating effect of ESE on the link between EE and SEI, we performed a conditional process analysis using PROCESS macro vs3.2 (Model 1) Hayes (2018). Table 6 results indicate that the interaction of ESE and EE has a significant and negative effect on SEI $\beta = -.158, CI = -.237, -.079$. This was done while controlling for gender, age, program, and family background of which gender and family background were significant at $\beta = .181, p = .011$ and $\beta = .175, p = .017$ respectively. The model explains 44% of the variance given the R^2 of .440. With these results, we conclude that H3 is supported

To better understand the nature of moderation, we explored the effect of EE on SEI at different values of ESE. Results in Table 7 show that at low levels of ESE that is one standard deviation below

Table 3. Factor analysis

Variable items	Fr 1	Fr 2	Fr 3
I will make every effort to start and run my own business		.734	
I am determined to create a firm in the future		.834	
I have very seriously thought of starting a firm		.854	
I am delighted to face the challenges of creating a new business		.730	
I will make every effort to start and run my own business		.734	
Education enables me to recognize alternative career options			.762
Education enhances my ability to better perceive business opportunities in my environment			.807
Education enables me to identify the characteristics of successful business owners (e.g., risk taking, pro-activity, innovativeness etc			.764
Education increases my awareness of the different forms of businesses that I can set-up, i.e., Sole proprietorship, partnership			.768
Education has enhanced my understanding of the different sources I can obtain funding to start a new business			.761
I can originate new ideas	.811		
I can take the responsibility for new ideas and decisions	.821		
I can obtain business outcomes that are important to me	.711		
When facing difficult tasks, I am certain that I will accomplish them	.653		
I am able to start my own business venture	.627		
I am able to identify a business opportunity from a broader environment.	.630		
I have the required skills to engage in start-up activities	.685		
I understand what it takes to start my own business	.684		
I can understand the language of business and start-ups	.787		
I am able to conduct a market analysis for a business idea	.718		

(Continued)

Variable items	Fr 1	Fr 2	Fr 3
I am able to recognize customer's unmet needs	.749		
Compared to other students, I can do entrepreneurial tasks very well	.702		
I am confident that I can perform effectively on many different entrepreneurial tasks	.591		
I am able to successfully overcome business startup challenges	.647		
Kaiser-Meyer-Olkin and variance			
Kaiser-Meyer-Olkin measure of sampling adequacy	.943	.839	.719
Bartlett's test of sphericity approx. chi-square	3035.096	679.065	559.245
<i>df</i>	91	10	6
Sig	.000	.000	.000
Eigen value	7.287	2.497	2.984
Variance (rotated sum of squared loadings)	60.009	62.420	59.673

Note: Research data.

the mean, the effect of EE on SEI is high and significant $\beta = .354$, CI = .246, .462 while at high levels of ESE that is 1 standard deviation above the mean, the effect of EE on SEI is not significant $\beta = .105$, CI = -.036, .245. This is further illustrated in [Figure 1](#).

4.2. Discussion

Results of this study reveal that entrepreneurship education (EE) positively influences self-employment intentions (SEI) as shown in the regression model. This implies that an increase or decrease in EE results into an increase or decrease in students' SEI. We, therefore, argue that as students are exposed to EE, they will acquire the necessary entrepreneurial knowledge and ability to recognize business opportunities. Findings coincide with Farashah (2013) argument that EE creates a positive attitude towards self-employment by preparing participants to accommodate failure and enhance their ability to identify opportunities from the environment. Similarly, Mahendra et al. (2017) argue that knowledge of venture creation and confidence to venture has more impact on the establishment and growth of a venture. Jena (2020) asserts that entrepreneurial trainings play a critical role

Table 4. ANOVA results

Variable	Program	N	Mean	SD	F	Sig.
Self-employment intentions	Non-business	108	5.887	1.001	1.173	.279
	Business	280	5.994	.8247		
	Total	388	5.965	.8772		

