IMPACT ASSESSMENT OF ENTREPRENEURSHIP EDUCATION IN AFRICAN SECONDARY SCHOOLS: AN EVIDENCE-BASED CASE OF SUCCESS IN ANGOLA

Prof. Dr. Dana T. Redford[1], President, Platform for Entrepreneurship Education in Portugal

Maria Marques, Senior Researcher, Platform for Entrepreneurship Education in Portugal

Luis Vaz, Vice President, Platform for Entrepreneurship Education in Portugal

Prof. Dr. Rui Brites, Area Expert, Platform for Entrepreneurship Education in Portugal

PEEP - EDUCAR PARA EMPREENDER - (ASSOCIAÇÃO)
Faculty of Economics & Management, Portuguese Catholic University
Rua Diogo Botelho, Número 1327 4169-005 Porto, Portugal
Phone: +351 91 995 9010
Email: Dana.Redford@RedfordResearch.com
Website: www.peep.pt

Abstract

This impact evaluation of entrepreneurship education in the African context demonstrates the effect that the Entrepreneurship Curriculum Program has on secondary schools students in Angola. Data was collected from 371 students from various provinces enrolled in the Program and 279 from a control group. This study shows that the Program had a statistically significant impact on entrepreneurial knowledge, entrepreneurial skills and on entrepreneurial attitudes. As is common in the developing country context, entrepreneurial intentions tend to be high, and although positively influenced, the change was not seen to be statistically significant. However, results showed that students who took part in the Program were more likely to currently have their own business.

Keywords: Entrepreneurship Education; Secondary schools, Impact assessment; Evidence-based approach; Angola; Africa

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[1] Corresponding author

Despite the growing emphasis of entrepreneurship in driving global economic development (e.g., Acs & Audretsch, 2010) and a profusion of research into entrepreneurship education (Block & Stumpf, 1992; Charney & Libecap, 2000; Fayolle, 2005; Honig, 2005; McMullan & Long, 1987; Shepherd, 2004), many of the links between entrepreneurship in the classroom and entrepreneurship in the "real world" remain largely unknown.

In addition, most entrepreneurship education impact studies have been conducted at the tertiary level. From our knowledge, taking into account studies from Peterman & Kennedy (2003), Oosterbeek et al. (2010) and Huber et al. (2012) as main exceptions, a few empirical studies have been done at primary and secondary education levels. We are only aware of ten studies that analyze the impact of entrepreneurship programs developed at secondary and vocational school levels (Athayde, 2009, 2011; Cheung, 2008; Kourilsky & Esfandiari, 1997; Huber et al., 2012; Lewis, 2005; Oosterbeek et al., 2010; Peterman & Kennedy, 2003; Sánchez, 2013; Volery et al., 2013).

Some research suggests that early formal entrepreneurship education affects the attitudes of students, which in turn direct them towards certain future careers (Do Paco et al., 2008; Huber et al., 2012). Furthermore, according to Kourilsky and Walstad (1998), the early stimulation of these attitudes can even encourage entrepreneurship. Huber et al. (2012) indicate that early entrepreneurship education had positive effect on non-cognitive entrepreneurial skills. Lewis (2005) supports this link by maintaining that while technical skills can be attained during tertiary education, the attitudinal and motivational aspects of entrepreneurship need to be developed at the primary and secondary school levels.

Table 1 Entrepreneurship education impact studies at the primary and secondary levels

