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INDIVIDUAL ENTREPRENEURIAL ORIENTATION IMPACT ON ENTREPRENEURIAL INTENTION: INTERVENING EFFECT OF PBC AND SUBJECTIVE NORM

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Abstracts

This study focuses on the intervention of attitude towards entrepreneurship, participation in entrepreneurial education, perceived behavioral control (PBC) and subjective norm on the relationship between students' grade and individual entrepreneurial orientation (EO) in influencing students' entrepreneurial intention (EI). The paper verifies theory of planned behavior (TPB) explaining a public university students in Malaysia. Empirical evidence was derived from a quantitative approach based on a cross sectional study among 202 students. Hypothesis testing utilizes multiple regression analysis verifying the direct and mediated relationships. The study suggests that students grade, individual EO comprises of proactive personality and risk taking propensity were proven important in explaining attitude towards entrepreneurship, participation in entrepreneurship education, PBC and subjective norm. On the other hand, individual EO, PBC and subjective norm directly explained EI. Subsequently, PBC and subjective norm proved as significant mediators in individual EO and EI relationships. The results shall aid the university management in formulating their curriculum and programs that fit students' priorities in shaping their future undertaking as an entrepreneur. Malaysian public policy regarding higher education should consider some mindset reformation required in higher learning institutions' entrepreneurship curriculum in the country. Annual budget for higher learning institutions' entrepreneurship programs shall be allocated accordingly after considering the results of the study.

Research paper

Keywords: Individual entrepreneurial orientation, Students' Grade, Attitude towards entrepreneurship, Participation in entrepreneurial education, Perceived behavioral control, Subjective norm, Entrepreneurial intention, Malaysia

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Introduction

Substantial efforts have been attempted in tracing entrepreneurial intent among students in numbers of public and private institutions throughout the world. The theory of planned behavior (TPB) has set the pace in the study of entrepreneurial intent that captures the psychological parts of behavioral, normatif and control believes lead to intention and consequently mold intended behavior (Ajzen, 1991). In similar vein, Krueger, Reilly and Casrud (2000) proposed a model that desirability, feasibility, and propensity to act, explain approximately half of the variance in intentions toward entrepreneurship.

Alternatively, this paper aims to add some thoughts into the present literature of entrepreneurial intent. A belief that an intention as a result of internal drive and motivation could be enhanced if appropriate behavior also present. We conject that appropriate behavioral factors, entrepreneurship knowledge and students academic performance have some explanations in the relationship (Linan, 2006; Linan, Rodríguez-Cohard & Rueda-Cantuche, 2011).

Present knowledge in determining entrepreneurship education as a conduit into entrepreneurial venture creations need more empirical evidence, where some studies conclude that entrepreneurship education and related curriculum explains the phenomenon in some countries but in others remain under developed (Duijn, 2009; Linan & Chen, 2009). Thus the gap in entrepreneurial intent inquiries across nationalities remains open for interrogations.

Knowledge in entrepreneurial personality and propensity in relation to entrepreneurial intention pose some issues that require more

scrutiny. Duijn (2009) found an interesting findings in detecting the impact of individual entrepreneurial orientation manifested in proactive personality and risk taking propensity among students in Netherland. Thus this study extends and contributes to the inquiry in another nationality that attitude towards entrepreneurship, subjective norm and PBC may play the intervening roles.

This paper then utilized a dataset among graduating science and technology students in Universiti Teknologi MARA that answer research questions as follow: (1)How do grade, proactive personality and risk taking propensity explain attitude towards entrepreneurship, participation in entrepreneurship education, subjective norm and perceived behavioral control. (2) How do entrepreneurship education, entrepreneurial career, subjective norm, perceived behavior control determine entrepreneurial intention. (3) How do attitude towards entrepreneurship, participation in entrepreneurship education, subjective norm and perceived behavioral control mediate individual EO elements of proactiveness, risk taking and entrepreneurial intention relationships. And (4) How the TPB verified in this dataset.

The impact of entrepreneurship

Entrepreneurship has become increasingly important in determining the progress of a nation. Since the inception of Miller's (1983) study on the correlates of entrepreneurship revolves the term into entrepreneurial orientation (EO) and corporate entrepreneurship (Lumpkin & Dess, 1996). The studies have been extensively developed into many concrete evidences that entrepreneurship created jobs, higher and sustained performance,

wealth and ultimately nation's economic progress and growth all over the globe (Kumar, 2014; Salamzadeh, Farjadian, Amirabadi & Modarresi, 2014; Kreiser, Marino & Weaver, 2002; Reynolds, Hay, Bygrave, Camp & Autio, 2000; Wilklund, 1999). Duijn (2009) reveals that entrepreneurship unlocks individual potentials that creates more entrepreneurial successes in his analysis in a study of European Commission (2003).

Individual EO has been a recent phenomenon as verified in Bolton and Lane (2012). But until recently limited evidence was found investigate EO as a determinant in theory of planned behavior (TPB).

Theory of planned behavior (TPB)

This study utilizes Ajzen's TPB (1991) and Krueger's PBC (2000) EIM as a platform that contribute to our suggested model. The entrepreneurial intentions were the result of prior entrepreneurship experience and consciously behave and act accordingly (Ajzen, 1991). Ajzen's attitude and behavioral theory were extended to self efficacy and social learning theory (Bandura, 1997).

In a similar vein, work of Shapero (1975) on entrepreneurial intent model was replicated and verified in Krueger (1993) that desirability and feasibility influenced business start-up. Krueger et al. (2000) affirmed that entrepreneurial intention was an important determinant of entrepreneurship. Consequently, McMullen and Shepherd (2006) established entrepreneurial action model. The model is two-stage, first stage is the attention stage capitalizes on realization of opportunity an entrepreneur believes and decides to act on it. Unfortunately, opportunity exists in high uncertainty that require entrepreneur to judge and decide using

knowledge and motivation. Second stage, the evaluation stage that entrepreneur assesses the desirability and feasibility of the opportunity exist and the entrepreneur acts on it (Hisrich, Peters & Shepherd, 2013).

Entrepreneurial intentions and the imperatives

Capitalizing on Bird (1988) who proposed that there were at least one of two dimensions of entrepreneurial intention were found in intention-based model, either the element of rationality versus intuition. Rational intention is when entrepreneur decides based on rational, analytic, and cause-and-effect-oriented processes in actions such as, develop a business plan, resource acquisition, and goal directed behaviour. On the other hand, intuition requires entrepreneur to think intuitively, holistic, and contextually that influences entrepreneurs' intentions and consecutive actions. Entrepreneurs have a vision about their venture, a feeling that their venture will succeed. The entrepreneurs' vision is often based on this intuitive thinking (Duijn, 2009).