Table 5. Regression results

Predictors	Step 1 (SEI)		Step 2 (SEI)		Step 3 (SEI)	
	β	t	β	t	β	t
Constant	5.615***	20.254	2.605***	7.658	1.779***	5.343
Gender	.296**	3.282	.215**	2.799	.175*	2.443
Age	-.016ns	-.131	-.040ns	-.392	-.139ns	-1.435
Program	.109ns	1.082	-.074ns	-.850	-.046ns	-.570
Family background	.253**	2.708	.202*	2.544	.146*	1.976
EE	-	-	.557***	12.245	.293***	5.443
ESE	-	-	-	-	.448***	7.877
R ²	.057		.323		.418	
Adjusted R ²	.047		.314		.409	
F change	5.815***		149.943***		62.051***	

* $p < .05$, ** $p < .01$, *** $p < .001$. ns, not significant; SEI, self-employment intention.

in cultivating and supporting entrepreneurial activities. Entrepreneurial content and values that students are exposed to strengthen their readiness to pursue business start activities (Ndofirepi, 2020). A body of empirical evidence supports the study findings (Barba-Sánchez & Atienza-Sahuquillo, 2017, 2018; Gelaidan & Abdullateef, 2017; Muharam & Serah, 2014). However, our results disagree with the findings of Nowiński et al. (2019) who reveal that the direct impact of EE on SEI was positive and significant in only one country Poland of the four studies Visegrád countries. Abdullahi et al. (2017) also reported negative results among Malaysian students.

Furthermore, results demonstrate that entrepreneurial self-efficacy (ESE) is a significant predictor of SEI. This was confirmed by a positive correlation between ESE and SEIs. It's therefore argued that when students believe in their abilities to undertake entrepreneurial activities, self-employment becomes their priority career choice than when they perceive their entrepreneurial abilities as inadequate. Our results are supported by both TPB and SCT, which assert that self-efficacy is a primary predictor of any career intent and that this relationship ranges between 0.3 and 0.6 (Bandura, 1991; Krueger et al., 2000). Such results are in agreement with the findings of Esfandiar et al. (2019) that self-efficacy matter more in creating entrepreneurial intentions as compared to

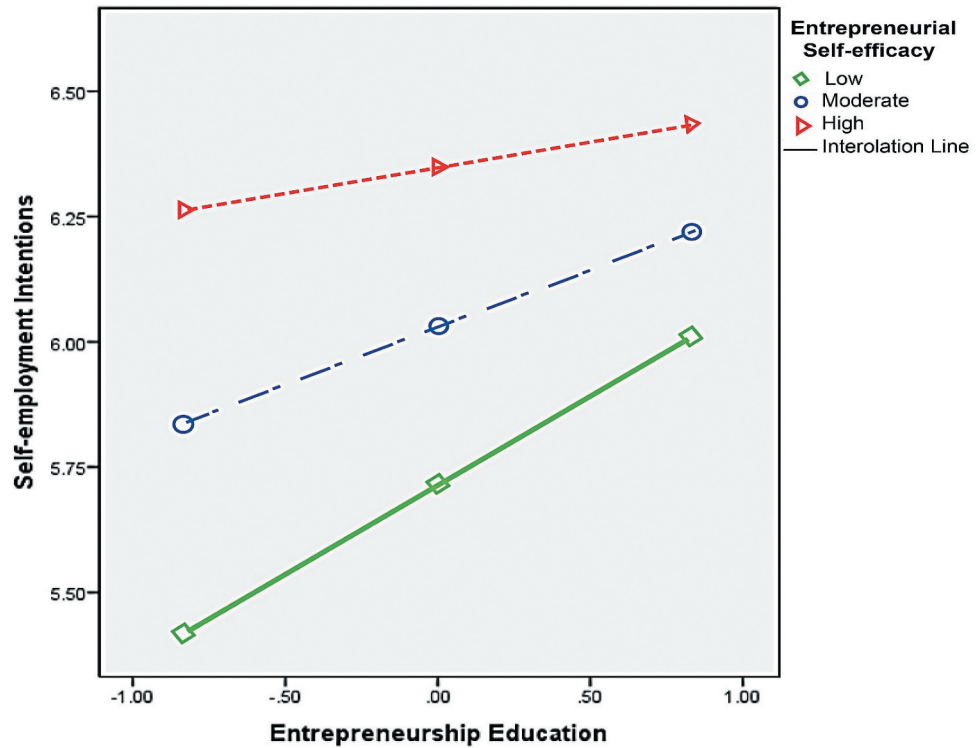
Table 6. Conditional effect of entrepreneurial self-efficacy on entrepreneurship education and self-employment intentions

