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## Impact of effectuation based interventions on the intentions to start a business

Muhammad Shahid Qureshi  
*Institute of Business Administration, Karachi, Pakistan*

Fawad Mahdi  
*Institute of Business Administration, Karachi, Pakistan*

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**CASE STUDY**

**IMPACT OF EFFECTUATION BASED INTERVENTIONS ON THE  
INTENTIONS TO START A BUSINESS**

Muhammad Shahid Qureshi & Fawad Mahdi  
*Institute of Business Administration, Karachi, Pakistan*

**Abstract**

*Intention plays a very important role to measure one's willingness to pursue entrepreneurship as a career. Previous researchers have differed about various antecedents that impact the entrepreneurial intention to start a business. Entrepreneurship education (EE) assumes to play an important role in shaping traits and attitudes of an entrepreneur, contrary to the "entrepreneurs are born" school of thought. We use the Individual entrepreneurship orientation (IEO) construct as developed by Boltan and Lane (2011) to measure its impact on the intention levels of students. The use of Effectuation (Sarasvathy, 2001) as a pedagogical tool is used as a mediating variable between IEO and intentions. In a leading business school, a group of 63 business graduates were taught entrepreneurship based on effectual principles as proposed by Sarasvathy(2001).The empirical findings suggest an insignificant impact of IEO on student's intention levels; however the impact is significant when effectuation is used as a mediating variable between IEO and entrepreneurial intentions.*

*The paper discusses the theoretical foundations of individual entrepreneurial orientation, effectuation and intention, and then empirically tests the proposed model, followed by findings and recommendations. The findings of this research empirically established that the elements of IEO (i.e. risk taking, pro activeness, and innovation) independently do not increase students intentions to start a business, however when mediated by effectuation approach the intention levels of students were positively affected.*

**Keywords:** Entrepreneurship, Education, Effectuation, Entrepreneurial Intentions, Individual entrepreneurial orientation

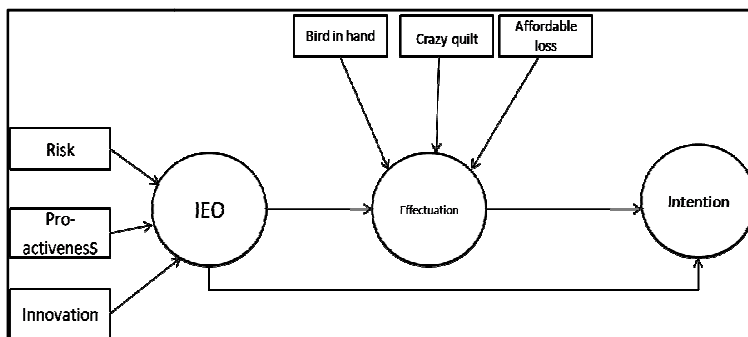
**Introduction**

Entrepreneurship has been considered as a very important tool in bringing an economy out of poverty and increasing employment levels. Countries which have experienced higher entrepreneurial activities have shown greater chances of economic activity(Audretsch, 2002). Nonetheless the challenge remains to make people aware of the importance of entrepreneurship especially in a developing country where countless opportunities exist for business startups. The part played by entrepreneurship education in promoting entrepreneurship is considered to be the key element in changing attitudes of the people(Potter, 2008). Thus in an economy like Pakistan, where unemployment levels are high and the job market saturated, the need for promoting entrepreneurship education at a university or college level assumes a central role. This would make students more aware of the opportunities that exist around them and would increase the supply of potential

entrepreneurs in the market. Therefore universities are now being called upon to play their part in helping students choose a career avenue (Gasse & Tremblay, 2011). However, a number of challenges remain for the universities. In an ever changing and dynamic business environment it is very difficult for a young business graduate having no hands-on experience to predict the future based on earlier experiences (S. D. Sarasvathy, 2001). Thus students tend to prefer the job market which offers them more comfort and peace of mind rather than embarking on an unexplored entrepreneurial journey. This again calls into question the curriculum design and pedagogy used by universities to teach entrepreneurship to students.