According to Fretschner and Weber (2013), TPB comprised of three determinants that explain EI, the personal attitude towards the behavior, the subjective norm and the perceived behavioral control. Personal attitude is about how a person evaluates formation of a new business. The subjective norm is the perceived social environment with family and peers expectation of one's in starting a venture. And PBC refers to perceived level of one's control over the process of forming a new venture.

Attitude towards entrepreneurship and entrepreneurial education

Impact on job creation due to entrepreneurial education booming beginning in 1970s as reported in McIntyre and Roche (1999). Duijn (2009) reiterates that the development in entrepreneurship has been due to the invention of microcomputers and information technology. Thus attitude towards entrepreneurship and entrepreneurial education suggest a healthy platform for more encouraging entrepreneurial intention.

The argument on entrepreneurship education as booster for entrepreneurship continues as reported in Duijn (2009) where in Netherland recently shows highly educated citizens started most of the new ventures in the country. In other parts of the world, effectiveness of entrepreneurship education in boosting entrepreneurship keeps getting more attention as Peterman and Kennedy (2003) claimed that the impact of entrepreneurship education on entrepreneurial attitude and intention remained unresolved.

The variable refers to the intention of the subject towards starting self employment. Duijn (2009) successfully tested the model in Netherland that in achieving self employment there were number of factors required for the institutions to deliver and compromised. Besides expanding the graduate entrepreneurship programs, they should utilize experience instructors in faciltating the students. Other factors were such as personality traits, economic environment and continuous exposure of entrepreneurship as the main career choice right after graduation (Awang, Ibrahim & Ayub, 2014).

Luthje and Franke (2003) developed a model that signified role of the university in developing entrepreneurship in the future. Thus, university programs should remove the perceived and the objective factors, which are adverse to starting a company. Furthermore, universities and the

government should positively influence the image of entrepreneurship among students. Albeit, Lüthje and Franke (2003) also highlight that the contextual founding conditions stimulate entrepreneurial intentions most among the students with a high propensity to risk taking and high internal locus of control. Identifying these students and exposing them to entrepreneurship programs seems the best way to stimulate the entrepreneurial intentions at universities. Hence, we posit:

H1a: Student grade explains better attitude towards entrepreneurship

H1b: Student grade explains better participation in entrepreneurship Education

H1c: Student grade explains higher subjective norm

H1d: Student grade explains higher perceived behavioral control

H2: Student grade explains higher entrepreneurial intention

H3: Attitude towards entrepreneurship explains higher entrepreneurial intention

H4: Attitude towards entrepreneurial education explains higher entrepreneurial intention

Individual EO personality, propensity and EI

Propensity to act in Krueger et al. (2000) model was further developed in Luthje and Franke (2003) that risk taking propensity and internal locus of control determined the attitude towards entrepreneurship and ultimately shaped the entrepreneurial intent. Furthermore, Duijn (2009) established significant findings in his empirical study that personality factors of proactiveness and risk taking propensity were the determinants of entrepreneurial attitude among students in Netherland universities. Linan et

al. (2011) reaffirmed that individual EO was important variable in TPB model beyond EI. In the same vein Wu (2009) noted that EO as a unidimensional measure explains higher EI in a study in China. Hence, we posit:

H5a: Proactive personality explains higher attitude towards entrepreneurship

H5b: Proactive personality explains higher participation in entrepreneurship education

H5c: Proactive personality explains higher perceived behavioral control

H5d: Proactive personality explains higher subjective norm

H6a: Risk taking propensity explains higher attitude towards entrepreneurship

H6b: Risk taking propensity explains higher participation in entrepreneurship education

H6c: Risk taking propensity personality explains higher perceived behavioral control

H6d: Risk taking propensity explains higher subjective norm

H7: Proactive personality explains higher EI

H8: Risk taking propensity explains higher EI

Subjective norm and EI

Subjective norm refers to the social pressure from the environment on the individual to either perform or not to perform the behaviour; e.g. parents who encountered negative experiences with entrepreneurship, could pressure their children not to start their own business (Ajzen, 1991). Earlier studies justified subjective norm as important determinant of EI

(Angriawan, Conners, Furdek, & Ruth, 2012; Kautonen Marco, & Erno, 2012; Kolvereid & Isaksen, 2006; Mahmoud & Muharam, 2014; Malebana, 2014; Sahindis Giovanis, & Sdrolias, 2012; Souitaris, Zerbinati, & Al Laham, 2007). Duijn (2009) noted that subjective norm did not explained EI as theorized, Linan et al. (2011) indicates that social norm in EI model has been showing mixed findings when Ajzen (1991) found the variable as the weakest element and in theory of planned behavior studies it was found not significant. And in the same vein, Fretschner and Weber (2013) revealed that scholars in some earlier studies were reluctant in considering subjective norm in TPB as conceptualized due to its continued failure in substantiating intention (Autio, Keeley, Klofsten, Parker, & Hay, 2001; Krueger et al., 2000; Sparks & Shepherd, 1992). However, Linan (2008) argued the situation was due to the limitation that the study was among socially homogeneous sample. Hence, we posit:

H9: Subjective norm explains higher EI

Perceived behavioral control (PBC) and EI

This factor distinguishes the model from previous behavioural models. The idea is that the actual behaviour does not only dependent on the motivation or intention to perform certain behaviour, but also on the perception of the difficulty of performing the behaviour. This perception can be developed through for instance experience. Further research of the TPB (Ajzen, 1991) identifies antecedents of each of these factors, which have been included in Figure 1. Krueger et al. 2000 noted that when a person who feels competent will assume the feasibility to start a business. Thus PBC predicts higher EI has been investigated to a certain extend found in Ekpe and Mat, (2013),

Iakovleva, Kolvereid, and Stephan, (2011), Linan et al. (2011), Linan et al. (2013), Mahmoud and Muharam (2014), Malebana (2014), Ogundipe, Kosile, Olaleye, and Ogundipe (2012), and Otuya, Kibas, Gichira and Martin (2013). Hence, we posit:

H10: Perceived behavioral control (PBC) explains higher EI

Attitude, subjective norm and PBC as the mediators

Studies in the mediated impact were quite limited due to the recent phenomenon in entrepreneurship study when most of the efforts were heavily focused on the basic concepts development and direct relationships. As depicted in our model in Figure 1, Ajzen (1991), Krueger et al. (2000), Luthje, Frank and Linan et al. (2011) verified some strong relationships established as shown in the coefficient of determination explaining more than 50 percent of the variance. Hence we posit:

H11a: Attitude towards entrepreneurship mediates grade and EI relationships

H11b: Participation in entrepreneurship education mediates grade and EI relationships

H11c: PBC mediates grade and EI relationships

H11d: Subjective norms mediates grade and EI relationships

H12a: Attitude towards entrepreneurship mediates proactive personality and EI relationships

H12b: Participation in entrepreneurship education mediates proactive personality and EI relationships

H12c: PBC mediates proactive personality and EI relationships

H12d: Subjective norm mediates proactive personality and EI relationships

H13a: Attitude towards entrepreneurship mediates risk taking propensity and EI relationships

H13b: Participation in entrepreneurship education mediates risk taking propensity and EI relationships

H13c: PBC mediates risk taking propensity and EI relationships

H13d: Subjective norm mediates risk taking propensity and EI relationships.

