Enabling student entrepreneurs in emerging markets: examining the potential of autonomy as enabler

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Supporting Student Social and Commercial Entrepreneurs: Examining The Potential of Autonomy as Universal Conduit

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Abstract. This study examines the role of autonomy as a proactive motivator of social entrepreneurial intention (EI) of university students in emerging markets. Participants from six institutions in Malaysia and Scotland were surveyed, and, with the help of principal component

analysis, the underlying motivators of EI were extracted and contrasted between the two countries. We show that factors that impact EI can be divided into six components. The results present differences in propensity towards social EI. The findings extend the theory of planned behavior beyond the west and contribute to the design and implementation of social entrepreneurship education in emerging markets.

Keywords: Emerging Markets; Autonomy; Entrepreneurial Intention

1. Introduction

As Blackburn and Schaper (2016) note, the role of commercial entrepreneurship and social entrepreneurship is now recognised as being vital for the economic growth and development strategies in emerging markets. Education and universities in the west and emerging markets provide a large pool of potential future entrepreneurs; however a large percentage do not

engage in entrepreneurship due to a lack of motivational characteristics not passed on by education. Furthermore, a large amount are unaware of the possibility to start a social venture which may be more adequate for their personality. Therefore, rsearching the relationship between context and intentions is important as the contextual environment defines, creates and limits entrepreneurial aspirations, intentions and opportunities, and thus affects the speed and scope of entrepreneurial entry rates (Shane *et al*, 2003). Indeed, it has been suggested that the entire entrepreneurial and social entrepreneurial process unfolds because individuals have entrepreneurial intentions, and are motivated to pursue opportunities in a proactive and autonomous manner (Gaglio and Katz, 2001; Gartner, 1990; Shane and Venkataraman, 2000). Entrepreneurial intentions are crucial in understanding entrepreneurship, as the aspiration to start or own a business is defined through these (Krueger et al., 2000). Although entrepreneurship is considered a "journey of the heart" and the importance of understanding entrepreneurial emotion (affect, emotions, feelings), especially during the new venture creation process is acknowledged (Cardon, Foo, Shepherd, & Wiklund, 2012), there is surprisingly little empirical research that focuses on emotion-based impact indicators such as autonomy for university students. Nabi et al. (2017) therefore urge scholars to pursue these important avenues to provide students with more options and adapt to emerging markets.

Meanwhile as McWade (2012) states the currently dominant views and proposed solutions to achieving economic development neglect the possible contributions the promotion of social enterprises specifically, can make in attaining the United Nations Sustainable Development Goals. Social entrepreneurship and its motivation has, however, been conceptualized differently in the literature as either encompassing all attempts to create positive social change or being limited to income-generating entrepreneurial endeavors with a social aim especially in emerging markets rather than a commercial aim (Mabunda Baluku et al., 2019; Tracey & Phillips, 2007). Sustainable entrepreneurship has been proposed to be connected to these softer values, although economic gain and innovativeness are also deemed important (Gibbs, 2009; Linnanen, 2002). As a result, some university students are more inclined than others toward these new forms of entrepreneurship despite finding context as a barrier; however, they are guided mainly into commercial entrepreneurship due to popularity and context. Despite the transition in the field of entrepreneurship, there is only limited evidence on how the roles of different values and motivations deriving from education vary across entrepreneurship types (Carsrud and Brännback, 2011; Fayolle et al., 2014; Lumpkin et al., 2013).

Nevertheless, research on entrepreneurial intention (EI) - the propensity to engage in entrepreneurship for an individual and students - shows that it is not financial gain, but autonomy that is most often mentioned or rated as the most important driver for starting a commercial or social business venture (Van Gelderen & Jansen, 2006) and as an economic development tool (Mabunda Baluku et al., 2019). But is this driver effective on both social and commercial enterprises? Autonomy refers to self-organization (i.e. independent and proactive) and self-regulation in pursuit of goals (Lumpkin et al., 2009). The proactiveness factor seen within autonomy necessary to advance new venture development (and particularly social venture development) is seen as the driving force of entrepreneurship (Burgelman, 2001). Autonomy has been seen as a conduit to proactiveness (Lumpkin & Dess, 2001; Taggar and Kay, 2018). Students who have a lower need for autonomy and limited capability to act autonomously may not develop strong or sustained entrepreneurial intentions, even with access to education in emerging markets (Mabunda Baluku et al., 2019). In addition, as Nakara et al., (2020) point out the context role of economic development on EI is yet to be examined thoroughly.

Although Lumpkin and Dess proposed the inclusion of autonomy as a dimension of firm entrepreneurial orientation (EO) in 1996, few studies have investigated autonomy as a motivator element of EI (Bolton and Lane, 2011; Rauch et al., 2009), even though the role and importance of some types of autonomy have been studied in prior management research (e.g., Hackman and Oldham, 1975; Hart, 1991). According to Bolton and Lane (2011) autonomy as an EI motivator has not been widely validated by other empirical work to date.

Regarding context, EI research can be critiqued for being almost exclusively focused on North American and European research settings (Koe, 2016). In addition, universities can support autonomy and the creation of social entrepreneurship in many ways, but it is important to measure students' perception of the support that they receive in order to understand the extent of such support and its impact on students and their EI (Saeed et al., 2013). A primary reason for the lack of specific research on the link between autonomy and EI in emerging markets may be the absence of an effective means to measure autonomy in an EI setting (Bolton & Lane, 2011; Lumpkin et al., 2009; Macaskill & Taylor, 2010). The causal relationship between

education itself in emerging markets and EI is still in need of further research while its importance as a potential conduit of general EI has been presented in the recent literature (Nabi et al., 2018; Westhead & Soleszvik, 2016). Finally, as De Bruin and Teasdale (2019) state it is not new to suggest that social entrepreneurship is a field characterised by a lack of large-scale quantitative studies. Social entrepreneurship and its effect on emerging markets is an emerging area of investigation within the entrepreneurship literature (Newey and Zahra., 2009).The present study attempts to fill this gap by examining the role and characteristics of autonomy in undergraduate business courses' university students' as a motivator of both commercial and social entrepreneurship in emerging markets. The research questions are the following: Does the education level affect the level of autonomy? Does the emerging market context affect the level of autonomy?

Can autonomy trigger social entrepreneurial intention in both western and emerging market university students? What about commercial entrepreneurial intention?

In addition, several studies have also shown that entrepreneurship education fails to motivate students e.g. Cheng et al. (2009). Morris et al. (2001) assume that entrepreneurial talent is natural and not affected by education. However, the results are also conflicting, as a study conducted by Souitaris et al. (2007) showed that entrepreneurship university programmes in western settings raised EI. Furthermore, Gorman et al. (1997) argue that entrepreneurship can be taught, instigated and developed through entrepreneurship education. The study is based on the work of Bolton and Lane (2012) who develop an innovative methodological measurement instrument for EI to be used to measure the EI of students in particular in the United States. The study follows several calls for research to explore this dichotomy (social and commercial) using autonomy as a proactive motivator variable; firstly, a call from Smith and Woodworth (2012) for more globally generalizable results in terms of autonomy in education for EI of students in social entrepreneurship. Secondly, a call from Bolton and Lane (2012) and Yu et

al. (2019) who suggest testing replication of the student EI measurement instrument (and the role of Autonomy) in other regions and settings beyond the west (Lumpkin et al., 2009; Baluku et al., 2019).