Most pedagogical techniques teach entrepreneurship as a linear phenomenon which can be described by causality (S. D. Sarasvathy, 2001), which is unable to relate theory with practice. Thus students find themselves distanced from the ground realities of starting a new venture and instead choose to distance themselves from entrepreneurship education. This paper argues that causality approach of entrepreneurship is not the ideal pedagogical approach to teach entrepreneurship. Regardless of the nature of context, entrepreneurship is about creating and realizing opportunities as they come (Shane & Venkataraman, 2000). Similarly, one cannot define pre-determined goals when the initial markets conditions are unknown and opaque, it is an event which is constructed and unfolded during the entrepreneurial process (S. D. Sarasvathy, 2001; Steyaert, 2007). Figure 1 explains our model whereby we measure IEO's direct impact on intentions as well as through effectuation. We use the structural equation modeling approach to test our model through the use of Smart PLS.

Figure 1: Proposed Model



### Causation and Effectuation Process

A lot of research has been done to lay out the differences between the two contrasting set of pedagogical techniques used to teach entrepreneurship. As per Sarasvathy (2001:245), "Causation process takes a particular effect as given and focuses on selecting between means to create that effect". Thus the pedagogy focuses more on creating a business plan, setting forth sales targets, segmenting markets (positioning), laying out a strategy for market penetration and raising the required capital to achieve the end.

The necessary requirement for such a large amount of information means that the entrepreneur will need to spend most of his time trying to acquire the resources necessary to carry out this analysis. In the process, the entrepreneur seeks to minimize his/her risks whilst maximizing expected returns. Thus the entrepreneur envisions the end and directs all his/her efforts to rationally achieve that pre-determined end state (Chandler, DeTienne, McKelvie, &

Mumford, 2011). During this causation process, the entrepreneur avoids surprises and prepares contingency plans, trying his best not to sway from the rationale into uncertain decisions or partnerships. This is the way majority of the entrepreneurship education is taught to business students. In the end, students end up making hefty business plans requiring millions as their startup cost. Thus few actually end up on the entrepreneurial journey. Those who do end up pursuing entrepreneurship are soon faced with realities which sway them away from their rational predispositions.

In contrast, in the effectuation approach, Sarasvathy (2001:245) argues that entrepreneurs “*take the set of means as given and focus on selecting between possible effects that can be created with that set of means*”. Thus when focus is on means, skills and current networks the end remains unknown. What can be controlled is what you already have with you and decisions are taken quickly (Mäkimurto-Koivumaa & Puhakka, 2013) and partnerships become inevitable as a means of reducing uncertainty and leveraging new markets (S. D. Sarasvathy, 2001). Thus entrepreneurs tend to act in an effectual rather than the causal way.

While the classical economic theory suggests that markets are predictable, in reality this is not the case. Sometimes entrepreneurs end up creating a market for a product which was non-existent before (Read & Sarasvathy, 2005), thus in all certainty, prediction based on past experience and occurrences becomes unimportant. In her book *Effectual Entrepreneurship*, Read et. al (2010) also mentions the fact that entrepreneurship by its very nature is a risk taking activity for which the compensation to the entrepreneur is in the form of profits. However, what distinguishes an entrepreneur from the rest is their ability to manage a comfortable level of risk while adjusting returns. This is in contrast to many theories of management and business where the focus remains on maximizing returns while trying to totally eliminate risk and reducing uncertainties. The whole process of gathering market information, segmentation and using statistical tools are a means to reduce uncertainty and the associated risk of entering the market, and it is often thought that this is the way for an entrepreneur to seize the opportunity (Mäkimurto-Koivumaa & Puhakka, 2013). Sarasvathy (2004) argues that true entrepreneurial opportunities emerge where the initial and final outcome remain largely unknown.