Variable	β	SE	T	p	LLCI	ULCI
Constant	-2.872	1.224	-2.346	.020	-5.279	-.465
ESE	1.333	.231	5.764	.000	.878	1.788
EE	1.152	.224	5.139	.000	.711	1.593
int_1(EE X ESE)	-.158	.040	-3.942	.000	-.237	-.079
Gender	.181	.070	2.570	.011	.043	.319
Age	-.170	.095	-1.789	.074	-.358	.017
Program	-.076	.080	-.948	.344	-.232	.081
Family background	.175	.073	2.403	.017	.032	.319
R ²	.440					
F	42.77***					

Table 7. Conditional effect of EE on SEI at different values of ESE

ESE	Effect	SE	T	p	LLCI	ULCI
5.043	.354	.055	6.427	.000	.246	.462
5.830	.229	.055	4.145	.000	.121	.338
6.617	.105	.071	1.468	.143	-.036	.245

Figure 1. Conditional effect of EE on SEI at different values of ESE.



perceived feasibility and opportunity identification. Also, Garaika et al. (2019) assert that People with high levels of self-efficacy can anticipate obstacles that might hinder achieving their goals which are necessary with self-employment. As such, student’s self-confidence in their entrepreneurial abilities shapes their attitudes, which fuel self-employment initiatives (Schmutzler et al., 2019).

Regarding the conditional effect of ESE on the relationship between EE and SEI, results indicate that this interaction is negative and significant. Table 6 further demonstrates that at lower levels of ESE, the effect of EE on SEI is high while at high levels of ESE the effect of EE on SEI is insignificant. This implies that by subjecting students whose ESE is already high to EE, their SEI will decrease. The reason behind such results is the ability of an entrepreneurship awareness program to highlight the challenges and obstacles associated with self-employment practice. The results concur with Fitzsimmons and Douglas (2011) who found that ESE negatively interacted with individual’s attitudes towards entrepreneurship to predict individuals’ entrepreneurial intentions. Similarly, Hsu et al. (2017) asserts that ESE has a moderating effect on the association between financial performance and entrepreneurial intentions, whereby high ESE weakens this relationship.

This implies that for students with high ESE before an entrepreneurial course, their level of SEI will not be influenced by the entrepreneurial course. This calls for students’ entrepreneurial competence needs assessment before the entrepreneurial course such that training is customized to students’ needs rather than a generalized and standardized entrepreneurial course. Our results

provide an appropriate explanation for the conflicting results in the literature concerning the link between EE and SEI. Positive results could be reported in circumstance where students' ESE is low while the latter when students' ESE is high. The study creates new knowledge given that studies of this kind are scarce in the literature.

5. Conclusion, implications, and future research direction

5.1. Conclusion

The current study provides significant research answers in understanding the role of EE and ESE in influencing SEI. We confirm that EE and ESE can be used to stimulate students' SEI. Besides, the conditional effect of ESE brings new insights into the literature as results demonstrated that this interaction buffers the relationship between EE and SEI. The study results are of great importance to trainers, curriculum developers, and academic institutions management in developing appropriate training tools that can influence students' SEI.

5.2. Theoretical and managerial implications

Theoretically, the study contributes to the extant literature by providing evidence on the contribution of EE and ESE to SEI as the study demonstrates that both variables significantly influence SEI. Therefore, the study supports both SCT and TPB which asserts that self-efficacy is a primary predictor for any behavior. Furthermore, the study provides new insight into the moderating role of ESE in the relationship between EE and SEI.

Findings of the study also have managerial implications for educators, curriculum developers, and university management in developing appropriate training tools for students. Since the results show that at lower levels of ESE, the effect of EE on SEI is high while at high levels of ESE the effect of EE on SEI is insignificant. This calls for students' entrepreneurial competence needs assessment before the entrepreneurial course such that training is customized to the needs of the students rather than a generalized and standardized entrepreneurial course.