Individual entrepreneurial orientation (IEO) or EI must not be confused with firm EO which has been covered widely (see: Covin and Miller, 2014). Despite work that shows that both the normative (good practice) and the cognitive dimension (individual knowledge) of the institutional environment influence a firm's entrepreneurial orientation (Gomez-Haro et al., 2011); only in recent years, researchers have suggested that EO can also be regarded as an individual level construct and presented as EI (Robinson & Stubberud, 2014). This new perspective has given new space to researchers to investigate EI from a new perspective beyond the firm level and into the education setting (Bolton & Lane, 2011; Saeed et al., 2013). Extant studies which examined EI agreed that EI is a multi-dimension construct and it consists of elements similar to firm-level EO (autonomy, competitive aggressiveness, risk management) as seen in Covin and Miller (2014), and that the type of autonomy may be as important as the amount (Bolton & Lane, 2011). Martin et al. (2015) show that levels of autonomy are positively related to individual proactive innovation among university students (in western settings).

As Langkamp and Bolton (2012) state, an individual may have a proactive attitude towards taking risks, but after a significant loss due to risk-taking, his or her attitude may change to a negative one which can be potentially reversed by education. Therefore researchers, with a focus on education, began examining entrepreneurial intentions and how they might be influenced by teaching and classroom experiences (Packham et al., 2010). This paper is organized as follows. In the next section we present the context of the study. Further on the literature review and definitions on EI and autonomy. We then discuss EI and education, followed by a presentation of the context countries and social entrepreneurship. Next, we

describe the methods and findings. Finally, we discuss our results and their implications for management, policy and academia.

Malaysia and Scotland – the context

Empirical studies on spatially varying relationships of new firm formation indicate that the rates of entrepreneurial activity differ between regions and within countries warranting research (Cheng and Li, 2011). Evolutionary and institutional perspectives on entrepreneurship (e.g.,Baumol et al., 2007) argue that in addition to supply-side variables, predicting individual entrepreneurship rates at the national level requires the inclusion of the institutional context (Jia and Zhang, 2019). Emerging markets such as Malaysia are facing large institutional transformations and present substantial opportunities and challenges for entrepreneurial individuals attempting to begin social ventures (Boso et al., 2013). Malaysia is an under-researched context when it comes to EI and new venture creation (Fitzsimmons & Douglas, 2005) as it experiences low levels of youth participation in enterprising regardless of high levels of government promotion (Robouan et al., 2017).

The perceived importance of entrepreneurship to the growth of Malaysia's economy is evidenced by the sheer amount and variety of supporting mechanisms and policies that exist for entrepreneurs, including funding, physical infrastructure and business advisory services. It seems that a paradigm shift and some improvement in policy-making processes are needed (Ariff & Abubakar,2003). Despite the positive environment, the total entrepreneurial activity index (TEA) is low (but rising) at 4.7% and ranked 62 out of 64 countries, and local Malay youth are not embracing entrepreneurship as rapidly as in other countries, raising questions over the effectiveness of business courses (GEM Global Report 2016/2017). Essentially, entrepreneurship is crucial to the rapid growth of Malaysia's economy and distribution of wealth and increasing participation through education is vital (Robouan et al., 2017).

The study of social entrepreneuship in the context of Malaysia is very limited (Dacanay, M.L, 2005; Robouan et al., 2017). Given that Malaysia is a predominatly Muslim country, social entrepreneuship is studied under the name of "waqf"(Social Entrepreneurship in Arabic) but matching the abovementioned definition of a social enterprise (Short et al., 2009). Social entrepreneurship in Muslim countries as framework for economic and social sytems can be found in many studies (Orbay, 2016). However, the specific application of social entrepreneurship in the entrepreneurship literature is relatively recent (Amuda, 2013).

Scotland is a good comparison for Malaysia as it is a strong promoter and enabler of social innovation and entrepreneurship education (Copus et al., 2017) and with a much more stable economy than Malaysia. In Scotland, small enterprises play a significant role and account for 99% of all enterprises and 53% of employment (Scottish Corporate Sector Statistics, 2012). Unlike Malaysia, Scotland has a track record in supporting youth entrepreneurship. Scotland is often seen as being at the forefront of policy innovation in the relation to enterprise policy (Brown and Mason, 2016).

The study presents, thus, very different settings in which to compare instigation of social enterprises as suggested by Mabunda Baluku et al. (2019). As Stephan and Uhlaner (2010) show in their study on entrepreneurship culture in multiple countries, the UK scores higher than Malaysia in "Performance Based Culture"; i.e. a culture that rewards individual accomplishments (vs. collective membership, family relationships, or position), and in which systematic, future-oriented planning is viewed as an essential route to achieve high performance. Malaysia scored higher in "Socially supportive culture"; i.e. a direct measurement of social capital as an 'instantiated informal norm that promotes co-operation'. In later stages of the development process, high-income countries benefit from a cultural environment characterized by autonomy which stimulates the pursuit of opportunities by means of entrepreneurial activities (Linan et al., 2015)

2. Literature review and theory development

Entrepreneurial intention: Autonomy defined and measured

Autonomy is not one of the "original" dimensions of firm EO identified by Miller (1983) and developed by Covin and Slevin (1989). Not to be confused with self-efficacy, which is a belief in one's means stemming from external reactive motivators (Maddux, 2016). Research has shown that self-employed individuals' motivations are highly associated with autonomy as a trigger than people in other forms of employment (Schneck, 2014). As firm size rises, the role of and space for proactive and independent autonomy has declined (Provan, 1984), while the opposite is observed in individual entrepreneurship where autonomy is seen as a critical factor in western settings (Felicio et al., 2012). Engagement and persistence in activities that individuals find interesting or enjoyable are facilitated by the desire to satisfy the three basic psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 2000). Sandberg (1982) argues that individuals and work groups cannot be classified simply as autonomous or not autonomous; instead, types and levels of autonomy fall along key continua.

This study focuses on the theory of planned behavior as used by Ajzen (1991), De Clerq et al., (2012) and Feola et al. (2017). As Ajzen (1991) states, according to the theory of planned behavior, perceived behavioral control (in our case autonomy), together with behavioral intention (in our case EI), can be used directly to predict behavioral achievement (in our case entrepreneurship); the effort expended to bring a course of behavior to a successful conclusion is likely to increase with perceived behavioral control. The theory of planned behavior is an extension of the theory of reasoned action (Fishbein & Ajzen, 1980). The study adopts an innovative demand side view (Stephan & Uhlaner, 2010) and moves beyond supply side variables to present institutional and contextual level variables to measure the role of autonomy in EI as a resource available to potential student social entrepreneurs in emerging markets. As

Saeed et al. (2013) suggest, a holistic perspective provides a more meaningful understanding of the role of perceived university support in the formation of students' entrepreneurial intention. Figure 1 presents the conceptual framework used based on the theory of planned behavior.