Author(s)	*Country*	*Aims*	*Education Level*	*Design*
Athayde (2009)	UK	Measure "enterprise potential" in young people using attitudes toward characteristics associated with entrepreneurship	Secondary	Quasi-experimental design (control-group cross-sectional design)
Athayde (2011)	South Africa	Determine the impact on young learners' attitude towards entrepreneurship and their future plans	Secondary	Quasi-experimental design
Cheung (2008)	China	Determine the importance of entrepreneurship education and understand the potential role of promoting entrepreneurship education in Hong Kong	Secondary	Non-experimental design
Kourilsky & Esfandiari (1997)	USA	Analyse students' attitudes and knowledge with respect to entrepreneurship education	Secondary	Quasi-experimental design
Huber et al. (2010)	The Netherlands	Analyse the effectiveness of early entrepreneurship education	Primary	Randomized experiment
Lewis (2005)	New Zealand	Analyse the influence of an Young Enterprise Scheme on the career intentions and employability of student participants	Secondary	Non-experimental design
Oosterbeek et al. (2010)	The Netherlands	Analyse the impact of a leading entrepreneurship education program on college students' entrepreneurship competencies and intentions	Transition from secondary to tertiary	Quasi-experimental design
Peterman & Kennedy (2003)	Australia	Examine the effect of participation in an enterprise education program on perceptions of the desirability and feasibility of starting a business	Secondary	Quasi-experimental design (pre-test-post-test design)
Sánchez (2013)	Spain	Highlight the key role played by an entrepreneurship education program on entrepreneurial competencies and intention of secondary students in order to confirm (or disconfirm) conventional wisdom that entrepreneurial education increases the intention to start a business	Secondary	Quasi-experimental design (pre-test-post-test design)
Volery et al., (2013)	Switzerland	Evaluate the impact of entrepreneurship education on human capital	Secondary	Quasi-experimental design

In this study we aim to evaluate the impact of entrepreneurship education at the secondary level.

Since 2009, the Government of Angola has been introducing an entrepreneurship curriculum in two cycles of secondary schools with support from Portugal, the Republic of Korea, Chevron, UNDP and UNIDO. Currently, entrepreneurship is being taught, as an action oriented discipline, in 45 schools in 9 provinces, reaching 9,800 youth, of which 2,000 have completed a three year-cycle, engaging approximately 140 teachers.

The Ministry of Education in Angola decided in 2008 to introduce entrepreneurship curriculum on a pilot basis with a view to preparing youths for careers in private sector, as part of the qualitative reform and introduction of skills-based curricula. The main goal of the program is to increase student awareness, to highlight the entrepreneurial path as a viable career option and to develop positive attitudes, entrepreneurial knowledge and skills. It was expected that by building up this entrepreneurial foundation, in a long-term perspective, the Angolan private sector would become more sustainable, human development would be supported and poverty alleviated.

The impact evaluation study, conducted between October 2013 and February 2014, assessed the impact on graduates and students enrolled in the final years of the first and second cycle (9th and 12th grades) and provided more in-depth analysis for the program roll out (beyond 2014), based on the comparison of pilot schools in 3 provinces with a counterfactual group.

Angola's economy is oriented toward production factors. According to the Global Entrepreneurship Monitor (GEM) Angola Report 2012, 38% of Angolans are afraid of failure. Fear of failure is, generally, more prevalent in the developed economies. Meanwhile, the rate in Angola is nearer the rate in Portugal (39.6%) and Europe than it is to the rate in the other sub-Saharan African countries (GEM, 2011). Despite the recent emergence of non-oil sub-sectors, namely agriculture, fishing, construction and banking, unemployment figures have been persistently high, averaging 25% since 2007 (African Economic Outlook, 2012). The importance of youth development is evident from the demographic composition of the Angolan population. Approximately 48% of the population is under 15 years old.

Notwithstanding these challenges, the Government is trying to address them with numerous programs that support entrepreneurship and a network of incubators to promote employment. At a time when entrepreneurship is at the heart of public policies, there is a strong need for evaluating entrepreneurship policies and initiatives (Fayolle & Nakara, 2012; Shane, 2009).

Background Literature

Across the multitude of institutions offering entrepreneurship education, there exist a wide variety of programs and pedagogies in terms of content and approach (e.g. Peterman & Kennedy, 2003). Despite this huge diversity, many educators have opted to emphasize some form of experiential learning (e.g. Falk & Alberti 2000; Greene et al., 2004). Additional research must be conducted on the effectiveness of entrepreneurship education (e.g. McNally et al., 2010; Weaver et al., 2006). On the other hand, research has also found negative effects in evaluating the effectiveness of entrepreneurial programs (e.g. Fayolle & Gailly, 2009; von Graevenitz et al. 2010).