5.3. Limitations and future research direction

The study sample focused on undergraduate finalists from only two public universities. This may not be representative enough for the entire student population for results to be generalized. Future research could focus on private universities, other tertiary institutions like colleges and polytechnics, high schools, and none student youths population. Investigating one moderator is another limitation to this study, we, therefore, recommend future researchers to explore other conditions under which self-employment intentions are developed. Lastly, the study was purely quantitative and cross-sectional. Therefore, future research could employ a longitudinal and mixed approach to further explore how SEI evolves, that is pre and post-entrepreneurial courses.

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References

- Abdullahi, A. I., Zainol, F. A., Daud, W. N. W., & Yazid, A. S. (2017). Entrepreneurial intention revisited: Measuring the impact of socio-cultural business environment using structural equation modeling. *World Applied Sciences Journal*, 35(8), 1445–1456.
- Afolabi, M. O., Kareem, F. A., Okubanjo, I. O., Ogunbanjo, O. A., & Aninkan, O. O. (2017). Effect of entrepreneurship education on self-employment initiatives among Nigerian science & technology students. *Journal of Education and Practice*, 8(15), 44–51.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)

- Ajzen, I. (2011). *The theory of planned behaviour: Reactions and reflections*. Taylor & Francis.
- Ayalew, M. M., & Zeleke, S. A. (2018). Modeling the impact of entrepreneurial attitude on self-employment intention among engineering students in Ethiopia. *Journal of Innovation and Entrepreneurship*, 7(1), 1–27. <https://doi.org/10.1186/s13731-018-0088-1>
- Baluku, M. M., Bantu, E., & Otto, K. (2018). Effect of locus of control on entrepreneurial attitudes and self-employment intentions: The moderating role of individualism. *Journal of Enterprising Culture*, 26(3), 251–283. <https://doi.org/10.1142/S0218495818500103>
- Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes*, 50(2), 248–287. [https://doi.org/10.1016/0749-5978\(91\)90022-L](https://doi.org/10.1016/0749-5978(91)90022-L)
- Bandura, A. (1997). Self-efficacy. The exercise of control, New York: W H. Freeman & Co. *Student Success*, 333, 48461.
- Bandura, A. (2005). The evolution of social cognitive theory. *Great Minds in Management*, 9–35.
- Barba-Sánchez, V., & Atienza-Sahuquillo, C. (2017). Entrepreneurial motivation and self-employment: Evidence from expectancy theory. *International Entrepreneurship and Management Journal*, 13(4), 1097–1115. <https://doi.org/10.1007/s11365-017-0441-z>
- Barba-Sánchez, V., & Atienza-Sahuquillo, C. (2018). Entrepreneurial intention among engineering students: The role of entrepreneurship education. *European Research on Management and Business Economics*, 24(1), 53–61. <https://doi.org/10.1016/j.iedeen.2017.04.001>
- Brown, S. P., Ganesan, S., & Challagalla, G. (2001). Self-efficacy as a moderator of information-seeking effectiveness. *Journal of Applied Psychology*, 86(5), 1043. <https://doi.org/10.1037/0021-9010.86.5.1043>
- Chen, M.-F. (2015). Self-efficacy or collective efficacy within the cognitive theory of stress model: Which more effectively explains people's self-reported proenvironmental behavior? *Journal of Environmental Psychology*, 42, 66–75. <https://doi.org/10.1016/j.jenvp.2015.02.002>
- De Noble, A., Jung, D., & Ehrlich, S. (1999). Entrepreneurial self-efficacy: The development of a measure and its relationship to entrepreneurial action (Paper). *Babson Park, MA: Babson College. Document Number*.
- Dempsey, D., Jennings, J., & John Watson, Prof. Elizabeth J. Gatewood And Dr Kate Lewis, P. (2014). Gender and entrepreneurial self-efficacy: A learning perspective. *International Journal of Gender and Entrepreneurship*, 6(1), 28–49. <https://doi.org/10.1108/IJGE-02-2013-0013>
- Ebewo, P. E., Rugimbana, R., & Shambare, R. (2017). Effects of entrepreneurship education on students' entrepreneurial intentions: A case of Botswana. *Management*, 5(4), 278–289.