[Figure 1]

Education and EI

In today's economy, it has been shown that entrepreneurship studies (or studies containing entrepreneurship elements) attract both undergraduates and graduates (Dickson et al., 2008). the role of entrepreneurship education has been called for as one of the key instruments to increase the entrepreneurial attitudes of people (Potter, 2008)Although EO and its attributes have been assessed for university students in academic research (Levenburg & Schwarz, 2008; Raposo et al., 2008), there has never been a thorough assessment and validation of the EO construct at the individual level (EI) and education, aside from the work of Bolton and Lane (2011). As Linan et. al (2011) state, there is a lack of agreement on the variables that determine the individual's decision to start a venture. Regardless, cognitive approaches have attracted considerable interest (Baron 2004; Krueger 2003)The lack of clarity in this area is partially a result of examining entrepreneurial tendencies from multiple perspectives including personality trait research, entrepreneurial attitude studies and loosely defined entrepreneurial attribute studies, without specifically looking at the EO of an individual (EI) that is a direct result of the trait measures inherent in the original EO scale. Therefore based on the work on Linan et al. (2011) and Bolton and Lane (2011) this study utilizes the following recurring variables to test the hypotheses below. At the personal level we measure self-efficacy, risk and innovation, personal beliefs and freedom of choice; and at the contextual and institutional level we measure national norms and close environment, and institutional authoritarianism following the methods of (Saeed et al., 2015). National norms and close environment represent the unwritten norms and views towards entrepreneurship in the country of study presented by both the family and society (Roman and Maxim, 2017). Institutional authoritarianism represents the level of barriers to entrepreneurial development presented by institutions in the country of study; e.g. red tape. *Self-efficacy* describes "people's beliefs in their capabilities to mobilize

the motivation, cognitive resources, and courses of action needed to exercise control over events in their lives" (Wood & Bandura, 1989: 364). An individual with high *social entrepreneurial self-efficacy*—that is, a belief in one's ability to effect positive social change—will thus be more likely to engage, persist, and perform well in efforts that create social value. Focusing on the development of self-efficacy and autonomy—specifically in the domain of social entrepreneurship—is thus an important strategy for those interested in educating social entrepreneurs (Smith and Woodworth, 2012)

Hypotheses

Following on from our research questions, we aimed to find evidence in favor of the following hypotheses. The research questions are the following:

- Can autonomy trigger both social and commercial entrepreneurship intention in university students?
- Are the results different in emerging market universities?
- Does the education level affect the results?

Mabunda-Baluku et al., (2019) support the idea that education should include efforts to increase the capability of participants to act proactively and autonomously, but further suggest that educators should also gear some efforts toward eliciting the drive among participants to value and seek greater autonomy. We test this association.

H1: There is a significant main effect of education on autonomy

Bolton and Lane (2011) and Yu et al. (2019) suggest testing replication of the instrument (and the role of Autonomy) in other regions and setting (Lumpkin et al., 2009; Mabunda-Baluku et al., 2019). Barbosa and Moraes (2004) argue that studies carried out in emerging markets are also very important and may reach different conclusions from those carried out in developed countries. We test the association between the country of study and autonomy.

H2: There is a significant main effect of country of study on autonomy

Social entrepreneurship is an emerging area of investigation within the entrepreneurship literature (Newey and Zahra., 2009). At the corporate setting, Forster and Grichnik (2013) proposed a positive relationship between self-efficacy, perceived collective efficacy, perceived feasibility, and behavioral intention. We test the link at the educational setting between autonomy and business and social business EI.

H3: People who score higher in autonomy questions, have an increased likelihood of perceiving themselves as likely to start a business.

As Hakala et al., (2016) state regarding subsidiaries, although autonomy is highly important for international new entries, when it is restricted, formal rather than organic structures benefit new-entry initiatives. The setting up of a small enterprise, especially in unsettling conditions and for university students, is an organic task. This study will examine the link between autonomy as a prevalent factor of someone's behaviour and the intention to set up a small business. In addition, the intention to set up a (small) social business will be examined.

H4: People who score higher in autonomy questions, have an increased likelihood of perceiving themselves as likely to start a social business.

The hypotheses are summarized in the conceptual models shown in figure 1

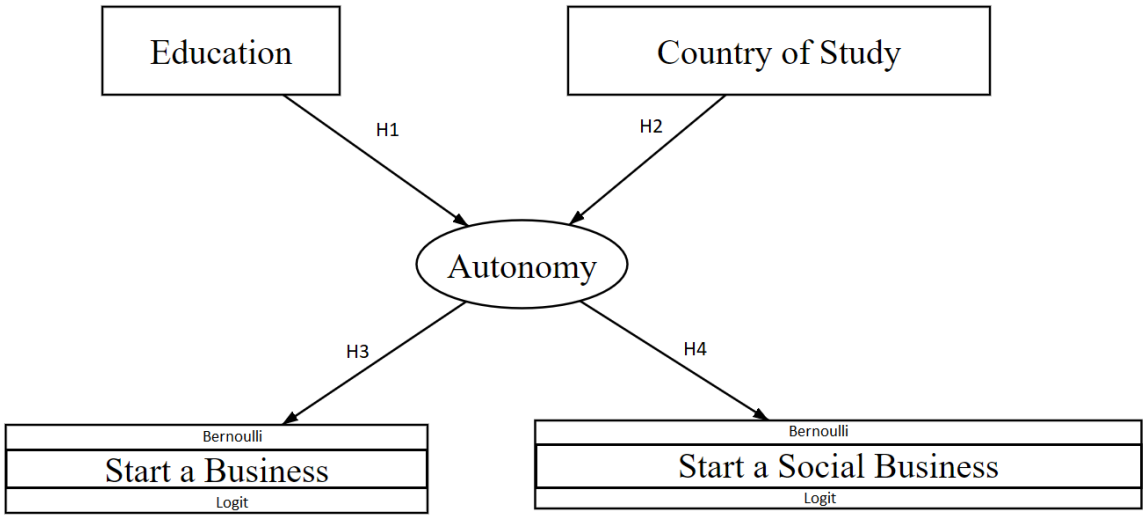

Figure 1 – Our proposed conceptual model shows the effects of Education and Country of Study on Autonomy, which in turn impacts perceived likelihood of starting a business, or a social business

3. Method

Participants

Having received favorable ethical review by Glasgow Caledonian University, we managed to secure access to six higher education institutes (HEI) in order to recruit a total of 357 undergraduate business program participants (as in Roman and Maxim, 2017). As not all education systems have specific individual entrepreneurship courses, we focused also on business programs with entrepreneurship as a compulsory module to maximize responses. Students were recruited for the experiment through calls for participants in module forums on the online learning site 'Blackboard'. Our group sizes were uneven, with 107 participants being recruited from one public HEI in Scotland, and 250 being recruited from five public HEIs in Malaysia. All HEI are being partially subsidized by their respective governments. We acknowledge that clustered sampling as well as unequal groups are more likely to create unsystematic error in the results of the analysis due to biased samples, hence, we adopted more conservative post-hoc test in order to control the inflation of the type I error rate during multiple comparisons. We also provide a standardized measure of effect size as a method of evaluating

the distance between the medians of the groups. The vast majority (87%) of participants were aged 18-29 leading us to remove age from the analysis.