Gap in the literature

Studies in TPB remain open for further interrogations where research findings remain inconsistent and unclear. Most of the studies until recently were mainly concentrated in only certain parts of the globe (Linan et al., 2006; Linan & Chen, 2009). Interrogation in other parts of the world could strengthen the theory as found in Linan and Chen (2009). TPB in entrepreneurship was a recent phenomenon as cited in Krueger (2000) may shed more insights in verifying the model as an important predictors in entrepreneurship establishments.

Theoretical framework

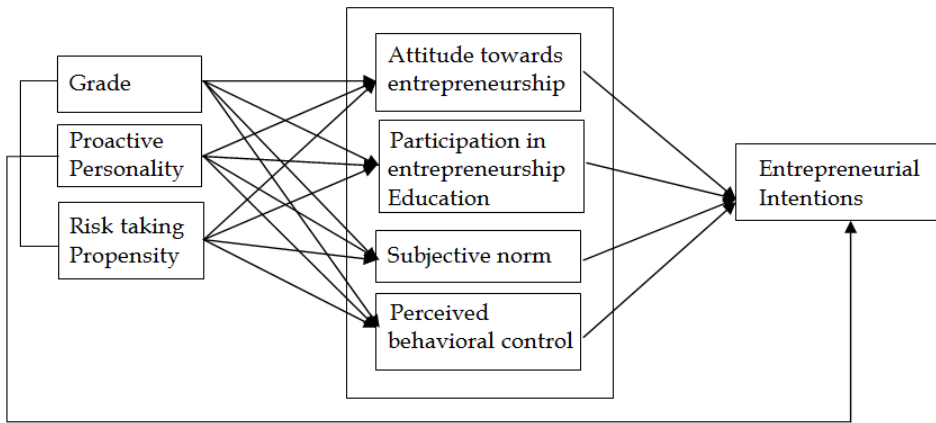


Figure 1. Research model

Methodology and findings

The study capitalizes on a cross sectional survey method represented by a group of final year students after completing their entrepreneurship curriculum. The instrument adopted from Duijn (2009) as attached in Appendix B.

Sample and variable descriptives

We collected about 10 percent of the total population of the respondents among six faculties in the university. The observation was made on 202 students who were 62 percent among female students representing common proportion of gender divide in our universities. The respondents represented six faculties with about equivalent proportion. An interesting phenomenon was found contributing to some forms of entrepreneurial inclination in the data when 59 percent of the respondents parents were ever self employed. However, 15 percent of the respondents were self employed.

Instrument and goodness of measures

The instrument went through the reliability analysis to ensure the Cronbach's alpha achieved .70 when some items were removed. The reliability showed all present study's variables achieved the Cronbach's alpha more than .70 as compared to Duijn (2009) (please refer Table 1). Those items explaining corresponding constructs of EI, proactive personality, risk taking propensity, attitude towards entrepreneurship, attitude towards entrepreneurship education, subjective norm and PBC were combined to form a composite scale computed in mean score value. The common method variance was verified through Harman's single factor test when all items run in one factor analysis that produce the variance less than 0.50. On the other hand, other variables such as gender, hometown and grade were dummy coded. All variables under study were analyzed for their descriptives and correlation as exhibited in Table 2.

Table 1. Reliability analysis

Variable	Present study alpha	Number of item	Duijn (2009) alpha	Number of item	Source
EI	.75	2	.85	3	Luthje & Frank (2003); Duijn (2009); Krueger et al. (2000)
Proactive	.80	5	.78	5	Kickul & Gundry (2002)
Risk taking	.73	5	.54	3	Hisrich & Peters (2002); Duijn (2009)
Attitude toward entrepreneurship	.76	4	.72	6	Carayannis et al. (2003); Luthje & Frank (2003); Duijn (2009); Francis et al. (2004)
Participation in entrepreneurship education	.77	5	na	na	Duijn (2009)
Subjective	.84	4	.76	2	Autio et al. (2001);

norm					Krueger et al. (2000)
PBC	.77	4	.76	4	Autio et al. (2001)

Na = not available

The data distribution showed minimally dispersed for all variables except EI that showed standard deviation of 20.15 between the mean. All variables correlate significantly with EI except the dummy coded variables. Similarly, all independence and mediators were significantly correlated. (refer Table 2)

Table 2. Variable descriptive analysis, mean, SD, and correlation

	Mean	SD	1	2	3	4	5	6	7	8	9
1. EI	59.98	20.15									
2. Urban	.20	.40	-.06								
3. Village	.37	.48	-.12	-.39**							
4. Grade	.74	.44	-.03	-.04	.11						
5. Proactive	5.01	.82	.38**	.07	-.16*	.05					
6. Risk taking	3.84	.73	.33**	.10	-.04	.03	.50**				
7. Att twds ent	5.58	.74	.41**	.03	-.07	-.01	.62**	.37**			
8. Participate in ent education	5.45	.87	.39**	.04	-.10	.01	.70**	.36**	.81**		
9. Subjective norm	2.22	.82	.29**	.04	.04	.17*	.31**	.35**	.50**	.40**	
10. PBC	5.11	.88	.46**	.04	-.15*	.01	.86**	.53**	.65**	.67**	.36**

* $p < .05$, ** $p < .01$, EI = entrepreneurial intention, PBC = perceived behavioral control.

Inferential statistics and hypothesis testing

Relationship between grade, proactive personality, risk propensity and attitude towards entrepreneurship, attitude towards entrepreneurship education, subjective norms and perceived behavioral control. All control variables as suggested proved insignificant in influencing the attitude towards entrepreneurship and participation in entrepreneurship education, subjective norm and PBC. However, proactive behavior proved substantial

in determining all the dependent variables. Similarly, student grade, proactive personality and risk taking showed as important determinant of subjective norms. Hence, *H1d* was substantiated, *H1b*, *H1c*, and *H1d* were unsubstantiated.