- Esfandiari, K., Sharifi-Tehrani, M., Pratt, S., & Altinay, L. (2019). Understanding entrepreneurial intentions: A developed integrated structural model approach. *Journal of Business Research*, 94, 172–182. <https://doi.org/10.1016/j.jbusres.2017.10.045>
- Farashah, A. D. (2013). The process of impact of entrepreneurship education and training on entrepreneurship perception and intention: Study of educational system of Iran. *Education+ Training*, 55(8–9), 868–885. <https://doi.org/10.1108/ET-04-2013-0053>
- Fitzsimmons, J. R., & Douglas, E. J. (2011). Interaction between feasibility and desirability in the formation of entrepreneurial intentions. *Journal of Business Venturing*, 26(4), 431–440. <https://doi.org/10.1016/j.jbusvent.2010.01.001>
- Garaika, G., Margahana, H. M., & Negara, S. T. (2019). Self efficacy, self personality and self confidence on entrepreneurial intention: study on young enterprises. *Journal of Entrepreneurship Education*, 22(1), 1–12.
- Gelaidan, H. M., & Abdullateef, A. O. (2017). Entrepreneurial intentions of business students in Malaysia: The role of self-confidence, educational and relation support. *Journal of Small Business and Enterprise Development*, 24(1), 54–67. <https://doi.org/10.1108/JSBED-06-2016-0078>
- Gerba, D. T. (2012). Impact of entrepreneurship education on entrepreneurial intentions of business and engineering students in Ethiopia. *African Journal of Economic and Management Studies*.
- Harinie, L. T., Sudiro, A., Rahayu, M., & Fatchan, A. (2017). Study of the Bandura's social cognitive learning theory for the entrepreneurship learning process. *Social Sciences*, 6(1), 1–6. <https://doi.org/10.11648/j.ss.20170601.11>
- Hayes, A. F. (2018). Partial, conditional, and moderated moderated mediation: Quantification, inference, and interpretation. *Communication Monographs*, 85(1), 4–40. <https://doi.org/10.1080/03637751.2017.1352100>
- Henley, A. (2005). *From entrepreneurial aspiration to business start-up: Evidence from British longitudinal data*. European Business Management School, University of Wales.
- Hsu, D. K., Wiklund, J., & Cotton, R. D. (2017). Success, failure, and entrepreneurial reentry: An experimental assessment of the veracity of self-efficacy and prospect theory. *Entrepreneurship Theory and Practice*, 41(1), 19–47. <https://doi.org/10.1111/etap.12166>
- Iglesias-Sánchez, P. P., Jambriño-Maldonado, C., Velasco, A. P., & Kokash, H. (2016). Impact of entrepreneurship programmes on university students. *Education + Training*, 58(2), 209–228. <https://doi.org/10.1108/ET-01-2015-0004>
- Ismail, N., Jaffar, N., & Hooi, T. S. (2013). Using EAO model to predict the self-employment intentions among the Universities' Undergraduates in Malaysia. *International Journal of Trade, Economics and Finance*, 4(5), 282. <https://doi.org/10.7763/IJTEF.2013.V4.302>
- Jena, R. (2020). Measuring the impact of business management Student's attitude towards entrepreneurship education on entrepreneurial intention: A case study. *Computers in Human Behavior*, 107, 106275. <https://doi.org/10.1016/j.chb.2020.106275>
- Jimmieson, N. L. (2000). Employee reactions to behavioural control under conditions of stress: The moderating role of self-efficacy. *Work & Stress*, 14(3), 262–280. <https://doi.org/10.1080/02678370010015343>
- Joensuu, S., Viljamaa, A., Varamäki, E., & Tornikoski, E. (2013). Development of entrepreneurial intention in higher education and the effect of gender—a latent growth curve analysis. *Education+ Training*, 55(8–9), 781–803. <https://doi.org/10.1108/ET-06-2013-0084>
- Karlsson, T., & Moberg, K. (2013). Improving perceived entrepreneurial abilities through education: Exploratory testing of an entrepreneurial self efficacy scale in a pre-post setting. *The International Journal of Management Education*, 11(1), 1–11. <https://doi.org/10.1016/j.ijme.2012.10.001>
- Kisubi, M. K., & Korir, M. (2021). Entrepreneurial training and entrepreneurial intentions: A mediated mediation analysis of entrepreneurial self-efficacy and attitude of undergraduate finalists in Uganda.