Apparatus

A survey was designed using a combination of Likert-scaled questions (with scores ranging from 1-7) and categorical questions (used as independent variables in our study). The survey items were constructed to reflect the four factors indicated by literature, i.e., risk and innovation, national norms and close environment, self-efficacy, and autonomy as in Saeed et al, 2015. The survey was uploaded online onto Google forms. Questions were answered through clicks only, there was no need to type, making our survey instrument simple to use on touchscreen interfaces as well. The independent variables were used for exploratory data analysis to check for moderator effects. These were: country of study; work experience; sex; education; and number of languages spoken. The survey has 5 sections:

A Personal Information

B Entrepreneurial experience

C National norms

D Autonomy

E Work environment

The survey is based on the work of Saeed et al., (2015), Covin and Miller (2013), Indarti et al. (2016) and Langkamp Bolton and Lane (2012) and is available upon request.

Procedure

Participants were asked to click on the link on their module page, if they agreed to participating in the study. Informed consent was taken by asking students to click on a checkbox that indicated they have read and understood the information sheet provided at the top of the survey. Participants were made aware that the survey was anonymized, no information could be traced back to them, and they could withdraw at any time by simply closing the browser tab.

4. Results

Survey validity and reliability

Being an exploratory study, we opted to use Principle Component analysis (PCA) to validate the constructs with the help of the 'pca()' function found in the 'psych' R library (Revelle, 2018), using the standard orthogonal varimax rotation. The Kaiser, Meyer, Olkin measure of sampling adequacy was used to confirm that there is sufficient dimensionality in our survey to support the use of PCA --this was indeed confirmed (KMO = 0.92). Item loadings > |0.4| were used as the threshold for identifying which items contributed to the construction of the components.

Horn's parallel analysis (Horn, 1965) was used as an objective measure of component retention for PCA, which was done with the help of the R 'paran' library (Dinno, 2009). Interestingly, after 1500 iterations the Eigen decomposition of the correlation matrix suggested we retain six components rather than four. Having re-evaluated the results of the PCA, we concluded that our initial model was not supported by our findings. Instead of having one component for autonomy, the results of the PCA, and the item loadings, suggested that autonomy was further split into three components. We evaluated these components and suggest that they measure the following three dimensions in the reduced data set: personal belief; freedom of choice; and cultural/institutional authoritarianism. The rotated components (RCs) along with their item loadings are presented in table 1. It is worth noting that the last two components in table 1 appear related qualitatively, but participants studying in Malaysia scored them differently. Interestingly, when running the PCA only on participants studying in Scotland we found five components rather than six, with the last two components (i.e., freedom of choice and cultural/institutional authoritarianism) loading into one component instead. We suggest that this phenomenon relates to a form of cultural dissonance that is perhaps an

indication of a shift from centralism to neo-liberalism in Malaysian universities, as discussed by Mok (2010).

Table 1 - Retained components following principle component analysis.

Component	Sample Item	Loadings
Self-Efficacy	"I prefer to 'step-up' and get things going on projects rather than sit and wait for someone else to do it"	.55
Risk and Innovation	"I like to take bold action by venturing into the unknown"	.58
National Norms and Close Environment	"Entrepreneurs as individuals are admired in my country"	.66
Personal Beliefs	"How hard do you think it will be to start a business?"	.5
Freedom of choice	"I feel free to do things my own way"	.55
Institutional Authoritarianism	"In my daily life I frequently have to do what I am told"	.62

Note. For this study we were only interested in exploring the effects of Education and Country of Study on the three types of autonomy: Personal Beliefs, Freedom of Choice, and Institutional Authoritarianism

The results of our analysis confirmed the variables proposed by Linan et al. (2011) and Bolton and Lane (2012) which thus prompted us to slightly change the conceptual model in order to include the new components (see fig 2). This also prompted us to rephrase our hypotheses, i.e.:

H1: There is a significant main effect of education on all three forms of autonomy

H2: There is a significant main effect of country of study on all three forms of autonomy

H3: People who score higher in the three autonomy components, have an increased likelihood of perceiving themselves as likely to start a business.

H4: People who score higher in the three autonomy components, have an increased likelihood of perceiving themselves as likely to start a social business

[Figure 2]

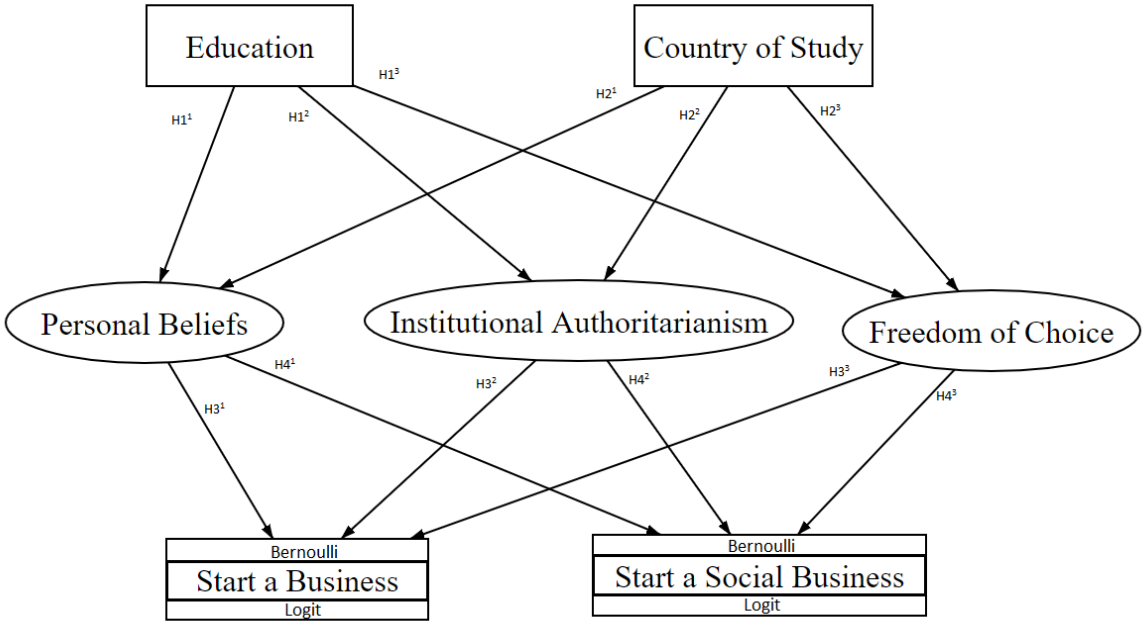

Figure 2 – Updated conceptual model after analysing our survey. We further split autonomy into three latent variables: Personal Beliefs, Institutional Authoritarianism, and Freedom of Choice.