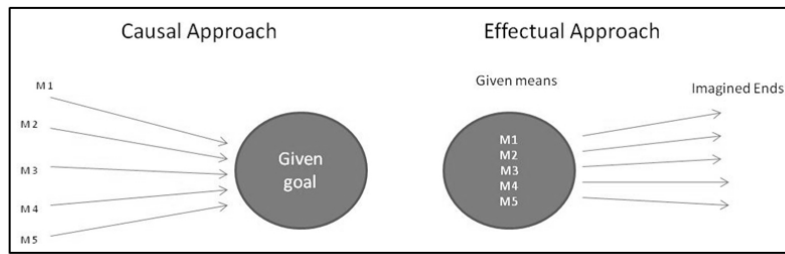
The very nature of the word “entreprendre” reflects this reasoning (Hjorth, 2003), where there is a need for a particular type of business but the exact nature of the business remains unknown (Koivumaa and Puhakka, 2013). Thus entrepreneurship is about solving problems having no definite reasoning (Knight, 1921). If one notices the teaching methodology in universities, the focus is on attaining means to achieve an end. The emergence of opportunities which arise out of our everyday problems is largely ignored simply because solutions to those problems do not exist. Thus in causality approach non-existence of historical data hampers opportunity recognition and realization as the entrepreneur do not have the necessary “tools” to predict the market size, customer segments etc. Once the data is unavailable, market perception turns out to be too risky and ambiguous. Therefore the teaching pedagogy of business plan preparations part of the entrepreneurship course needs to be reviewed. Empirical studies by scholars (Dew, Read, Sarasvathy, & Wiltbank, 2009; D. Sarasvathy, Simon, & Lave, 1998; S. D. Sarasvathy, 2001) have stated that entrepreneurs are less likely to focus on the end (e.g. how much sales will the firm be making in 3 years, how many product line will the firm have etc) and more likely to focus on what they have and change their vision accordingly (Chandler et al., 2011). Our approach to

measuring effectuation knowledge from students stems from the book of Effectual Entrepreneurship (Read, Sarasvathy, Dew, Wiltbank, & Ohlsson, 2010). There are five principles of effectuation that an entrepreneur exercises during his entrepreneurial journey (Sarasvathy 2001) namely the Bird in hand principle, the affordable loss principle, the lemonade principle and crazy quilt principle.

### Effectuation in Teaching Pedagogy

The bird in hand principle stresses that an entrepreneur starts with resources already available to him. This can be in the form of knowledge, skills, traits, attributes, savings, networks etc. Sarasvathy (2001) classifies this into three categories of the self: who I am, what I know and who I know. When the focus is on the available set of means the entrepreneur's actions are evaluated in terms of potential loss which is within an entrepreneur's affordability. These set of actions encourage short term experimentation and risk taking (Chandler et al., 2011) which takes us to the second principle namely; affordable loss

Figure 2 Effectual Entrepreneurship (Read et al., 2010)



Focusing on affordable loss rather than expected returns is also a very important characteristic of entrepreneurs. Affordable loss thus assumes a central position on which the start up venture is based upon (Chandler et al., 2011). The entrepreneur because of limited risk can afford to experiment various strategies and in the meanwhile fail cheaply (Sarasvathy 2001). Additional capital injection in the new firm is only justified if the venture bear better financial results. Thus managing risk within the affordability domain encourages the entrepreneur to be more innovative and pro-active. He is able to act boldly during the process since the downside risk is hedged by his affordable loss.

The third principle is about making partnerships and reducing risks. By entering into a collaborative setting, the entrepreneur remains *flexible* since predicting and depending solely on the opportunities previously realized is uncontrollable. Thus the “need for prediction is greatly reduced” (S. D. Sarasvathy, 2001). Chandler (2011) argues that an important advantage startups have over established and large firms is their ability to remain flexible and take advantage of opportunities as they arise. Therefore the teaching pedagogy of entrepreneurship from the effectual lens is considerably different from the causal approach.

During the program/course, students are taught various case studies and shown videos on effectuation where practical application of each individual principle is applied. Individual & group exercises are also held whereby students are encouraged to come up with a product with their available set of means.

Although case studies and lectures are traditional teaching tools in entrepreneurship education (Gibb, 2002; Heinonen & Poikkijoki, 2006), however ensuring that the right cases

are taught from the effectuation perspective is something very important. The focus generally is not on ensuring that student learn the theories and apply the management tools on it (Mäkimurto-Koivumaa & Puhakka, 2013) rather they are able to absorb, retain and be able to relate the concepts of effectuation to real successful stories. The cases taught were selected carefully to offer students diversity in terms of geography and scale. The case of Roxanne Quimby is the highlight of the all, where students actively engage and are able to relate the principles of effectuation to the growth of the firm. Successful entrepreneurs are also invited to share their entrepreneurial experiences in class. This activity provides students with an interactive tool of learning entrepreneurship, where they are again able to relate theory to practice, specifically the theory of effectuation to its application. As stated by researchers (Honig, 2004; Kyrö & Tapani, 2007), business plans are not very effective in developing entrepreneurial skills or starting a new venture. It only states the processes, operations and planning strategies as required in a causal approach (Mäkimurto-Koivumaa & Puhakka, 2013). The effectuation process on the other hand negates these principles and suggests that although future cannot be predicted, the present can be controlled. Thus in light of the effectuation theory, a one page business model canvas was developed. This activity gave students a pictorial representation of the effectuation process and helped them identify their respective areas of strength and skills along with the business proposition which they would like to pursue. Building a vision for the startup is also a very critical factor which is taught to students. Based on the characteristics of being timeless, noble and correct, each startup must develop a vision for his startup company. In the whole process emphasis is laid on developing an entrepreneurial mindset, particularly of making partnerships, which is the core process through which the entrepreneur is able to reduce risk (S. D. Sarasvathy, 2001).