- SEISENSE *Journal of Management*, 4(3), 73–84.
<https://doi.org/10.33215/sjom.v4i3.638>
- Krueger, N. F., Jr, Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5–6), 411–432.
[https://doi.org/10.1016/S0883-9026\(98\)00033-0](https://doi.org/10.1016/S0883-9026(98)00033-0)
- Liguori, E. W., Bendickson, J. S., & McDowell, W. C. (2018). Revisiting entrepreneurial intentions: A social cognitive career theory approach. *International Entrepreneurship and Management Journal*, 14(1), 67–78. <https://doi.org/10.1007/s11365-017-0462-7>
- Liñán, F. (2004). Intention-based models of entrepreneurship education. *Piccola Impresa/Small Business*, 3(1), 11–35.
- Liñán, F., & Chen, Y. W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice*, 33(3), 593–617. <https://doi.org/10.1111/j.1540-6520.2009.00318.x>
- Liñán, F., & Rodríguez-Cohard, J. C. (2015). Assessing the stability of graduates' entrepreneurial intention and exploring its predictive capacity. *Academia Revista Latinoamericana de Administración*, 28(1), 77–98.
<https://doi.org/10.1108/ARLA-06-2013-0071>
- Mahendra, A. M., Djatmika, E. T., & Hermawan, A. (2017). The effect of entrepreneurship education on entrepreneurial intention mediated by motivation and attitude among management students, State University of Malang, Indonesia. *International Education Studies*, 10(9), 61–69.
<https://doi.org/10.5539/ies.v10n9p61>
- Majogoro, K., & Mgabo, M. R. (2012). Self-employment intention among university students: Testing Ajzen's theory of planned behaviour (TPB). *International Journal of Physical and Social Sciences*, 2(8), 67–84.
- Michelle, K., & Tendai, C. (2016). The association of entrepreneurship education and entrepreneurial intention among university students in the Eastern Cape Province of South Africa. *International Journal of Educational Sciences*, 12(3), 200–211. <https://doi.org/10.1080/09751122.2016.11890427>
- Muharam, F. M., & Serah, A. T. (2014). The impact of entrepreneurship education: An investigation of undergraduate student self-employment intention.
- Nabi, G., Holden, R., & Walmsley, A. (2010). From student to entrepreneur: Towards a model of graduate entrepreneurial career-making. *Journal of Education and Work*, 23(5), 389–415. <https://doi.org/10.1080/13639080.2010.515968>
- Nabi, R. L., & Prestin, A. (2017). Social learning theory and social cognitive theory. *The International Encyclopedia of Media Effects*, 1–13.
- Ndofirepi, T. M. (2020). Relationship between entrepreneurship education and entrepreneurial goal intentions: Psychological traits as mediators. *Journal of Innovation and Entrepreneurship*, 9(1), 2. <https://doi.org/10.1186/s13731-020-0115-x>
- Nowiński, W., Haddoud, M. Y., Lančarič, D., Egerová, D., & Czeplédi, C. (2019). The impact of entrepreneurship education, entrepreneurial self-efficacy and gender on entrepreneurial intentions of university students in the Visegrad countries. *Studies in Higher Education*, 44(2), 361–379. <https://doi.org/10.1080/03075079.2017.1365359>
- Nunnally, J. (1978). *Psychometric theory* (2nd ed.). mcgraw-hill.
- Piperopoulos, P., & Dimov, D. (2015). Burst bubbles or build steam? Entrepreneurship education, entrepreneurial self-efficacy, and entrepreneurial intentions. *Journal of Small Business Management*, 53(4), 970–985. <https://doi.org/10.1111/jsbm.12116>
- Prodan, I., & Drnovsek, M. (2010). Conceptualizing academic-entrepreneurial intentions: An empirical test. *Technovation*, 30(5–6), 332–347. <https://doi.org/10.1016/j.technovation.2010.02.002>