Table 3. Relationship between grade, proactive, risk taking and attitude towards entrepreneurship, entrepreneurship education, subjective norms and PBC

	Attitude towards entrepreneurship	Participation in ent. Edu.	Subjective Norms	PBC	EI
Intercept	5.64**	5.60**	2.17**	5.26**	63.83**
Female (Dummy)	-.24*	-.16	-.06	-.05	-1.85
Urban (Dummy)	-.01	.02	.14	-.06	-7.14
Village (Dummy)	-.15	-.20	.10	-.30**	-8.16*
Adjusted R2	.014	.01	-.01	.01	.02
SEE	.79	.87	.83	.88	19.80
F Change	1.93	1.30	.40	1.63	2.58
Durbin Watson	2.17	2.12	1.99	2.16	1.99
Intercept	2.52**	1.73**	-.03	.14	4.51
Female (Dummy)	-.12	-.01	.01	.17	-1.44
Urban (Dummy)	-.03	-.01	.08	-.12	-6.11
Village (Dummy)	.01	-.01	.13	-.08	-4.54
Grade (Dummy)	-.09	-.04	.27*	-.09	-1.67
Proactive	.60**	.74**	.19**	.85**	7.08**
Risk taking	.01	.02	.27**	.19**	5.86**
Adjusted R2	.38	.48	.14	.76	.20
SEE	.63	.63	.76	.43	17.93
F Change	38.89**	58.91**	12.02**	201.19**	14.67**
Durbin Watson	2.17	2.12	1.99	2.16	1.99

* $p < .05$, ** $p < .01$.

Relationship between attitude towards entrepreneurship, participation in entrepreneurial education, subjective norms, perceived behavioral control and entrepreneurial intention. In the same vein, control variables model were found influencing EI. On the other hand, subjective norm and PBC proved important in determining EI. Hence, *H5a*, *H5b*, *H5c*, *H5d*, *H6c*,

H6d, H7, H8, H9 and H10 were substantiated. However, H2, H3 and H4 were unsubstantiated. (refer Table 4)

Table 4. Relationship between attitude towards entrepreneurship, entrepreneurship education, subjective norms, PBC and entrepreneurial intention

	Entrepreneurial Intention
Intercept	63.35**
Female (Dummy)	-2.20
Urban (Dummy)	-6.43
Village (Dummy)	-7.24*
Adjusted R2	.02
SEE	20.16
F-change	2.08ns
Durbin Watson	2.04
Intercept	-1.11
Female (Dummy)	-1.20
Urban (Dummy)	-6.10
Village (Dummy)	-4.55
Subjective norms	4.07*
Perceived behavioral control	7.81**
Attitude towards entrepreneurship	.99
Participation in entrepreneurship education	1.57
Adjusted R2	.24
SEE	17.71
F-change	15.27**
Durbin Watson	2.04

* $p < .05$, ** $p < .01$, ns = not significant, dependent variable = EI.

Mediated effect of subjective norm and perceived behavioral control on the relationship between grade, proactive personality, risk taking propensity and entrepreneurial intention. First part of mediated relationship analysis we adopted Baron and Kenny (1986) that proved both subjective norm and PBC did not fulfill sufficient variance explaining change in EI. Thus subjective norm and PBC have insufficient variance to mediate the relationship

between grade and entrepreneurial intention (Refer Table 5). Hence *H11a*, *H11b*, *H11c* and *H11d* were unsubstantiated.

Table 5. The mediated effects of subjective norms and PBC in the relationship between grade and EI

	Grade-SN-EI	Grade-PBC-EI
Intercept	63.75**	63.66**
Female (Dummy)	-1.77	-1.81
Urban (Dummy)	-7.15	-6.99
Village (Dummy)	-7.94*	-7.79*
Adjusted R2	.02	.02
SEE	19.78	19.80
F-change	2.49ns	2.43ns
Durbin Watson	1.85	2.07
Intercept	-1.67	63.79**
Female (Dummy)	-1.69	-1.78
Urban (Dummy)	-7.14	-6.99
Village (Dummy)	-7.93*	-7.77*
Grade (CGPA>3.00)	-.14	-.21
Adjusted R2	.02	.02
SEE	19.84	17.93
F-change	.002ns	.004ns
Durbin Watson	1.85	2.07
Intercept	47.54**	8.48
Female (Dummy)	-1.07	-1.54
Urban (Dummy)	-7.89*	-6.11
Village (Dummy)	-8.29**	-4.36
Grade (CGPA>3.00)	-2.35	-.22ns
Subjective norm	8.02**	na
PBC	Na	10.49**
Adjusted R2	.11	.22
SEE	18.83	17.64
F-change	21.45**	49.93**
Durbin Watson	1.85	2.07

* $p < .05$, ** $p < .01$, ns = not significant, na = not applicable, dependent variable = EI.

On the other hand, both mediator showed statistically significant coefficient of determination and coefficients in both proactive personality and risk taking propensity relationship with entrepreneurial intention (Refer Table 5,

6 and 7). An interesting finding was detected when PBC showed as a full mediator in the proactive personality-EI relationship. Whereas in other relationships both subjective norm and PBC were the partial mediators. Hence, *H12c* and *H12d* were substantiated, on the other hand, *H12a* and *H12b* were otherwise.

Table 6. The mediated effects of subjective norms and PBC in the relationship between proactive personality and EI

	Proactive-SN-EI	Proactive-PBC-EI
Intercept	63.35**	63.27**
Female (Dummy)	-2.20	-2.30
Urban (Dummy)	-6.43	-6.29
Village (Dummy)	-7.24*	-7.10*
Adjusted R2	.02	.02
SEE	20.16	20.11
F-change	2.08ns	2.04ns
Durbin Watson	2.00	2.11
Intercept	13.53	13.91
Female (Dummy)	-.77	-.94
Urban (Dummy)	-6.16	-5.95
Village (Dummy)	-4.56	-4.38
Proactive personality	9.53**	9.44**
Adjusted R2	.15	.15
SEE	18.70	18.69
F-change	31.55**	31.06**
Durbin Watson	2.00	2.11
Intercept	9.30	8.30
Female (Dummy)	-.84	-2.17
Urban (Dummy)	-6.77	-5.44
Village (Dummy)	-5.41	-3.74
Proactive personality	7.95**	-1.29ns
Subjective norm	5.69**	na
PBC	Na	11.71**
Adjusted R2	.20	.22
SEE	18.23	17.96
F-change	10.89**	16.71**
Durbin Watson	2.00	2.11

* $p < .05$, ** $p < .01$, ns = not significant, na = not applicable, dependent variable = EI.

The results shown in Table 7 proved that both subjective norm and PBC mediated the relationship between risk taking propensity and EI. However, in the finer grain of the effect in the relationship signified PBC showed full mediation whereas subjective norm was partially mediated. However, both attitude towards entrepreneurship and entrepreneurial education failed to secure sufficient variance as mediators in the relationships. Hence, both *H13c* and *H13d* were substantiated and *H13a* and *H13b* were not substantiated.