The overview of impact studies in entrepreneurship education indicates a positive impact of entrepreneurship education, with 33 studies reporting a positive impact, six with mixed results, and only two reporting a negative impact of entrepreneurship education (Lors, 2011). The positive impact of entrepreneurship education is further complemented by meta-studies of entrepreneurship education (Bechard et al., 2005; Dickson et al., 2008; Mwasalwiba, 2010; Pittaway et al., 2007).

The existent impact studies on entrepreneurship education support the hypothesis that entrepreneurship education seem to positively influence entrepreneurial behavior and intentions (e.g., Fayolle, 2002; Hansemark, 1998; Kolvereid & Moen, 1997; Lans et al., 2010; Liao & Gartner, 2008; Peterman & Kennedy, 2003; Souitaris et al., 2007; Tkachev & Kolvereid, 1999; Wilson et al., 2007). Some researchers show evidence of a positive impact on a student's perceived attractiveness and feasibility of a new venture start-up or during their actual start-up activity (e.g., Fayolle et al. 2006; McMullan et al., 2002; Peterman & Kennedy 2003; Souitaris et al., 2007). Others have found a positive impact on student entrepreneurial intentions and have found that those completing entrepreneurship education programs are more likely to become entrepreneurs (e.g. Athayde, 2009; Davidsson & Honig, 2003; Galloway & Brown, 2002).

A recent meta-analysis has been proposed around the issue of entrepreneurship education outcomes (Martin et al., 2012). As demonstrated by the literature review and confirmed with the meta-analysis, there is without any doubt a positive impact of entrepreneurship education programs on participant learning outcomes, but these changes in terms of knowledge, attitudes, intention and behavior have to be understood in light of other factors which may have similar or opposite effects.

Peterman and Kennedy (2003) claim that although authors have highlighted some of the benefits of entrepreneurship education, "there has been little rigorous research on these effects". Furthermore, little is known regarding the potential causal link between some educational variables (participant selection and past exposure, course contents, pedagogical methods, teacher's professional profile, available resources, etc.) and the impact of the entrepreneurship education programs on intentions and/or behavior (attitudes, values, skills, etc.).

The Entrepreneurship Curriculum Program (ECP) impact study design draws on the Theory of Change approach intended to understand the effects and to generate a description of a sequence of events that led to the desired outcomes and incorporated a control-group comparison.

Based on the literature, we have identified four categories of indicators that were used to develop the research instruments: entrepreneurial knowledge, entrepreneurial skills, entrepreneurial attitudes and entrepreneurial intention.

Entrepreneurial Knowledge

Following Hunt (2003), "knowledge has been conventionally defined as beliefs that are true and justified. It is reasonable to think a "true" belief as one that is in accord with the way in which objects, people, processes and events exist and behave in the real world". Our interest here is in knowledge as a characteristic of a person's behavioral potential. Knowledge transfer, that is, the accumulation of factual information, is another key human-capital asset which is part of most entrepreneurship programs. Discovering, evaluating, and exploiting business opportunities requires a variety of knowledge related to the technical, financial, organizational and market dimensions of the project (Kuratko, 2005; Volery, et al. 2013).

Entrepreneurial Skills

The concept of skills is too often taken for granted and its complexity (its social construction) is given little attention. In this study skills are a combination of knowledge, know-how and the experience acquired that are necessary / useful to professional activity. Self-efficacy is a central construct under this impact study as it relates to a person's perception of ability to execute a target behavior (Bandura, 1997). People with high self-efficacy are likely to persevere when problems arise and tend to search for challenges and, therefore, challenging opportunities. They also show a higher degree of personal initiative (Speier & Frese, 1997). Perceived entrepreneurial self-efficacy is a specific form of self-efficacy and measures individual's perception of their entrepreneurial abilities (Forbes, 2005). Shapero's (1982) model indicates that self-efficacy is central to intentions toward entrepreneurship and specifically influences the perceived feasibility of starting a business.

Entrepreneurial Attitudes

There is debate about the definition of attitude. From a broader point of view, an attitude can be defined as a positive or negative evaluation of people, objects, event, activities, ideas, or just about anything in a given environment. In the theory of planned behavior (Ajzen, 1991), attitudes toward behavior (entrepreneurship for example) are one antecedent with the perceptions of social norms and the perceptions of behavioral control leading to the formation of intention.