- Puni, A., Anlesinya, A., & Korsorku, P. D. A. (2018). Entrepreneurial education, self-efficacy and intentions in Sub-Saharan Africa. *African Journal of Economic and Management Studies*, 9(4), 492–511. <https://doi.org/10.1108/AJEMS-09-2017-0211>
- Rasmussen, E. A., & Sørheim, R. (2006). Action-based entrepreneurship education. *Technovation*, 26(2), 185–194. <https://doi.org/10.1016/j.technovation.2005.06.012>
- Schmutzler, J., Andonova, V., & Diaz-Serrano, L. (2019). How context shapes entrepreneurial self-efficacy as a driver of entrepreneurial intentions: A multilevel approach. *Entrepreneurship Theory and Practice*, 43(5), 880–920. <https://doi.org/10.1177/1042258717753142>
- Shahab, Y., Chengang, Y., Arbizu, A. D., & Haider, M. J. (2019). Entrepreneurial self-efficacy and intention: Do entrepreneurial creativity and education matter? *International Journal of Entrepreneurial Behavior & Research*, 25(2), 259–280. <https://doi.org/10.1108/IJEBR-12-2017-0522>
- Shook, C. L., & Bratianu, C. (2010). Entrepreneurial intent in a transitional economy: An application of the theory of planned behavior to Romanian students. *International Entrepreneurship and Management Journal*, 6(3), 231–247. <https://doi.org/10.1007/s11365-008-0091-2>
- Solesvik, M. Z. (2013). Entrepreneurial motivations and intentions: Investigating the role of education major. *Education + Training*, 55(3), 253–271. <https://doi.org/10.1108/00400911311309314>
- Taherdoost, H. (2016). *Validity and reliability of the research instrument; how to test the validation of a questionnaire survey in a research. How to test the validation of a questionnaire/survey in a research* (August 10, 2016).
- Tharenou, P., Donohue, R., & Cooper, B. (2007). *Management research methods*. Cambridge University Press.
- Tkachev, A., & Kolvereid, L. (1999). Self-employment intentions among Russian students. *Entrepreneurship & Regional Development*, 11(3), 269–280. <https://doi.org/10.1080/089856299283209>
- Vanevenhoven, J., & Liguori, E. (2013). The impact of entrepreneurship education: Introducing the entrepreneurship education project. *Journal of Small Business Management*, 51(3), 315–328. <https://doi.org/10.1111/jsbm.12026>
- Wang, J.-H., Chang, -C.-C., Yao, S.-N., & Liang, C. (2016). The contribution of self-efficacy to the relationship between personality traits and entrepreneurial intention. *Higher Education*, 72(2), 209–224. <https://doi.org/10.1007/s10734-015-9946-y>
- Welsh, D. H., Tullar, W. L., & Nemati, H. (2016). Entrepreneurship education: Process, method, or both? *Journal of Innovation & Knowledge*, 1(3), 125–132. <https://doi.org/10.1016/j.jik.2016.01.005>
- Yamane, T. (1973). *Statistics: An introductory analysis* (2nd ed.). Harper and Row.
- Yıldırım, N., Çakır, Ö., & Aşkun, O. B. (2016). Ready to dare? A case study on the entrepreneurial intentions of business and engineering students in Turkey. *Procedia-Social and Behavioral Sciences*, 229, 277–288. <https://doi.org/10.1016/j.sbspro.2016.07.138>
- Zhang, X., Han, X., Dang, Y., Meng, F., Guo, X., & Lin, J. (2017). User acceptance of mobile health services from users' perspectives: The role of self-efficacy and response-efficacy in technology acceptance. *Informatics for Health and Social Care*, 42(2), 194–206. <https://doi.org/10.1080/17538157.2016.1200053>



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