Learning the effectual behavior is a process which requires the use of innovative teaching pedagogies (Kirby, 2007; Kyrö & Carrier, 2005; Politis, 2005). Role plays and enactments are tools (Johannisson, 2002; S. D. Sarasvathy, 2001) which can be used in class whereby a student has to model an entrepreneurial character. This activity helps students understand the importance of making partnerships and accepting surprises in an entrepreneurial venture, as by entering into the shoes of the entrepreneur the students is able to naturally act and think in an effectual way. This also positively impacts the thinking capability of the students and they are able to come up with innovative strategies. Thus entrepreneurship education when taught effectively leads to an entrepreneurial mindset (Mäkimurto-Koivumaa & Puhakka, 2013).

### **IEO & Entrepreneurial Intentions**

Different researchers have indicated different factors which impact a person's entrepreneurial intentions. McClelland initially suggested that the need for entrepreneurial or personal achievement is associated with intention (McClelland, 1967). Later works suggested that gender, age, religion, education etc also impacts the intention to start a business (Reynolds, Storey, & Westhead, 1994; Storey, 1994). However, with the follow up research and critical analysis of the above factors, many authors have raised a question as to the explanatory capacity of these factors, not to mention the arguments they have raised as to their inherent limitations (Ajzen, 1991; Gartner, 1988; Santos-Cumplido & Liñán, 2007; Shapero & Sokol, 1982).

Although (Gartner, 1985) argued that an entrepreneur cannot be defined by an average common personality traits simply because each entrepreneur is unique in their entrepreneurial approach, (Rauch & Frese, 2007) suggests otherwise. One perspective argues

that since entrepreneurship is a career path which is chosen by an individual himself, either driven by necessity or opportunity, the entrepreneur will possess certain common traits (Krueger Jr, Reilly, & Carsrud, 2000). The predictive capacity however is still very limited (Reynolds et al., 1994). Even though intent remains the most important construct in the field of entrepreneurship (Bird, 1988; Krueger Jr et al., 2000) it still lacks complete clarity, as can be observed from the above arguments raised by various researchers. Some consider the word to mean career orientation (Francis & Banning, 2001), new startups (Korunka, Frank, Lueger, & Mugler, 2003), perception on self employment (Singh & DeNoble, 2003) and wanting to have an own business (Crant, 1996).

Seeing all the different interpretations of intention, it is not difficult to see that there is great obstruction in research and lack of consensus with respect to agreeing on a set of personality traits, circumstances and exogenous factors associated with entrepreneurship. Yet it remains as one the most important proxy and construct in the field of entrepreneurship (Thompson, 2009). This is because any new setup or business is set up with a planned cognitive reasoning (Krueger Jr et al., 2000; Shook, Priem, & McGee, 2003). It is also interesting observation by (Krueger, 2007) where he argues that not all business opportunities which an individual “stumbles” upon is converted into venture creation. This is because when an individual lacks entrepreneurial intentions the opportunity recognition is exhausted, as the entrepreneur never “intended” to do the business initially. It is worthy to note that many individuals merely consider intent as their desire or willingness to start a business and that they would prefer to be entrepreneurs one day. However, some never manage to get their hands dirty and start the entrepreneurial journey (Thompson, 2009). This is because the degree of intent varies among individuals and even the ones with high intent usually fail to start a business (Aldrich, 1999). One solution which Carsrud et al. (1986) suggest is that intentions can be moderated and mediated by educational level using various pedagogies (Carsrud, Gaglio, & Olm, 1986). Thus it again comes to an argument among scholars of whether entrepreneurial intention is a necessary condition to start a business? Thompson (2009) claims that it’s a necessary but not a sufficient condition. Since intentions can be shaped by cognitions (Mitchell, Smith, Seawright, & Morse, 2000) and through educational training, we use the mode of effectuation model developed by Sarasvathy, whereby intentions were shaped by one’s ability to control what they could afford to lose.