Entrepreneurial Intention

Entrepreneurial intention is a rapidly evolving field of research. Our understanding of entrepreneurial intention is guided by two models: Ajzen's (1991) theory of planned behavior and Shapero & Sokol's (1982) model of the entrepreneurial event. The term entrepreneurial intention has been used loosely to cover a range of related but differing concepts, such as career orientation, vocational aspirations, outlook on self-employment and the desire to set up a business. Intentions have proven to be the best predictor of planned behavior, "particularly when that behavior is rare, hard to observe, or involves unpredictable time lags" (Krueger *et al*., 2000).

Table 1 Entrepreneurship Curriculum Program Indicators

Entrepreneurial knowledge	Characteristics of the behavioral potential of a person and their understanding of the key concepts associated with entrepreneurship	Kourilsky and Esfandiari, 1997; Hunt, 2003; Peterman & Kennedy, 2003
Entrepreneurial skills	These skills reflect the combination of knowledge and experience gained which are necessary or useful in developing a successful business activity. In terms of this project a set of skills related to entrepreneurial activity was selected, reflecting the construct of "self-efficacy", as a perception and confidence of the student in his abilities and in the control of his own success.	Alvarez & Jung, 2003; Bandura, 1977; Ehrlich et al., 2000; Frank et al., 2005; Galloway et al., 2005; Judge et al, 2003; Lans et al., 2005; Moberg, 2013; Orton, 2007; Rosendahl Huber et al., 2012
Entrepreneurial attitudes	Perception of social norms and behavioral control, leading to the formation of intentions.	McGee et al., 2009
Entrepreneurship intention	Predisposed to act. A good predictor of behavior, particularly the desire to start a new business, which usually requires a medium or long-term approach.	Ajzen, 1991; Autio et al., 1997; Bird, 1992; Galloway & Brown, 2002; Fayolle, 2013; Klapper, 2004; Krueger et al., 2000; Linan & Chen, 2009; Noel, 2000; Peterman & Kennedy, 2003; Shapero (1982); Thompson, 2009

Methodology

Overarching model and research questions

In this study, we focus on four categories of indicators: (1) entrepreneurial knowledge; (2) entrepreneurial skills, including self-efficacy; (3) entrepreneurial attitudes; and (4) entrepreneurial intention.

This study employed the approach to entrepreneurship research based on the evidence presented that early formal entrepreneurship education affects the attitudes of students (Do Paco et al., 2008), that these underlying attitudes influence intentions towards target behavior (Ajzen, 1991) and that entrepreneurial self-efficacy has a direct and reciprocal relationship with entrepreneurial intentions (Rosenblatt et al. 2008).

The study addressed five research questions:

(1) Does the Program affect the development of entrepreneurial knowledge, skills, attitudes and intention of the students?

(2) Whether and how do students apply acquired entrepreneurial skills in the personal, professional and community context?

(3) Whether and how the Program influences families and communities lives?

(4) What contextual factors in the school, community and business environment influence the impact? How?

(5) What is the linkage between the teaching styles and the Program's impact, and what is the effect on teaching and results of other disciplines?

Participants

Data were collected from 371 students attending the entrepreneurship education program and from 279 in a control group. 424 are men (65.2%) and 226 women (34.8%), aged between 13 and 29, with a mean age of 19 (Table 2). Regarding prior family business exposure, 41.2% of the students' parents had recently created a business.

Table 2 Students Characteristics

	Total (N = 650)		PEC (N = 371)		Control (N = 279)	
	N	**%**	**N**	**%**	**N**	**%**
Sex						
Men	424	65.2	234	63,1	190	68,1
Women	226	34.8	137	36,9	89	31.9
Age (mean)	19	N.A.	18	N.A.	19	N.A.
Education sub-system						
General Secondary	398	61,2	248	66,8	150	53,8
Teacher Training	166	25,6	80	21,6	86	30,8
Technical Education	86	13,3	43	11,6	43	15,4