Next, we ruled out common methods bias by applying Harman's one factor test using PCA without rotations. The unrotated model resulted in five components and did not show evidence of one general component (30% of the variance was explained by the largest factor, which is less than the expected 50% for this test).

Finally, we checked the reliability of questions in our survey using Cronbach's alpha. Our results suggested very high internal consistency ($\alpha = 0.95$), with no increase in alpha if any of the items are dropped.

The effects of education (H1) and country of study (H2) on autonomy

We used a semi-parametric MANOVA with the help of the 'MANOVA.RM' package in R (Friedrich et al., 2016) as an omnibus test to explore whether the aforementioned variables (H1 & H2) have an overall significant impact on the scoring of the three identified types of autonomy (DVs): Personal beliefs (PB), freedom of choice (FOM), and institutional authoritarianism (IA). Our results suggest that both education [$\chi^2(9) = 39.32$, $p < 0.01$], and country of study [$\chi^2(9) = 39.32$, $p < 0.01$] have an overall significant effect on autonomy scores.

Following the significant result of the omnibus tests, three independent Kruskal-Wallis (KW) tests were used to check for significant differences between different levels of education with respect to the three types of autonomy. Partial eta-squared ($\eta\rho^2$) was used as an effect size measurement and was calculated using the formula suggested by Cohen (1965), and then again by Lakens (2013). All formulas for effect size measurements have been added to appendix 1.

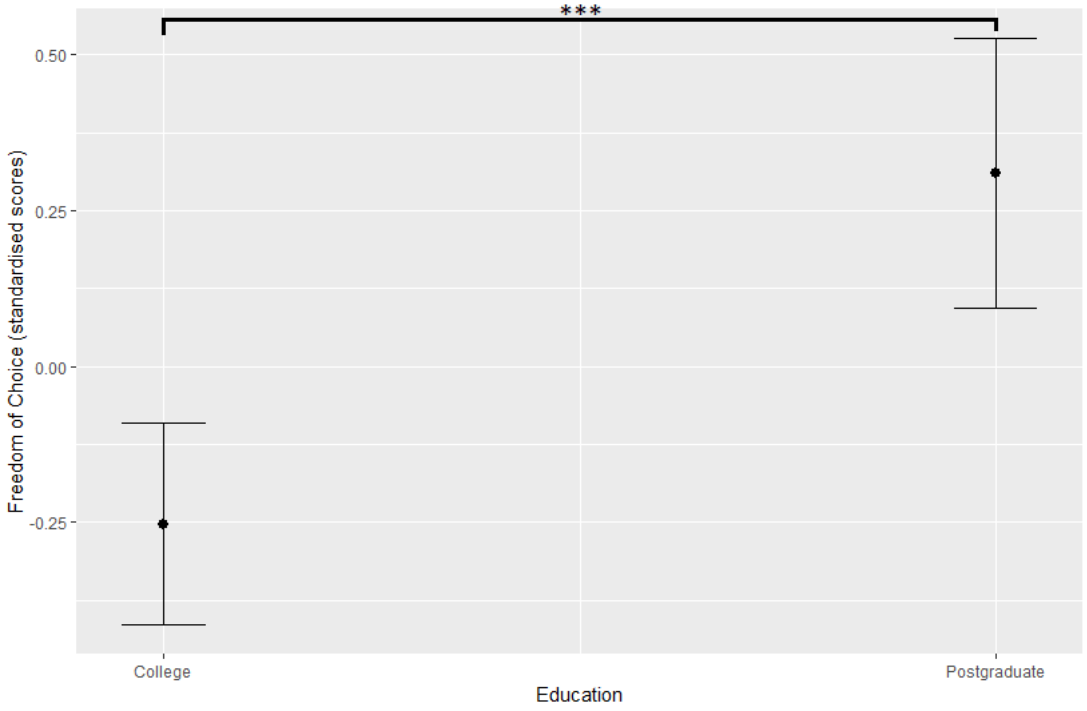

Figure 3 – Differences in 'Freedom of Choice' scores between college-level education and postgraduate-level education (error bars are 95% CI)

Our results indicate that 'Education' had an overall effect on 'Freedom of Choice' (FOC) [$\chi^2(3) = 9.9$, $\eta\rho^2 = 0.05$, $p < 0.05$], 'Institutional Authoritarianism' (IA) [$\chi^2(3) = 9.9$, $\eta\rho^2 = 0.03$, $p < 0.05$], but not 'Personal Beliefs'. Dunn's test for multiple comparisons was used as a follow up to KW in order to evaluate which education groups had significantly different mean scores for FOC and IA. Our findings indicate that participants with some college education scored FOC lower than postgraduates ($p < 0.01$) (figure 3), while participants with secondary school education scored IA lower than both university graduates ($p < 0.05$) and postgraduates ($p < 0.01$) (figure 4).