Table 7. The mediated effects of subjective norms and PBC in the relationship between risk taking and EI

	RT-SN-EI	RT-PBC-EI
Intercept	64.43**	63.43**
Female (Dummy)	-2.34	-2.34
Urban (Dummy)	-6.42	-6.42
Village (Dummy)	-7.47*	-7.47*
Adjusted R2	.02	.02
SEE	20.17	20.18
F-change	2.18ns	2.18ns
Durbin Watson	1.92	2.08
Intercept	24.26**	24.26**
Female (Dummy)	.49	.49
Urban (Dummy)	-8.62*	-8.62*
Village (Dummy)	-7.34*	-7.34*
Risk taking propensity	9.84**	9.84**
Adjusted R2	.14	.14
SEE	18.94	18.94
F-change	26.29**	26.29**
Durbin Watson	1.92	2.08
Intercept	20.89**	1.83
Female (Dummy)	.08	-1.02
Urban (Dummy)	-8.68*	-6.54
Village (Dummy)	-7.68*	-4.51
Risk taking propensity	7.72**	3.71ns
Subjective norm	5.38**	na
PBC	Na	8.88**
Adjusted R2	.17	.23
SEE	18.56	17.90

	RT-SN-EI	RT-PBC-EI
<i>F</i> -change	8.84**	23.36**
Durbin Watson	1.92	2.08

* $p < .05$, ** $p < .01$, ns = not significant, na = not applicable, dependent variable = EI

Assumptions in multiple regression analysis were verified. Normality and linearity was verified on residual histogram and P-P plots respectively. Multicollinearity was verified in intercorrelation coefficients that showed less than .90, all variance inflation factor (VIF) in the analysis was less than 10 and Tolerance index was not less than 0.1. The data was not heterocedastic showed in the scatterplot that the data was well distributed (Hair, Black, Babin, Anderson & Tatham, 2006).

Figure 2, 3 and 4 in appendix A were the results of mutiple mediation analysis suggested in Preacher and Hayes (2008). The mediation model in Figure 2 showed similar findings as in linear regression analysis where both mediator was not statistically significant related with subjective norm and PBC. On the other hand, Figure 3 and 4 reaffirm earlier findings whereby subjective norm and PBC mediated proactive, risk taking – EI relationship. Moreover, mediation results as analyzed according to Baron and Kenny (1986) in table 4 and 5 showed PBC as full mediator in both risk taking propensity and proactive personality-EI relationship, whereas subjective norm was partial mediator in the relationship. On the other hand, the results analyzed according to Preacher and Hayes (2008) showed both PBC and subjective norm was the full mediator in procative, risk taking-EI relationships.

Preacher and Hayes (2004, 2008) multiple mediation analyses based on a bootstrapping method recommended for smaller samples

(MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002) and were computed with an SPSS macro that estimates direct and indirect effects with multiple mediators (Preacher & Hayes, 2008). The bootstrap estimates presented here are based on 5,000 bootstrap samples. Statistical significance with alpha set at .05 indicated by the 95 percent bias corrected (BC) confidence intervals (CI) not crossing zero.

Discussions and conclusion

The study helps in reinforcing the TPB in Malaysian lense. Most of the relationships in TPB was substantiated. The direct impacts verify that students with higher grade explained better subjective norm. The situation showed that higher grade students provide impact on their parents and social members' mindsets.

Both individual EO, risk taking propensity and proactive personality are good predictors of subjective norms and PBC. But only proactive personality predicts better attitude towards entrepreneurship and participation in entrepreneurial education. On the other hand, both individual EO variable are also the direct determinants of EI. Hence the study supports earlier findings of Luthje and Frank (2003) and Duijn (2009) in Netherland.

Subjective norms and PBC predict higher EI. Thus the students affirm that the present state of minds among their parents and social environment provide some platform in realizing their intentionality towards entrepreneurial career. The findings support Ajzen (1991) and Krueger et al. (2000).

The study extends the analysis in TPB model where mediated effect of the PBC and subjective norm were substantiated. Thus the study extends the relationship in the model beyond direct effects, where some of the mediated effects were justified. Hence, all research questions were observed. Both type of mediation were detected, full mediation of PBC in both proactive personality, risk taking propensity and EI relationships. And mediation effect of subjective norm in the relationships were partial.

Even though mediation results between multiple regression analysis suggested in Baron and Kenny (1986) and SPSS macro of Preacher and Hayes (2008) showed a different in the state of PBC and subjective norm either full or partial state of the mediation, we tend to concur with Rucker, Preacher, Tormala and Petty (2011) and Preacher and Kelley (2011) that arguments on mediators should be discussed beyond the full or partial types. Rucker et al. (2011) suggest that full or partial issue is not necessary to be addressed. In fact, issues of practical importance or effect size may shed more insights in the relationships. Moreover, when partial mediator is assumed as less importance compared to full or complete mediation, hence restrict further inquiry into practical importance and theory development.

Consequently, we suggest that in enhancing the EI among students in Malaysian institutions both individual EO in the form of proactive personality and risk taking propensity are pertinent in the presence of PBC and subjective norm. The study proved that in ensuring more start-ups among university graduands in the country serious attention should focus on their expectations of relentless supports from the university, family, friends and peers, besides, strengthening and reinforcing the proactive personality and risk taking propensity. Hence, university should

strive to ensure enough resources for more realization of entrepreneurial training and development in campus. The ministry and university should work hand-in-hand in addressing the public the importance of support in enhancing graduands entrepreneurial intent.

Limitations, implications and future research

A research process has to consider a number of constraints and limitations due to unavoidable circumstances or subjects to some contextual shortcomings.

Theoretically, TPB has seen convincing series of empirical evidence in explaining intention behavior, thus once again the theory is partially verified. Both proactive personality and risk taking propensity of the individual EO now forms as important predictors in the model. However, only proactive personality predicts higher attitude towards entrepreneurship and entrepreneurship education and both attitude denies the importance of EI. Hence, the attitude part of the TPB has been disqualified.

The practical aspects of the study findings suggest that the inclusion of both individual EO dimensions in TPB model. Elements of proactive personality and risk taking propensity should be the important inputs in the present institutions' academic curriculum in order to enhance higher entrepreneurial intention. Both university and the ministry should include an address in meetings with students' family member the importance of support to their entrepreneurial inclination either in press conferences or convocation addresses.