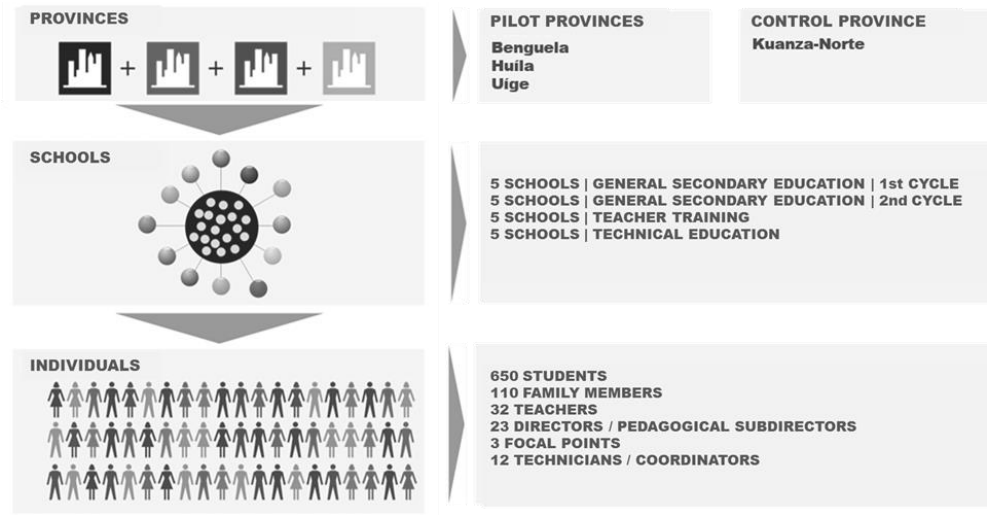
One of the more frequently observed problems in evaluation studies is the fact that the size of the sample of participants (Program group) and non-participants (control group) is unbalanced, as it is substantially easier to obtain information about the participants than about the non-participants. In the case of this study, that challenge was successfully overcome. Additionally the study engaged 110 family members, 32 teachers, 23 directors /pedagogical subdirectors and 12 coordinators/technicians.

In each of the provinces selected recruitment was carried out at all the schools participating in the Program (5 schools in each province): two 1st cycle schools from the general secondary education (one in the center of the municipality and the other in the interior); three schools from the 2nd cycle (comprising the general secondary education, teacher training and technical education), guaranteeing the representation of the various subsystems of the education system.

In each of the schools the classes served as the basis for this evaluation exercise, with the mobilization of all the students in the final class or classes for each level of education who were involved in the Entrepreneurship discipline (up to a maximum of 45 students per school). Two entrepreneurship teachers were mobilized per school, as well as the directors and/or pedagogical subdirectors, and family members of the students that were also involved in the exercise.

The sampling strategy ensured representativeness, taking into account variations of: 1) areas (urban; semi-urban; rural), 2) geographical location (3 from the 9 pilot provinces); 3) education sub-systems (general secondary school; technical education; teacher training) and education levels. The results were differentiated by: 1) areas; 2) geographical location; 3) education sub-systems; 4) grades (7 to 12); 5) age; and 6) gender.

Figure 1 Impact Evaluation Study multi-level scale



Design

The impact study was based on the comparison of students who participated in the Program and a control group, with a retrospective evaluation design. The Program didn't involve a prospective study from the outset, characteristic of complex, multi-donor, national level programs with budget, time and data constraints.

The comparison group provided an estimate of the counterfactual, and therefore a credible base for attributing a share of the observed changes to the intervention. A limitation with this approach stems from the need to identify key external factors to be controlled (such as socio-economic factors, infrastructure factors, teaching methods) that were addressed and analyzed through the development of a contextualized theory of change.

Data collection

The study used methods that were both quantitative (questionnaires) and qualitative (school and classroom observation grids; semi-structured interviews; focus group; in-depth interviews / life stories using the Most Significant Change approach to understand and illustrate the pathway change).

Table 3 Research Tools Utilized by Stakeholder & Number of Respondents

Stakeholder	*No. of Respondents*	*No. of Semi-structured Interviews*	*No. of In-depth / Biographical Interviews*
Student	650	41	12
Family	110	30	n.a.
Teacher	32	3	n.a.
Director / Subdirector	n.a.	23	n.a.
Ministry Focal Point	n.a.	3	n.a.
Technicians / Coordinators	n.a.	12	n.a.
Donors	n.a.	5	n.a.
Key Actors	n.a.	7	n.a.