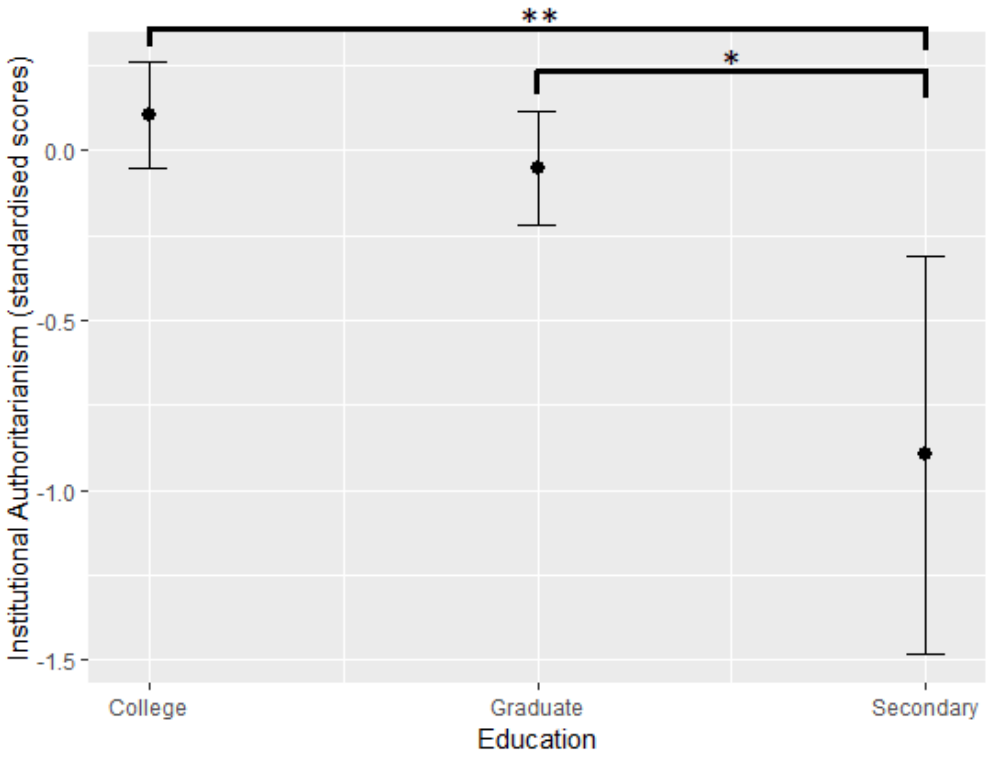

Figure 4 – Differences in 'Institutional Authoritarianism' scores between college-level education, graduate-level education, and secondary school education (error bars are 95% CI)

For country of study, three Wilcoxon Rank Sum tests were used to identify whether there were differences in the mean scores of the three autonomy measurements between the two groups (Students in Malaysia vs Students in Scotland). The results indicate that students studying in Scotland scored FOC significantly higher (M = 0.32, sd = 0.92) than students who were studying in Malaysia (M = -0.14, sd = 1) [W = 17307, $p < 0.001$, r = 0.23] (figure 5). However, students in Scotland also scored IA lower (M = -0.59, sd = 1.08) than students studying in Malaysia (M = 0.25, sd = 0.85) [W = 7018, $p < 0.001$, r = 0.38] (figure 6).

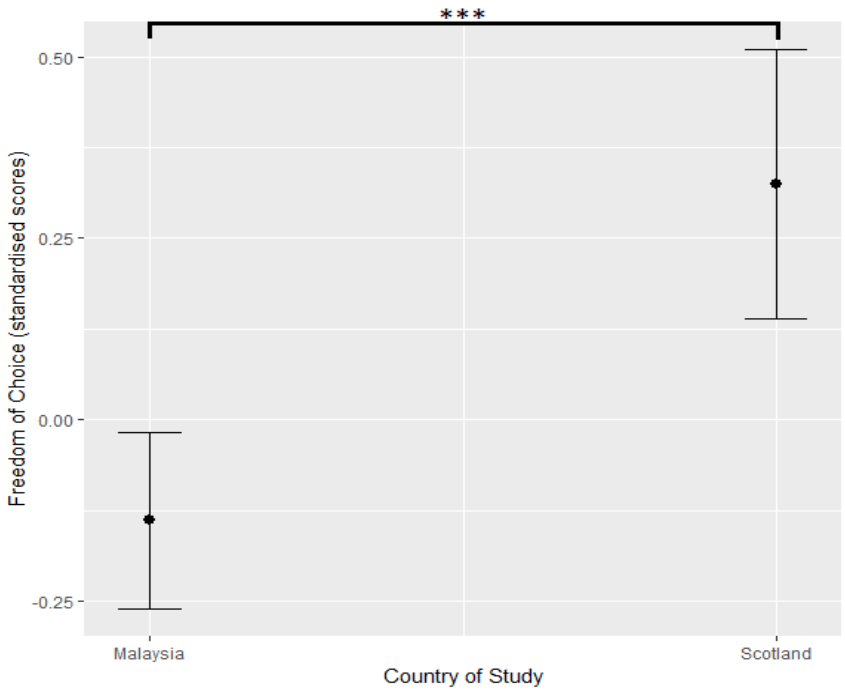

Figure 5 – Difference in 'Freedom of choice' scores between students studying in Scotland and students studying in Malaysia (error bars are 95% CI).

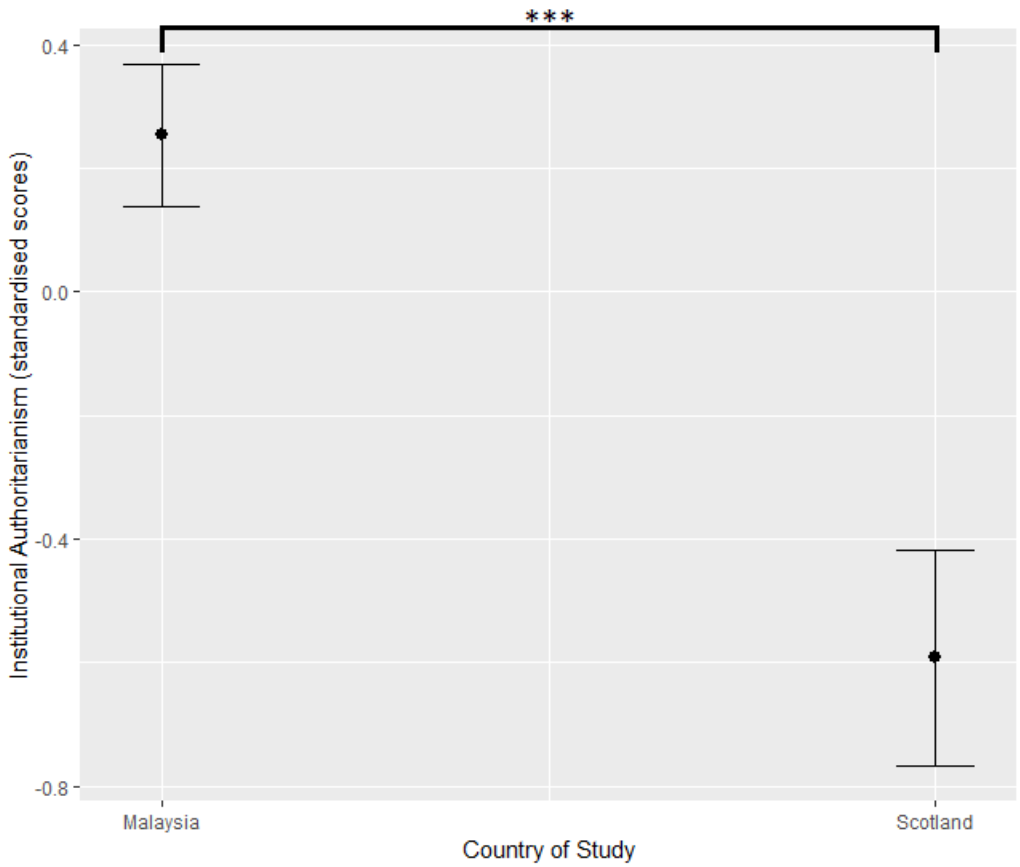

Figure 6 – Difference in 'Institutional Authoritarianism' scores between students studying in Scotland and students studying in Malaysia (error bars are 95% CI).