In Malaysia, TPB is just taking some small steps to hold stronger ground in shaping the country's entrepreneurial landscape. Thus more in-depth studies are required in strengthening each variable and their relationships. Other intentional behavior variables such as the individual, organizational, environmental, and strategic behavior imperatives might serve as the direct, indirect or modifier in the relationships between the variables in the model. Some studies e.g. Kautonen et al. (2015) has proved that TPB now extendable to the prediction of the next level beyond intentional perspectives, they are such as the entrepreneurial action or entrepreneurial advantages. Antecedents of TPB remain open for more variables explaining attitude, social norm and behavioral control that may add to new knowledge. The variables such as learning, knowledge, leadership, cognitive ability, mindset and as such shall enrich the theory in the form of the determinant, mediator or moderator.

References

1. Ajzen, I. (1991). Theory of planned behaviour. *Organizational Behaviour and Human Decision Processes*, 50, 179-211.
2. Angriawan, A., Connors, S. E., Furdek, J., & Ruth, D. (2012). An empirical examination of entrepreneurial intent in the equine industry. *Proceedings of the Academy of Entrepreneurship*, 18(1), 1-8.
3. Autio, E., Keeley, R. H., Klofsten, M., Parker, G. G. C. & Hay, M. (2001). Entrepreneurial intent among students in Scandinavia and in the USA. *Enterprise & Innovation Management Studies*, 2, (2), 145-161.
4. Autio, E., Keeley, R. H., Klofsten, M. & Ulfstedt, T. (1997). Entrepreneurial intent among students: testing an intent model in Asia, Scandinavia, and USA. Paper presented at the Frontiers of Entrepreneurship Research, Wellesley, MA: Babson College. Retrieved June 20, 2004, from the World Wide Web: <http://www.babson.edu/entrep/fer/papers97/autio/aut1.htm>
5. Awang, A., Ibrahim, I. I., & Ayub, S. A. (2014). Determinants of entrepreneurial career: Experience of Polytechnic students. *Journal of Entrepreneurship, Business and Economics*, 2(1), 21-40.
6. Bandura, A. (1997). Self-efficacy: toward a unifying theory of behavioural change. *Psychological Review*, 84, 191-215.
7. Baron, R. A. (2004). The cognitive perspective: a valuable tool for answering entrepreneurship's basic "why" questions. *Journal of Business Venturing*, 19(2), 221-239.
8. Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research, Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173-1182.
9. Bird, B. (1988). Implementing entrepreneurial ideas: the case for intention. *Academy of Management Review* 13(3), 442-453.
10. Bolton, D. L., & Lane, M. D. (2012). Individual entrepreneurial orientation: Development of a measurement instrument. *Education & Training*, 54, 219-233.
11. Carayannis, E. G., Evans, D. & Hanson, M. (2003). A cross-cultural learning strategy for entrepreneurship education: outline of key concepts and lessons learned from a comparative study of entrepreneurship students in France and the US. *Technovation*, 23, 757-771.
12. Duijn, W. (2009). Entrepreneurial intention among FDEWB students. Available at: <http://www.studiosus.nl>.
13. Francis, J.J., Eccles, M.P., Johnston, M., Walker, A., Grimshaw, J., Foy, R., Kaner, E.F.S., Smith, L., & Bonetti, D. (2004). Constructing questionnaires based on the theory of planned

- behaviour: a manual for health services researchers. Rebeqi: Research into Practice. Retrieved September 20, 2004, from World Wide Web: <http://www.rebeqi.org/ViewFile.aspx?itemID=212>
14. Fretschner, M. & Weber, S. (2013). Measuring and Understanding the Effects of Entrepreneurial Awareness Education. *Journal of Small Business Management* 51 (3): 410-428.
 15. Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th ed.). Englewood Cliffs, NJ: Pearson/Prentice Hall.
 16. Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical Mediation Analysis in the New Millennium. *Communication Monographs*, 76(4), 408-420. doi: 10.1080/03637750903310360
 17. Hisrich, R.D., & Peters, M.P. (2002). *Entrepreneurship* (5th ed.). New York: McGraw Hill.
 18. Hisrich, R. D., Peters, M. P. & Shepherd, D. A. (2013). *Entrepreneurship* (9th ed.). New York: McGraw-Hill.
 19. Iakovleva, T., Kolvereid, L., & Stephan, U. (2011). Entrepreneurial intentions in developing and developed countries. *Education & Training*, 53(5), 353-370. <http://dx.doi.org/10.1108/00400911111147686>
 20. Kautonen, T., Gelderen., M. V. & Fink, M. (2015). Robustness of theory of planned behavior in predicting entrepreneurial intentions and actions. *Entrepreneurship Theory & Practice*, 39(3), 655-674.
 21. Kickul, J., & Gundry L.K. (2002). Prospecting for strategic advantage: the proactive entrepreneurial personality and small firm innovation. *Journal of Small Business Management*, 40, (2), 85-97.
 22. Kolvereid, L., & Isaksen, E. (2006). New business start-up and subsequent entry in to self-employment. *Journal of Business Venturing*, 21, 866-885. <http://dx.doi.org/10.1016/j.jbusvent.2005.06.008>
 23. Kreiser, P. M., Marino, L. D. & Weaver, K. M. (2002), Assessing the psychometric properties of the entrepreneurial orientation scale: A multi-country analysis, *Entrepreneurship Theory & Practice*, 26 (Summer), 71-94.
 24. Krueger, N. F. (1993). The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrepreneurship Theory & Practice*, 5, 5-21.
 25. Krueger, N. F. Jr., Reilly, M. D. & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15, 411-432.
 26. Krueger, N. F. (2003). The cognitive psychology of entrepreneurship. In Z. J. Acs & D. B. Audretsch (Eds.), *Handbook of entrepreneurship research: An interdisciplinary survey and introduction* (pp.105–140). London: Kluwer.

27. Kumar, G. (2014). Understanding Institutions in the Context of Entrepreneurship. *Journal of Entrepreneurship, Business and Economics*, 2(2), 45–81.
28. Liñán, F. (2008). Skill and value perceptions: how do they affect entrepreneurial intentions? *International Entrepreneurship and Management Journal*, 4(3), 257–272.
29. 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.
30. Liñán, F., Rodríguez-Cohard, J. C. & Rueda-Cantuche, J. M. (2011). Factors affecting entrepreneurial intention levels: a role for education. *International Entrepreneurship Journal*, 7, 195-218.
31. Liñán, F., Nabi, G. & Krueger, N. (2013). British and Spanish entrepreneurial intention: A comparative study. *Revista de Economía Mundial*, 33, 73-103.
32. Lumpkin, G. T. & Dress, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21, (1), 135-172.
33. Lüthje, C. & Franke, N. (2003). The “making” of an entrepreneur: testing a model of entrepreneurial intent among engineering students at MIT. *R&D Management*, 33, (2), 135-147.
34. Lüthje, C. & Franke, N. (2004). Entrepreneurial intentions of business students: a benchmarking study. *International Journal of Innovation & Technology Management*. Appears September 2004.
35. MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G. & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7(1), 83-104.
36. Mahmoud, M. A., & Muharam, F. M. (2014). Factors Affecting the Entrepreneurial Intention of PhD Candidates: A study of Nigerian International Students of UUM. *European Journal of Business and Management*, 6(36), 17-24.
37. Malebana, J. (2014). Entrepreneurial intentions of South African rural university students: A test of the theory of planned behaviour. *Journal of Economics and Behavioural Studies*, 6(2), 130-143.
38. McIntyre, J. R., & Roche, M. (1999). University Education For Entrepreneurs In The United States: A Critical And Retrospective Analysis Of Trends In The 1990s. Georgia Institute of Technology, Center for International Business Education and Research Working Paper 99/00-021, April. Accessed 30 December 2004. Available at: http://www.ciber.gatech.edu/workingpaper/1999/99_00-21.pdf.
39. McMullen, J.S. & Shepherd, D.A. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management Review*, 31, 132–152.

40. Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science*, 29, 770-791.
41. Ogundipe, S. E., Kosile, B. A., Olaleye, V. I., & Ogundipe, L. O. (2012). Entrepreneurial intention among business and counselling students in Lagos State University Sandwich Programme. *Journal of Education and Practice*, 3(14).
42. Otuya, R., Kibas, P., Gichira, R., & Martin, W. (2013). Entrepreneurship education: Influencing students' entrepreneurial intentions. *International Journal of Innovative Research & Studies*, 2(4), 132-148.
43. Preacher, K. J. & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers*, 36, 717-731.
44. Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879-891. <http://dx.doi.org/10.3758/BRM.40.3.879>
45. Preacher, K. J., & Kelley, K. (2011). Effect size measures for mediation models: Quantitative strategies for communicating indirect effects. *Psychological Methods*, 16(2), 93-115.
46. Reynolds, P. D., Hay, M., Bygrave, W. D., Camp, S. M. & Autio, E. (2000). GEM 2000 Executive Report. Kansas, MO: Kauffman Foundation.
47. Rucker, D. D., Preacher, K. J., Tormala, Z. L., & Petty, R. E. (2011). Social and Personality Psychology Compass, 5(6), 359-371.
48. Sahinidis, A. G., Giovanis, A. N., & Sdrolias, L. (2012). The role of gender on entrepreneurial intention among students: An empirical test of the theory of planned behaviour in a Greek university. *International Journal on Integrated Information Management*, 1(1), 61-79.
49. Salamzadeh, A., Farjadian, A. A., Amirabadi, M., & Modarresi, M. (2014). Entrepreneurial characteristics: insights from undergraduate students in Iran. *International Journal of Entrepreneurship and Small Business*, 21(2), 165-182.
50. Shapero, A. (1975). The displaced, uncomfortable entrepreneur. *Psychology Today*, 9, 83-88.
51. Shrout, P. E. & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 7(4), 422-445.
52. Sparks, P., & Shepherd, R. (1992). Self-identity and the theory of planned behavior: Assessing the role of identification with "green consumerism". *Social Psychology Quarterly*, 55, 388-399
53. Wiklund, J. (1999). The sustainability of the entrepreneurial orientation—performance relationship. *Entrepreneurship Theory and Practice*, 24(1), 37-49.

Awang, A., Amran, S., Md Nor, M. N., Ibrahim, I. I., Mohd Razali, M. F. 2016. Individual Entrepreneurial Orientation Impact on Entrepreneurial Intention

54. Wu, J. (2009). Entrepreneurial orientation, entrepreneurial intent and new venture creation: Test of a framework in a Chinese context. Doctoral Dissertation. Virginia Polytechnic Institute and State University, USA.

Appendix A

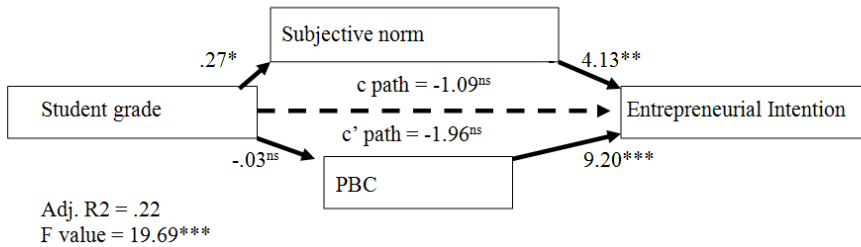


Figure 2. Multiple mediation effect of subjective norm and perceived behavioral control in student grade-entrepreneurial intention relationship

* $p < .05$, ** $p < .01$, *** $p < .001$

The mediation model involving academic development was significant overall $F(3, 192) = 19.69, p < .001$ and accounted for 19 percent of the variance in entrepreneurial intention. The total effect of academic grade on turnover intention (c path), $\beta = -1.09, p = .74$, became non-significant (c' path), $\beta = 1.96, p = .50$, when the mediators of subjective norm and PBC were included in the model. The total indirect effect through both subjective norm and PBC was not statistically significant, with a point estimate (PE) of $.8709$ and 95% BC/CI of -2.0747 to 4.0722 . The specific indirect effects of subjective norm (PE = 1.1069 , BC/CI = $.0942$ to 3.2322) was statistically not significant and PBC (PE = $-.2360$, BC/CI = 2.6326 to 2.9119) was not statistically significant. These results indicate that both subjective norm and PBC was not mediator in the relation between academic grade and EI.

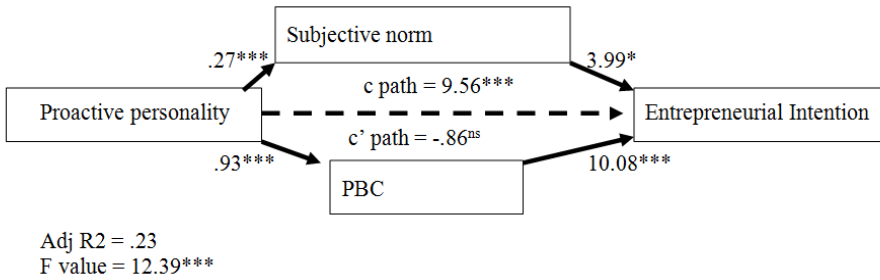


Figure 3. Multiple mediation effect of subjective norm and perceived behavioral control in student-entrepreneurial intention relationship

* $p < .05$, ** $p < .01$, *** $p < .001$

The mediation model involving proactive personality was significant overall $F(3, 192) = 12.39, p < .001$ and accounted for 12 percent of the variance in entrepreneurial intention. The total effect of proactive personality on turnover intention (c path), $\beta = 9.56, p < .0001$, became non-significant (c' path), $\beta = -.86, p = .78$, when the mediators of subjective norm and PBC were included in the model. The total indirect effect through both subjective norm and PBC was statistically significant, with a point estimate (PE) of 10.4136 and 95% BC/CI of 4.9334 to 16.4116. The specific indirect effects of subjective norm (PE = 1.0839, BC/CI = .2202 to 2.7289) was statistically significant and PBC (PE = 9.3297, BC/CI = 3.8343 to 15.4821) was statistically significant. These results indicate that both subjective norm and PBC was full mediators in the relation between proactive personality and EI.