The design of the questionnaire was informed by the international research project "Assessment Tools and Indicators for Entrepreneurship Education" (ASTEE), supported by the European Commission and coordinated by the Danish Foundation for Entrepreneurship - Young Enterprise, which developed this tool to assess the impact of entrepreneurship education by evaluating pupils' acquisition of entrepreneurial knowledge, skills and attitudes across educational levels and across countries.

Regarding the self-assessment questionnaire applied to the first level of the secondary school, key aspects were considered. First, we shortened the questionnaire. Second, we excluded some constructs such as market awareness, networking skills, etc., that are difficult for youths to relate to. Third, we rephrased the original statements to make them easier for youths to understand.

Data analysis

The interviews were encoded, transcribed verbatim, and analyzed using the MAXqda® software for content (qualitative), so that the non-structured information could also be encoded, later to be coordinated with Excel and IBM SPSS in order to cross-analyze the indicators.

For the quantitative analysis of the uni-variable and bi-variable data collected from the questionnaires, the statistical analysis software IBM SPSS® (version 19.0) was used, with the entry of the data based on a pre-established coding system in order to identify each variable. As for statistical treatment, descriptive statistics were used, in order to present the calculations of different descriptive statistical parameters, so as to analyze the data from the sample. For this the method of a central tendency was used, and standard deviation as the dispersion method and frequency tables and their respective percentages, for variables on a nominal scale. In a second phase, for inferential statistics, comparative analyses were used (i.e. *t* test) to verify whether or not there were statistically significant differences between the program group and the control group for the dimensions/synthetic indexes in question or to test for significant relationships between two variables (*chi-square* test). We used a significance level of $p \leq 0.05$ as this is the conventional measure for this kind of research.

Ethical considerations

Oral and written information about the study was given to all the participants. They were informed that their inclusion in the study was voluntary and that they could withdraw from the study any time. Students were assured that if they decided to not participate in the evaluation it would have no impact on their academic results. In addition, they were given guarantee of anonymity. Informed consent was obtained from the participants.

Results, Implications and Recommendations

The results of the impact assessment from the Program group and the control group are summarized below in Table 4.

Table 4 Dimensions / Synthetic Indexes

Index	*Indicators*	*N*	*Min*	*Max*	*Mean*	*Standard deviation*	*Cronbach's alpha*
Entrepreneurial Skills	Propose creative ideas (out of the box thinking)	579	1	4	3.4	.92	.829
	Discover ways to solve problems with few resources	586	1	4	3.2	.88	
	Propose new solutions to problems	583	1	4	3.4	.78	
	Deal with sudden change and surprises	567	1	4	3.2	.94	
	Continue to develop activities despite the problems	579	1	4	3.5	.83	
	Develop activities under stress and pressure	558	1	4	2.6	1.11	
	Develop partnerships to reach goals	578	1	4	3.5	.79	
	Develop relationships with people and exchange of information	591	1	4	3.6	.75	
	Create a project plan	590	1	4	3.6	.73	
	Define objectives for a project	573	1	4	3.4	.83	
	Define the tasks for a project	558	1	4	3.3	.87	
	Manage the time for a project	578	1	4	3.4	.86	

	Carry out tasks with other people	596	1	4	3.6	.69	
	Defend my ideas and opinions when working in a group	607	1	4	3.7	.72	
Entrepreneurial Attitude	Starting a business is something that is: (Useless / Useful)	613	1	10	9.5	1.50	.652
	Starting a business is something that is: (Boring / Fun)	561	1	10	8.7	2.31	
	Starting a business is something that is: (Negative / Positive)	601	1	10	9.7	1.20	
Entrepreneurial Knowledge	Index computed from the sum of 6 multiple-choice items about key concepts of entrepreneurial knowledge (such as recognizing and exploring opportunities; business idea evaluation; business plan; market research and strategy). The index varies between 0 (none answer) and 6 (all the answers chosen).						