Perceived likelihood of starting a business (H3) or a social business (H4), as a function of autonomy

We hypothesized that individuals who score higher on autonomy are increasingly likely to perceive themselves as one day starting a business and/or a social business. We modelled this causative effect using binomial logistic regression with perceived likelihood of starting a business/social business as the outcome binomial variables and autonomy scores for all three components: personal beliefs (PB), freedom of choice (FOC), and institutional authoritarianism (IA), as well as country of study (COS) as the predictors.

Stepwise regression using BIC as the retention criterion, which adds a penalty term for adding parameters to the model (Schwarz, 1978), was used to reduce the number of redundant variables and tackle overparameterisation. Bayes Factors were extracted from the BIC scores using the formula suggested by Wagenmakers (2007) and were used as a method of evaluating likelihood of model fits:

$$\text{BF10} = e^{(BIC1-BIC2)/2} \quad \text{(i)}$$

Where BIC1 is the highest BIC of the two competing models.

Our data suggests that we can model the likelihood of starting a business (H3) as a function of COS and PB. Our Bayes Factor analysis suggests that the next best model, which included FOC as a predictor, was 49 times less likely to fit the data, which according to Kass and Raftery (1995) is decisive evidence in favour of not adding any more predictors to the logistic model.

Starting a social business (H4), could again be modeled as a function of COS and PB, but this time, adding another predictor to the model (FOC), was 13 times less likely to fit the data. Nevertheless, this is still compelling evidence in favour of retaining just two predictors. The results of the binomial logistic regressions for H3 and H4 have been summarized in table 2. As a side note, we found no interaction effects between COS and PB for either of the two models discussed.

Table 2 – Result of binomial logistic regression

	H3	**H4**
Country of Study	-0.81***	-1.86***
Personal Beliefs	1.27***	0.89***
R^2	0.23	0.22

All coefficients are significant.

** $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.*

Model H3: likelihood of starting a business; Model H4 likelihood of starting a social business.

We note that the coefficient estimates shown in table 2 are log-odds. By taking the exponent we can make better sense of the model. For example, for each standardized unit of increase in the personal belief scores there is a $e^{1.27} \sim 3.57$ increase in the odds of envisioning oneself as starting a business (i.e., 257% increase). For country of study, the odds that someone who studies in Scotland envisions themselves as likely to start a business is $e^{-0.81} \sim 0.44$ times that of someone studying in Malaysia (56% lower). The findings of our exploratory analysis result in the final conceptual model shown in figure 7.

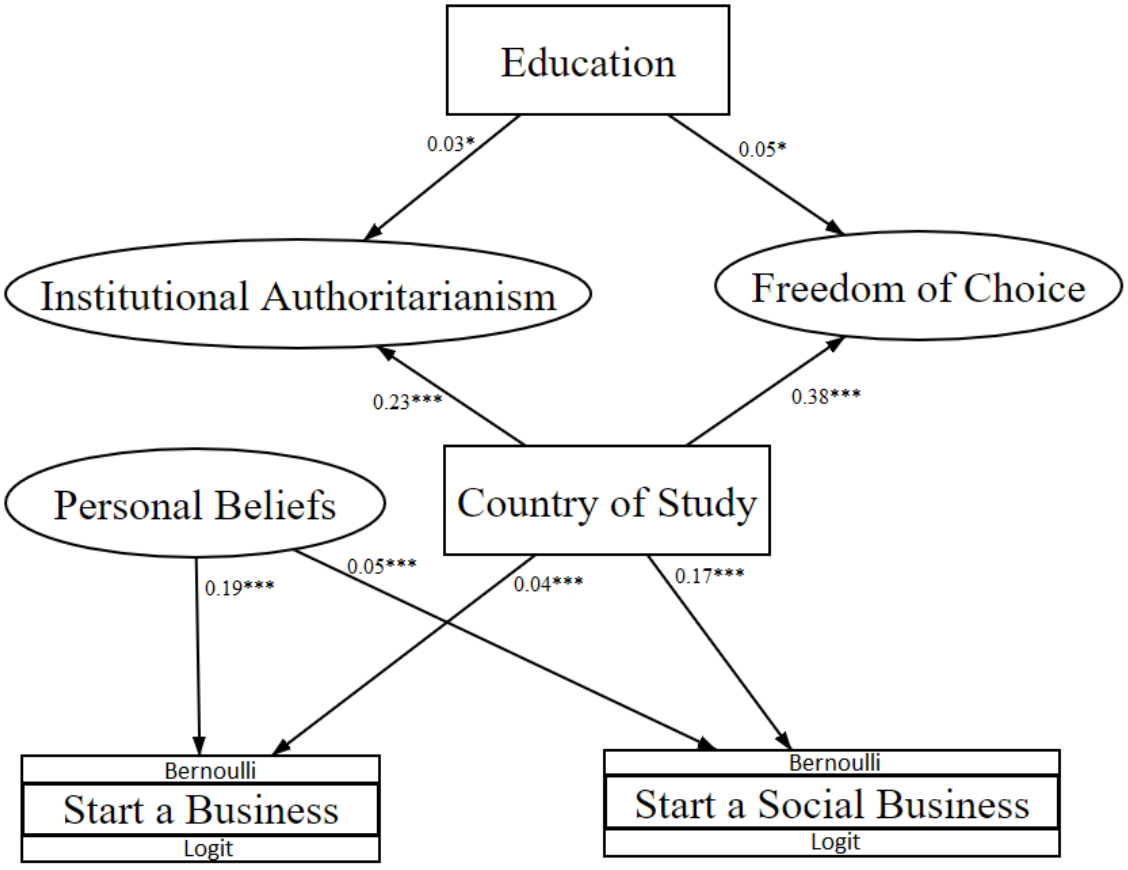

Figure 7 – Proposed model given the results of our exploratory analysis. Note that the numbers represent effect size estimates from the various tests described in the results section.

5. Discussion and implications

The composition of autonomy

As presented in the results, autonomy seems to break down into components unlike its use in the literature for EO (Covin & Miller, 2014; Rauch et al., 2009) but supported by the work on EI (Linan et al., 2011). This is particularly evident in our results and in the dichotomy between Scotland and Malaysia or performance-based vs socially supportive cultures (Stephan & Uhlaner, 2010) as each component shows distinct associations.

The hypotheses thus are explained below:

H1: Autonomy and Education Level

As shown in the results section, the education level has a significant impact on the way participants scored freedom of choice and on their perception of institutional authoritarianism, but not on their personal belief scores. Our results also suggest that undergraduates with a college-level education scored lower on 'freedom of choice' than post-graduates. In addition, regarding scores on institutional authoritarianism, we found that students with a secondary school level of education scored this dimension lower than undergraduates with a college-level education. The results show us that autonomy is firstly significantly associated with education as a variable, and secondly should be tested as components. Education did not have an effect on personal beliefs since it is an internal dimension, and it is therefore, not affected by external factors such as education. Components influenced by the external environment, on the other hand, such as Freedom of Choice and Institutional Authoritarianism, were affected by education.