Entrepreneurial orientation is also a very important variable which is used in entrepreneurship research influencing the intentions levels and a very important construct to faculty in entrepreneurship pedagogy (Bolton & Lane, 2012). EO has been considered a set of traits and characteristics which defines every entrepreneur. However, question remained as to what those factors are. (Lumpkin & Dess, 1996) defined five traits as having those characteristics, namely pro activeness, competition, innovativeness, aggressiveness and autonomy. Some researchers suggested that these traits when coupled with a suitable environment along with social influences allows individuals to increase their chances of entering into an entrepreneurial activity (Levenburg & Schwarz, 2008). Similarly, remaining exposed to businesses also increases one’s attitude towards entrepreneurship (Domke-Damonte & Faultstich, 2008; Raposo, do Paço, & Ferreira, 2008). Even though much of the research in IEO stemmed from the theory of trait being the defining feature of entrepreneurs, this was soon rejected by research undertaken by (Zhao, Seibert, & Lumpkin, 2010) who concluded that in over 60 studies conducted only two traits were found to have an impact on intentions. In this study we use three factors of IEO developed by (Bolton & Lane, 2012) which impacts intentions significantly, namely, pro activeness, innovation and risk taking.

Attitudes are used in the study as they are better suited to measuring intentions. Attitudes also tend to change over time, and influencing them either through education or experience can have a positive impact on one's intention to start a business (Harris, Gibson, & Taylor, 2007); (Packham, Jones, Miller, Pickernell, & Thomas, 2010). Bolton and Lane (2012) on the other hand proposes that a higher IEO score would indicate that an individual positively intends to become an entrepreneur. Thus, we will test two hypothesis in our paper based on these two theories. One hypothesis proposes that IEO will significantly impact intentions **through effectual knowledge**. Thus attitudes have to be aligned with specific effectual pedagogy (effectuation) to produce the desired results (intention to start). Second we will test the hypothesis of Bolton & Lane to see the impact of IEO on Intentions. Thus our hypotheses are as follows:

*H1: IEO has a significant impact on the intentions to start a business*

*H2: IEO along with Effectuation significantly impacts the intentions to start a business.*

### **Measures**

To collect our data, students were asked to complete a questionnaire which was based on a Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

#### ***Intentions***

Thompson's Individual Entrepreneurial intent scale was to measure student intentions, with the degree of intentions varying among individuals (Thompson 2009). Thus those who measure higher on the intention scale will have a higher probability and chances of actually starting their own business in the future. Table 1 shows the reflective questions of Intentions construct.

***Table 1: Intentions measurement scale used***

#### Individual Entrepreneurial Intent Scale

1. Intend to set up a company in the future
2. Never Search for business opportunity ( R )
3. Saving money to start a business
4. Have no plans to start a company ( R )
5. Spend time learning about starting a firm

#### *Individual Entrepreneurial Orientation (IEO)*

We use the Bolton and Lane (2011) measure of assessing IEO in students. As per the scale, Risk taking, pro-activeness and innovativeness variables explain an individual's entrepreneurial orientation. Each variable had particular questions which the student had to answer in order to measure their IEO. Table 2 lists the questions which were asked.

***Table 2: IEO Scale***

#### Individual Entrepreneurial orientation scale

Items:

Risk:

1. I tend to take calculated risk before proceeding on a idea/task
2. I would like to do small experiments to understand and minimize my risk
3. I tend to act very boldly when the amount of risk is within my affordable loss



**Innovation:**

1. In general, I prefer a strong emphasis in projects on unique, one-of-a-kind approaches rather than revisiting tried and true approaches used before
2. I prefer to try my own unique way when learning new things rather than doing it like everyone else does
3. I often like to try new and unusual activities that are not typical but not necessarily risky
4. I favor experimentation and original approaches to problem solving rather than using methods others generally use for solving their problems

**Pro-activeness:**

1. I usually act in anticipation of future problems, needs or changes
2. I tend to plan ahead on projects
3. I prefer to “step-up” and get things going on projects rather than sit and wait for someone else to do it

**Effectuation knowledge:**

Building on Sarasvathy’s(2001)model of effectuation we examine four main principles, namely,