To address the first research question, the results showed that the Program had a statistically significant effect (t (647.960) = -32.476; $p < .001$) on the entrepreneurial knowledge (index; min = 0; max = 6; Table 4) on the program group (4.74) compared to the control group (.72). However, the results showed that entrepreneurial knowledge had no significant impact on the business creation (*Do you have, by yourself or with others, a business?*) of the program group (t (290) = .246; p = ns). A possible explanation is that knowledge allows making a better and more informed decision for or against an entrepreneurial career. Thus, it appears that participants of an entrepreneurship course have more realistic perceptions about what it means to become an entrepreneur. Consequently some students will recognize that a career as an entrepreneur is not the most suitable option for them.

The results showed significant differences (t (582.265) = -2.447; $p < .005$), although less accentuated, on the entrepreneurial skills between the program group (3.44) and the control group (3.33), namely self-efficacy (belief in own ability), persistence (ability to continue despite setbacks), creativity (ability to create many opportunities), risk taking (predisposition towards risky alternatives), social orientation (ability to make useful connections), and proactivity (willingness to take action). Therefore, it is felt that certain aspects considered personality characteristics or cognitive characteristics can be taught and strengthened. Especially non-cognitive skills, such as persistence, creativity and proactivity, are increasingly relevant determinants of labor market outcomes in general (Gensowski et al., 2011), not just for entrepreneurs.

The results showed that the Program had significant differences (t (484.683) = -2.551; $p < .05$) on the entrepreneurial attitudes (index; min = 0; max = 10; Table 4) between the program group (9.448) and the control group (9.162). Additionally, based on the entrepreneurial attitudes of the students, we detected a latent idea of a broader understanding of entrepreneurship, apart from new venture creation, emphasizing the value of entrepreneurial acting, in existing community organizations, social settings and daily life. This idea was detected from the following survey indicators: 1) entrepreneurs are important to a community; 2) people create business to improve people's lives. The Program's students said they identified more with this approach to entrepreneurship, precisely the opposite of the control group students. These findings also emerged from the interviews with the students, teachers and family members. To this outcome, the *curriculum* (adapted to the local contexts) and focusing on the role of entrepreneurs in the development of the communities and society in general, seemed to have played and essential mediator role.

The results showed that the Program had significant differences (x^2 (1) 11.574; $p < .05$) on the entrepreneurial intention (*Are you trying to start a business at the moment?*) between both groups. 73.6% of the students from the program group are trying to start a business at the moment against 54% of the students from the control group.

The results showed that the Program had significant differences (x^2 (1) 11.574; $p < .05$) on the entrepreneurial action (*Do you have, by yourself or with others, a business?*) between both groups. 30.5% of the students from the program group have a business against 18.2% of the students from the control group.

Similar to prior research that investigated entrepreneurial intentions (Athayde, 2009; Krueger, Reilly & Carsrud 2000), our findings support the positive associations between attitudes toward self-employment and entrepreneurial intention (Hansemark, 1998). The literature, meanwhile, notes that the evaluation of entrepreneurial intent in the younger age groups is difficult (Huber, et al. 2012). This study reminds that entrepreneurship programs should not only be interested in raising entrepreneurial intentions and increasing the number of startups. Providing students with a learning environment that helps them to make a more profound decision for or against an entrepreneurial career provides an important function as well.

Concerning the **second research question**, the results showed the Program had a positive effect on the students' self-evaluation. The youths have a positive image of themselves, as well as the desire to trust their judgment to resolve problems. They are able to take risks, because they trust in their ability to solve problems that might arise. The students who participated in the Program showed increased perseverance, resilience and tolerance for failure (80.9% of the program group compared with 78.3% of the control group say they are able to deal with sudden changes and surprises; 90.4% of the program group compared with 86% of the control group say they are able to continue to develop activities despite the problems; 61.5% of the ECP group compared with 54.8% of the control group say they are able to develop activity under pressure and stress). This positive effect of the Program is interesting bearing in mind the results of the GEM Report on Angola (2012) that revealed a high rate of fear of failure. According to the students, the teaching methods used influenced them, since the teachers often encouraged them and helped them to learn from their mistakes.

The Program also helped strengthen the students' ability to save on an individual level. This result was influenced by the increased knowledge of financial literacy.