As for breaking down education, institutional authoritarianism was found to be linked to college-level education likely because of the rigidity of the education system in both Scotland and Malaysia at postgraduate level. While post-graduates with a college level education scored higher on freedom of choice as their autonomy rose due to education levels. As Van Gelderen

(2010) points out, autonomy should have a significant role in education and modelling education systems and entrepreneurship courses. The provision of choice is an important autonomy-supportive practice, especially if it allows the student to choose activities that are personally relevant (Kaplan and Assor, 2007). Stimulating the self-initiation of learning activities, encouraging independent thinking (Assor and Kaplan, 2001) and allowing students to find their own solutions to puzzles or problems (Stefanou et al., 2004) are other examples of autonomy-supporting practices that provide students with leeway.

H2: There is a significant main effect of country of study on autonomy

As Baluku et al. (2019) state, regarding country differences, there are variations in EI arising from cultural (Shinnar et al., 2012) and economic contexts. Particularly, it has been reported that individuals in less developed countries tend to have stronger EI (Iakovleva et al., 2011) but not necessarily score high on autonomy or its sub-components as our research shows. Yet these differences also tend to affect entrepreneurial learning outcomes (Van Auken et al., 2006). Following Bolton and Lane (2011)'s statement that attempts should be made to further validate the EI (within which is autonomy) using students from universities in other parts of the country and world and across other age groups the results indicate that students studying in Scotland scored 'freedom of choice' significantly higher than students who were studying in Malaysia. Furthermore, students studying in Scotland scored 'institutional authoritarianism' lower than students studying in Malaysia. The results show, according to (Stephan & Uhlaner, 2010)'s work on SSC and PBC cultures, that freedom of choice variables are key in determining the proactive will to engage in entrepreneurship for university students. The differences between Malaysia and Scotland can be seen in the rigidity of social enterprise support and in the role played by government and public support. This supports the concept that proactive entrepreneurship is an individual endeavor for the most part least adaptable to

collective societies. Therefore, support should be directed to the individual rather than at a collective level.

H3: People who score higher in autonomy components, have an increased likelihood of perceiving themselves as likely to start a business.

We found a main effect for both country of study and personal beliefs, but no interactions between the predictors. For country of study the odds ratio between Scotland and Malaysia is $e^{-0.81} = 0.44$, i.e., the odds of envisioning starting a business for someone studying in Scotland is 0.44 times that of someone studying in Malaysia (56% lower). This is explained in the above sections regarding contextual differences.

H4: Autonomy (components) and perceived likelihood of starting a social business

On average we found that 69% of all participants envisioned themselves as one day starting a social business (41% of students studying in Scotland, and 79% of students studying in Malaysia). Our results suggest there is a main effect of both personal beliefs and country of study on this outcome variable. For country of study the odds ratio between Scotland and Malaysia is $e^{-1.86} = 0.16$, i.e., the odds of envisioning starting a social business for someone studying in Scotland is 0.16 times that of someone studying in Malaysia (84% lower). This is in line with the discussion above regarding contextual differences, government support and types of society. Autonomy (personal beliefs) is clearly associated to the decision to start a social enterprise in emerging markets albeit less than their western counterparts showing the importance of context in EI.

6. Conclusion

This study extends the EI literature developing the concept of autonomy within individual EI in emerging markets and highlights the effect of autonomy on university student EI. EI in social entrepreneurship and commercial entrepreneurship is bridged through autonomy and a common motivator is presented. The study presents novel results on social entrepreneurship as

a development tool and autonomy in 2 heterogenous contexts, for the use of public policy and education; autonomy as a variable is more complex than a lot of the research presents, more significant, and can be subdivided into three components for analysis in emerging markets (personal beliefs, freedom of choice, institutional authoritarianism). The results for the comparison between two very diverse settings, as a context, showed several distinct reasons (country of study, personal beliefs, institutional authoritarianism, education level) why autonomy affects the decision to initiate entrepreneurship and social entrepreneurship for students and can allow for more options in the development route chosen by the potential entrepreneur. The role of education in determining intention has been shown through cognitive and contextual associations which present the need for autonomy to be taught and developed in both western and emerging market contexts.

The importance of the results for education and public policy have been evidenced along with several factors (country of study, education level) that are associated with increased autonomy in the student's mindset and behavior. Determining and promoting autonomy is key for resource-poor-settings and emerging markets which offer few reactive economic stimuli and are in need of alternative solutions to economic development issues (such as social entrepreneurship and social innovation). As Yu et al. (2019) state,it is important to examine research questions regarding autonomy and EI across a larger number of countries. More specifically and regarding Malaysia and its effort to promote entrepreneurship; the empirical findings had provided some insight into the characteristics of the contemporary Malay youth entrepreneurs which may well inform current and future thinking on the propensity of young Malays to participate in the competitive arena of modern business. Most importantly, entrepreneurship development is a key tool for poverty reduction; stimulating employment, as well as fast-tracking realization of universal primary education and entrepreneurs, played a major role in poverty reduction in the Globe.

Future work

It is evident that the concept of autonomy needs further research potentially in wider multi-region or multi-country setting. In addition, further studies could focus on the age, gender and culture variables to test differences in EI in different contexts.

Limitations

As expected from principle component analysis, component retention is often subjective and prone to both underfactoring and overfactoring. We opted to use a more objective approach for determining component retention –namely parallel analysis—which we anticipate is less prone to effects of experimenter bias. However, the current study needs to be followed up by a confirmatory factor analysis, preferably on a new data set, to ensure construct validity. Furthermore, violations of the parametric assumptions, particularly in the presence of largely unequal group sizes forced us to use non-parametric tests, which have a lower statistical power than their parametric counterparts. It is, therefore, more likely that we failed to find some main effects or interactions. This decrease in power was further exasperated by our limited sample size of just over 357 participants, with only 107 being in the Scotland group. In addition, although we did not assume that EI means starting an enterprise by default, we recognize the need to examine EI longitudinally from university to start-up to separate attitude from intention.

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Appendix 1 – Formulas for Effect Sizes

The formula for partial eta-squared was calculated using:

$$\eta\rho^2 = \frac{F * (df_{effect})}{F * (df_{effect}) + df_{error}} \quad \text{ii}$$

Where df_{error} is $N - k$, with N being the sample size and k being the number of groups, df_{effect} is k-1; while F is the F-statistic retrieved from the chi-squared value such that:

$$F(df_{effect}, df_{error}) = \frac{\chi^2}{k-1} \quad \text{iii}$$

For country of study, since the IV is dichotomous (Scotland vs Malaysia), Wilcoxon Rank Sum test was used instead of KW. Effect size was calculated by taking:

$$r = \frac{|Z|}{\sqrt{n}} \quad \text{iv}$$

as suggest by Rosenthal (1994). Where r is the effect size, Z is it z-statistic of the test, and n is the sample size.