- The bird in hand principle where an entrepreneur looks at the available means and asses his internal strengths to leap forward on the entrepreneurial journey.
- The crazy quilt principle, which suggests that the entrepreneur tends to enter into networks and partnerships which makes the journey relatively easy.
- The lemonade principle whereby the entrepreneur remains flexible and is open to surprises in their daily lives and where they adopt themselves to changing dynamics of the market.
- The affordable loss principle, which encourages experimentation in the business knowing that the downside to the expected return is minimal (Chandler et al. 2011)

Table 3 lists the items measured by effectuation in our survey

**Table 3: Effectuation items**

1. To start a company available set of means are more important to me
2. My networks, contacts and classmates and alumni will be important for my business
3. Passion, hobbies and interest are key ingredients to start a business
4. I will not make agreements with customers, suppliers and other organizations to reduce the amount of uncertainty
5. I would like to interact with people I know to discuss my business idea
6. I am open to make partnership with other people interested in my business idea
7. I feel very uncomfortable to surprises in my daily life
8. I take surprises positively and try to take benefit from them
9. I am open to adapt myself to upcoming surprises
10. I would be careful not to commit more resources than I could afford to loose
11. Instead of expected returns I look at the downside risk of the opportunity

**Results**

The total sample size used in the research was 63 of which 41% students were male and 59% females. All of them hailed from urban background. 66% did not have any family business

background, while 34% said that they did. We used the PLS path modeling to measure the construct rather than co-variance based methodology. We treated IEO and Intentions latent variables on a reflective scale and propose effectuation is a formative construct having multiple dimensions (Chandler et. al. 2011). In the first two latent variables causality flows from the latent variables to the constructs while for effectuation it is the other way round. Prior to factor analysis, we tested the model for reliability by using the Cronbach's Alpha, Kaiser-Meyer-Olkin (KMO) measure of adequacy and Bartlett's test of significance. The following table illustrates the values for the model:

	<b>Effectuation</b>	<b>IEO</b>	<b>Intentions</b>
<i>Chronbach's Alpha(<math>\alpha</math>)</i>	0.678	0.775	0.765
<i>KMO Value</i>	0.655	0.729	0.720
<i>Bartlett's Test</i>			
Chi Square	141.627	155.57	82.644
df	66	56	10
Sig	p<.000	p<.000	p<.000
R Square	0.447		0.288

As the table suggest Chronbach's Alpha and KMO values for all constructs are greater than 0.5 and we have a significant value for Bartlett's test indicating an appropriate factor analysis. It is also interesting to note that the total variance explained by these factors complies with our expectations. The construct of effectuation has four factors explaining 58% of all the total variance, IEO variance was explained by 3 factors accounting for 62% and finally intentions where we have one factor explaining 51.8% of the total variance. The factor loadings for all latent variables are provided in table 4 below. The factors loaded pretty well and as per expectation. This shows the reliability of the factors and that they measure the latent variable as explained by these factors. However, some of the variables had cross loadings and were thus removed from our final analysis (namely Questions 15, 16, 18 and 20). Excluding them produced a substantially clean loading pattern. We use guidelines laid out by (Hair, Tatham, Anderson, & Black, 2006) which termed factor loadings above 0.4 as having ample statistical power.

Structural equation modeling was used to assess the causal relationships between the latent variables.

*Table 4: Factor loadings for the model*

	Effectuation	IEO	Intention
RiskQ1		0.458	
RiskQ2		0.603	
RiskQ3		0.623	
InnoQ4		0.632	
InnoQ5		0.644	
InnoQ6		0.628	
InnoQ7		0.660	
ProQ8		0.463	
ProQ9		0.416	
ProQ10		0.580	
IntentQ11			0.759
IntentQ12			0.846
IntentQ13			0.615
IntentQ14			0.807
BHandQ17	0.646		
BHandQ19	0.404		
LnadeQQ21	0.126		
LnadeQ25	0.774		
ALossQ26	0.342		
ALossQ27	0.412		

The composite reliability of IEO and Intention was 0.830 and 0.845 respectively, much higher than the cutoff point of 0.7. Similarly R square for effectuation was 0.447 and for intentions 0.288. Figure 3 depicts our SEM results. The path coefficients and statistical values of the model are as follows