To address the **third research question**, the Program was expected to have an impact on the students' families and community. The results showed increased participation in voluntary work in the local community, increased local economic activity, as well as the ability of the Program students to take proactive responsibilities and generate income for their family. The families of the students increased their involvement in the school life of their children and demonstrated the desire to be even more active in school life and in the subject of entrepreneurship. These results reveal the need for increased investment in bringing schools and families closer together, and strengthening strategies to increase their involvement in the Program's activities.

Students and family members mentioned the increase in responsibility and the participation in family tasks as one of the benefits along with the improvement in intra-family relationships. The results also demonstrated the increased family savings capacity and income generation.

Concerning the **fourth research question**, the impacts are influenced by a number of personal and environmental factors. The results identified a significant relationship between the presence of family role models and the level of entrepreneurial intention. In line with other studies (Kent et al., 1982; Hills & Welsch, 1986; Matthews & Moser, 1995; Scott & Twomey, 1988), results suggest that the students with previous entrepreneurial exposure through their family demonstrated higher entrepreneurial intention. Of those students whose parents had a business, 79.8% are currently trying to create their own businesses. From those whose parents did not have business ownership experience, only 69.8% are currently creating their own business. The differences proved to be significant (x^2 (1) 4.156; $p < .05$). The findings confirm the need for ECP to be a space for simulation of entrepreneurial context and behaviors since not all youngsters can have parents with business experience.

Contextual factors such as institutional culture, the time allocated to an educational activity, administrative support, space allocation in an educational facility and other available resources can also be determinant for entrepreneurship programs. The school context had a significant influence on the results achieved by the Program, namely the school board's support. The community context and the local business community were also influential, though in a less pronounced way, in terms of the results achieved by the Program. One of the

aspects that showed more fragility was the awareness and involvement of the local business community, particularly in terms of support for entrepreneurial initiatives.

Regarding the **fifth research question**, the Program contributed to strengthening the knowledge of the teachers on teaching materials and methodologies and contributed to change their pedagogical practices. This output impacted on other results such as the more active student participation in the teaching-learning process and in school life and the improvement of the interpersonal relationships in the classroom and school context. The teaching methodologies helped to reinforce the pleasure in learning, to encourage a positive attitude toward school and to increase the academic expectations of the students. The results also indicate an interesting association between the changes in teaching methods and the strengthening of specific students' skills such as the autonomy and risk taking.

The recommendations from the research suggest actions at various levels including:

1) Creating an integrated approach to entrepreneurship programs linking classroom to real-world experience through the development of sustainable and systematic partnerships with businesses, social enterprises and NGOs as well as having an 'open door' policies in schools to make them accessible to their local communities;

2) Developing school-level plans that contain a shared understanding of entrepreneurship education with multiple stakeholders with clear objectives and defined actions;

3) Investing in continuing professional development of teachers and develop school-to-school initiatives for partnership, networking and good practice exchange;

4) Utilizing an evaluation framework (with a pre-test / post-test design, with control groups) as a pre-requisite for future Program rollout in other provinces) and plan for the longitudinal study of participants.

5) Communication with all partners (teachers, teacher educators, businesses, other community organizations and the general public).

6) Developing a national strategy to integration the various programs in entrepreneurship education and training across ministries.

The primary purpose of this study was to evaluate the impact of entrepreneurship education at the secondary level in the African context with a specific sample from students that have participated in the Entrepreneurship Curriculum Program in comparison with a control group from various provinces in Angola.

This study aims to contribute to the growing sub-field of entrepreneurship education focused on program evaluation and impact assessment by focusing on the four indicators of entrepreneurial knowledge, skills, attitudes and intentions. First, we considered students at the secondary level, a school-age population that has received limited attention in previous evidence-based studies. Second, we engaged family and community members as well as other key stakeholders to understand the effects on students, the family, schools, and community. Third, relying on a Theory of Change approach intended to generate a description and understand the effects of a sequence of events that have led to desired outcomes versus a control group. This study utilizes both quantitative and qualitative methods provide extra validity to support the evidence-based results obtained. Fourth, a set of indicators has been developed and tested and which can support future "baseline exercises" and enabling longitudinal assessment of the Program.

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