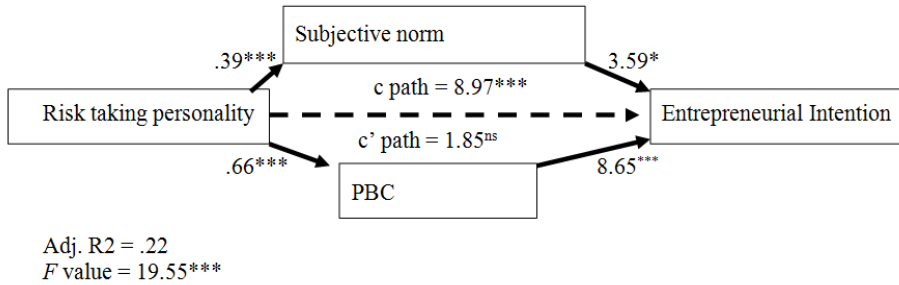


Figure 4. Multiple mediation effect of subjective norm and perceived behavioral control in student-entrepreneurial intention relationship

* $p < .05$, ** $p < .01$, *** $p < .001$

The mediation model involving risk taking propensity was significant overall $F(3, 192) = 12.39, p < .001$ and accounted for 19 percent of the variance in entrepreneurial intention. The total effect of risk taking propensity on turnover intention (c path), $\beta = 8.97, p < .0001$, became non-significant (c' path), $\beta = 1.85, p = .39$, when the mediators of subjective norm and PBC were included in the model. The total indirect effect through both subjective norm and PBC was statistically significant, with a point estimate (PE) of 7.1119 and 95% BC/CI of 4.5135 to 10.8471. The specific indirect effects of subjective norm (PE = 1.4091, BC/CI = .2301 to 3.3458) was statistically significant and PBC (PE = 5.7028, BC/CI = 2.8720 to 9.4268) was statistically significant. These results indicate that both subjective norm and PBC was full mediators in the relation between risk taking propensity and EI.

Appendix B

Questions overview

General

G1= What is your gender? (Duijn, 2009)

G2= What is your age? (Duijn, 2009)

G3= Are you a student from the UM Faculty of Economics and Business Administration? (Duijn, 2009)

Entrepreneurial intentions

EI1= Are you currently self-employed? (Lüthje & Franke, 2003)

EI2= Do you plan to be self-employed in the foreseeable future after you graduate from the UM? (Lüthje & Franke, 2003)

EI3= Estimate the probability (0-100%) you will start your own business in the next year? (Duijn, 2009)

EI4= Estimate the probability (0-100%) you will start your own business in the next 5 years? (Krueger et al., 2000)

Attitude towards entrepreneurship

AE1= In business, it is preferable to be an entrepreneur, rather than a large firm employee. (Carayannis, Evans, & Hanson, 2003)

AE2= It is more beneficial to society to have large enterprises than small firms. (Carayannis, Evans, & Hanson, 2003)

AE3= I would rather found a new company than be the manager of an existing one. (Lüthje & Franke, 2003)

AE4= Starting my own business sounds attractive to me. (Krueger et al., 2000)

AE5= I personally consider entrepreneurship to be a highly desirable career alternative for people with my professional and education background. (Autio et al., 2001)

AE6= Overall, I consider an entrepreneurship career as. (Francis, Eccles, Johnston, Walker, Grimshaw, Foy, Kaner, Smith, & Bonetti, 2004)

Participation in entrepreneurship education

U1= Have you ever participated in any form of entrepreneurship education? (Duijn, 2009)

U2= Have you ever participated in entrepreneurship education at the UiTM? (e.g. Advanced Business Innovation, Small Business Management and Accounting) (Duijn, 2009)

U3= Have you ever participated in entrepreneurship courses from UiTM? (e.g. Fundamental of Entrepreneurship & /or Entrepreneurship Co-curriculum) (Duijn, 2009)

Proactive personality

P1= I enjoy facing and overcoming obstacles to my ideas. (Kickul & Gundry, 2002)

P2= Nothing is more exiting than seeing my ideas turn into reality. (Kickul & Gundry, 2002)

P3= I excel at identifying opportunities. (Kickul & Gundry, 2002)

P4= I love to challenge the status quo. (Kickul & Gundry, 2002)

P5= I can spot a good opportunity long before others can. (Kickul & Gundry, 2002)

Risk taking propensity

R1= I can take risks with my money, such as investing in stocks. (Hisrich & Peters, 2002)

R2= When I travel I tend to take new routes. (Hisrich & Peters, 2002)

R3= I like to try new foods, new places, and totally new experiences. (Hisrich & Peters, 2002)

R4= I will take a serious risk within the next six months. (Duijn, 2009)

Self-employed parents

SE1= Are your parents currently self-employed? (Duijn, 2009)

SE2= Have your parents ever been self-employed? (Duijn, 2009)

Attitude towards entrepreneurship education /university environment

AEE1= I know many people in my university who have successfully started up their own business. (Autio et al., 2001)

AEE2= In my university, people are actively encouraged to pursue their own ideas. (Autio et al., 2001)

AEE3= In my university, you get to meet lots of people with good ideas for a new business. (Autio et al., 2001)

AEE4= Entrepreneurship courses at my university prepare people well for an entrepreneurial career. (Autio et al., 1997)

AEE5= In my university there is a well functioning support infrastructure to support the start-up of new firms. (Autio et al., 2001)

AEE6= Entrepreneurship cannot be taught. (Autio et al., 2001)

Subjective norm

SN1=My family and friends support me to start my own business. (Krueger et al., 2000)

SN2=If I became an entrepreneur, my family would consider it to be. (Autio et al., 2001)

SN3=If I became an entrepreneur, my close friends would consider it to be. (Autio et al., 2001)

Perceived behavioural control

PBC1= I am confident that I would succeed if I started my own business. (Autio et al., 2001)

PBC2= It would be easy for me to start my own business. (Autio et al., 2001)

PBC3= To start my own firm would probably be the best way for me to take advantage of my education. (Autio et al., 2001)

PBC4=I have the skills and capabilities required to succeed as an entrepreneur. (Autio et al., 2001)