**Mean, STDEV, T-Values, P-Values**

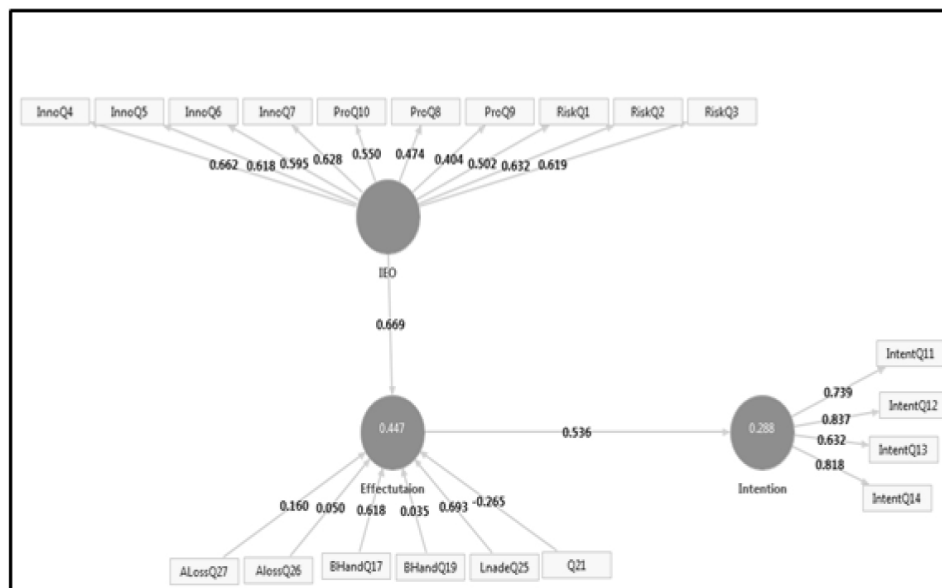
	Original Sample (O)	Sample Mean (M)	Standard Error (STERR)	T Statistics (O/STERR)	P Values
<b>Effectuation -&gt; Intention (H2)</b>	0.449	0.481	0.204	2.203	0.028
<b>IEO -&gt;Effectuation (H2)</b>	0.653	0.685	0.089	7.374	0
<b>IEO -&gt; Intention (H1)</b>	0.127	0.152	0.212	0.598	0.55

To test discriminant validity factor correlation matrix was used to test distinction of factors. Table 5 shows the cross loadings for our model. As can be seen from the table no factor had a cross correlation above 0.7 and all factors correlated very well with their own factors. The VIF values were measured at 1.74 which were well below the defined limit.

Table 5: Correlation Matrix

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q17	Q19	Q21	Q25	Q26	Q27
Q1	1	0.323	0.051	0.36	0.117	0.14	0.085	0.365	0.253	0.188	0.003	0.022	0.079	0.105	0.177	0.106	0.153	0.377	0.495	0.078
Q2	0.323	1	0.226	0.448	0.217	0.175	0.284	0.284	0.218	0.18	0.168	0.16	0.069	0.202	0.312	0.197	0.128	0.327	0.317	0.306
Q3	0.051	0.226	1	0.345	0.336	0.427	0.333	0.183	0.215	0.302	0.224	0.27	0.097	0.082	0.199	0.347	-0.032	0.383	0.041	0.308
Q4	0.36	0.448	0.345	1	0.336	0.235	0.292	0.083	0.133	0.18	0.196	0.196	0.19	0.125	0.315	0.156	0.242	0.465	0.351	0.164
Q5	0.117	0.217	0.336	0.336	1	0.539	0.502	0.105	0.063	0.378	0.299	0.273	0.056	0.158	0.13	0.345	0.101	0.315	0.078	0.17
Q6	0.14	0.175	0.427	0.235	0.539	1	0.541	0.082	0.128	0.263	0.377	0.265	0.066	0.213	0.08	0.167	0.013	0.281	0.026	0.231
Q7	0.085	0.284	0.333	0.292	0.502	0.541	1	0.076	0.039	0.314	0.493	0.342	0.134	0.245	0.178	0.334	0.039	0.403	0.223	0.164
Q8	0.365	0.284	0.183	0.083	0.105	0.082	0.076	1	0.445	0.312	0.158	0.203	0.151	0.162	0.241	0.143	0.004	0.25	0.207	0.27
Q9	0.253	0.218	0.215	0.133	0.063	0.128	0.039	0.445	1	0.485	0.105	0.156	0.152	0.124	0.035	-0.116	-0.059	0.073	0.113	0.169
Q10	0.188	0.18	0.302	0.18	0.378	0.263	0.314	0.312	0.485	1	0.306	0.337	0.117	0.092	0.177	0.273	0.17	0.242	0.08	0.17
Q11	0.003	0.168	0.224	0.196	0.299	0.377	0.493	0.158	0.105	0.306	1	0.611	0.299	0.419	0.201	0.128	0.058	0.292	0.085	0.122
Q12	0.022	0.16	0.27	0.196	0.273	0.265	0.342	0.203	0.156	0.337	0.611	1	0.312	0.595	0.351	0.005	-0.05	0.246	-0.018	0.121
Q13	0.079	0.069	0.097	0.19	0.056	0.066	0.134	0.151	0.152	0.117	0.299	0.312	1	0.359	0.395	0.077	0.047	0.235	-0.019	-0.149
Q14	0.105	0.202	0.082	0.125	0.158	0.213	0.245	0.162	0.124	0.092	0.419	0.595	0.359	1	0.408	0.048	-0.047	0.257	0.078	0.2
Q17	0.177	0.312	0.199	0.315	0.13	0.08	0.178	0.241	0.035	0.177	0.201	0.351	0.395	0.408	1	0.25	0.232	0.118	0.035	0.015
Q19	0.106	0.197	0.347	0.156	0.345	0.167	0.334	0.143	-0.116	0.273	0.128	0.005	0.077	0.048	0.25	1	0.128	0.322	0.098	0.081
Q21	0.153	0.128	-0.032	0.242	0.101	0.013	0.039	0.004	-0.059	0.17	0.058	-0.05	0.047	-0.047	0.232	0.128	1	0.314	0.275	0.11
Q25	0.377	0.327	0.383	0.465	0.315	0.281	0.403	0.25	0.073	0.242	0.292	0.246	0.235	0.257	0.118	0.322	0.314	1	0.447	0.353
Q26	0.495	0.317	0.041	0.351	0.078	0.026	0.223	0.207	0.113	0.08	0.085	-0.018	-0.019	0.078	0.035	0.098	0.275	0.447	1	0.31
Q27	0.078	0.306	0.308	0.164	0.17	0.231	0.164	0.27	0.169	0.17	0.122	0.121	-0.149	0.2	0.015	0.081	0.11	0.353	0.31	1


Figure 3: First order SEM Model



Conclusion

As the empirical tests reveals, IEO does not have a significant direct impact on the student’s intention to start a business. It is only significant if we teach them the effectuation principles. This intuitively makes sense as well. Attitudes such as pro-activeness, innovativeness and risk taking are innate characteristics which make up a behavior of an individual, such behaviors can subside over a period of time. Entering into a corporate job will to a certain extent diminish that quality unless he/she is guided on the path of entrepreneurship. Effectuation seeks to lay out the most viable solution for shaping these

attitudes to be channelized into startups. Small steps which can even be taken during the course of studies will give these students enough confidence to embark on the journey once they graduate. Although one limitation of this study is the sample size, but this gives a new perspective and domain in entrepreneurship education and seeks to establish that teaching effectuation to students positively impacts intentions to start a business. Business schools place a lot of emphasis by preaching the traits of entrepreneurs in isolation. This in our case seems to be problematic, as it will not significantly impact the students intention to start a business.

In Pakistan, entrepreneurship is the need of the day. Jobs have almost dried up and most of the graduates have been unable to find jobs. In this scenario, entrepreneurship provides them an opportunity to explore the untapped market within Pakistan and abroad. The Institute of Business Administration, being the oldest business school in South Asia is promoting this cause by reaching out to all the major universities across Pakistan and training their faculty to teach effectuation theory of entrepreneurship to students. We have also revamped the idea of business competition by making it a business startup competition where students have to sell their products to a few customers before they are eligible to apply in the competition. This is done on the basis of effectuation theory where every student is trained to look at the downside risk rather than expected return as taught in the causal model of entrepreneurship. Therefore we suggest that effectuation teaching should be used as a mode of teaching instead of the traditional causal approach. 

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“Vitality, power of life, is correlated to the kind of life to which it gives power. The power of man’s life cannot be seen separately from what the medieval philosophers called “intentionality,” the relation to truth meanings.”

Paul Tillich, *The Courage to Be*, p.81