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## Article

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## **An Analysis of the Relationship between the Components of Entrepreneurship Education and the Antecedents of Theory of Planned Behavior**

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### **Abstract**

The purpose of the present study is to explore the relationship between the components of entrepreneurship education on the one hand and the antecedents of students' entrepreneurial intentions, on the other hand. A casual comparative survey was conducted to find out the impact of entrepreneurship education on entrepreneurship education participants (n=198) and on non-participants (n=202). The sample was selected from GIII level students of Technical and Vocational Education and Training (TVET). The t-test was applied to study the mean difference. The structural equation modeling was used to study the relationship between the entrepreneurship education components and the antecedents of entrepreneurial intentions. The embedded research design was used to support the results of the quantitative dataset by means of the qualitative interviews of the entrepreneurship education participants (n=15). The results showed that there was an impact of entrepreneurship education on the student's intentions to become entrepreneurs. The originality of the present research consists of the combination of components of entrepreneurship education and antecedents of entrepreneurial intentions in the context of TVET. This study will be useful for policy makers and curriculum developers. The study is limited only to the GIII level students of TVET. A future study can be conducted to investigate the entrepreneurial behavior of TVET graduates.

**Key Words:** entrepreneurship education, technical vocational education and training (TVET), theory of planned behavior, entrepreneurial intentions, entrepreneurial curriculum.

### **1. Introduction**

Entrepreneurship plays a vital role for the social and economic development of a society by providing opportunities of self-employment as well as employment to others. Entrepreneurship research probes into a number of target groups liable for entrepreneurial

policies such as women, youth, the unemployed and the deprived and the rural population (GEM, 2012). According to Valerio, Parton and Robb (2014) and Volkmann et al. (2009), policy makers have sought to signify the youth above all policy agendas to overcome societal problems such as youth unemployment and crime in society. Several research reports like Global Entrepreneurship Monitor (2010) has found that 187 million women are engaged in entrepreneurial activities in 80% of the world economy, which reveals that women play an important role in the economic uplift of their own families. Therefore, women are also important target for entrepreneurship policy makers. Yaw (2007) argues that policy makers have also taken up steps to reduce constraints on unemployed and marginalized people such as rural area population working in agriculture. Governments and educational policy makers have focused on promoting youth, marginalized people and women to encourage entrepreneurship by introducing entrepreneurship education programs and skill development programs.

Globally speaking, governments are providing support to entrepreneurship education by developing plans and agendas. Pittaway and Cope (2007) state that a government can set a policy framework to develop a viable context for the implementation of entrepreneurship education plans in the educational system and in educational institutions. Martin et al. (2013) suggest that governments can directly provide funding for educational interventions to develop entrepreneurial curricula and can train teachers for the implementation of entrepreneurial curricula in educational institutions. However, Cho and Honorati (2014) claim that it is more beneficiary to involve the private sector for the implementation of educational plans. Therefore the government can play its role for providing an equivalence framework throughout regional educational institutions and monitoring as well evaluation of implementation process of entrepreneurship education. Pittaway and Cope (2007) believe that the role of governmental educational policies regarding entrepreneurship education is slightly under-shadowed. They further add that the role of international, national, regional and local nongovernmental and supra national agencies is also not clear in shaping entrepreneurial interventions. National Skills Strategy by National Vocational and Technical Training Commission (NAVTTTC) (2009) has emphasized on entrepreneurship education to encourage entrepreneurship among youth. Keeping in view the needs for the future and all that has been stated above, the International Labor Organization (ILO) has developed Know About Business (KAB) modules for students. Teachers were trained for the delivery of KAB to students in collaboration with ILO during the year 2011. Later on, the teachers delivered the KAB modules to students.

With the modern trends that have depicted a strong inclination towards entrepreneurship education, we find that it has attained high importance since the beginning of the 21<sup>st</sup> century. In a current report, World Bank(2012) concludes that entrepreneurial mindset and skills can be cultivated and enhanced through entrepreneurship education for the promotion of entrepreneurship as compared to the debate that entrepreneurship can be learned or not (Isaacs et al., 2007). Most of the researches endorse that certain aspects of entrepreneurship can be learnt (Timmsons and Spinelli, 2004; Kuratko, 2005) while others researches argue that not all of them can be learnt (Haase and Lautenschlager, 2011). Entrepreneurship can be categorized as “Arts” and “Science” where art cannot be learnt (creativity, innovation and thinking) except with practical experience while science such as business management skills can be learnt through education (Valerio et al., 2014)). Apart from the research based debate that supports the view of combining

education and training with effective pedagogical skills can transmit art of entrepreneurship as well entrepreneurship as science to its learners (World Bank 2010).

Nithcer and Goldmark (2009) put forward the notion that an important aspect of entrepreneurship education research is to understand entrepreneurial mind set and skills in order to understand entrepreneurial opportunities recognition of available opportunities. Education helps individuals to understand cognitive ability relevant to the skills and capabilities of individual those concerned with available opportunities (Levie and Autio, 2008). Higher levels of education are also linked with high level of enterprise formation and entrepreneurial performance (Isaacs et al., 2007).

Moreover, Valerio et al. (2014) comment that entrepreneurship education includes a range of intervention that further includes technical education curricula, dropout education programs, non-formal education, adult education programs and business development support services. Henry, Hill and Lietch (2005) imply that currently there are very few studies those have found out link between entrepreneurship education and students outcomes as well as entrepreneurial activity and success. It is therefore needed to understand the impact that entrepreneurship leaves on the student's performance in the form of entrepreneurial mindset and skills. Having stated that one needs to also go with the notion that there exists a shortage of experimental studies with focus in the area of the impact of entrepreneurship education intervention programs and there are less available tracer studies to study that whether students have become entrepreneur or not (Gundlach and Zivnуска 2010). There is rare information available on the pedagogical skills used in teaching of entrepreneurship and its learning outcomes relations. Garavan and O' Cinneide (1994) also support that the content of certain entrepreneurship education programs and pedagogical skill give entrepreneurial outcome and activity is not clearly known. Therefore, it is of utmost importance to investigate into the existent variables that lay impact on a Participant's personal characteristics and social background for satisfactory performance output (Lee et al. 2006). Impact studies can make a valuable contribution by assessing impact of different characteristics of entrepreneurship education programs. It will prove to throw light on critical evidence required to launch entrepreneurship education programs with different combinations at different levels in different context to produce effective entrepreneurial outcomes among students.

## **2. Literature Review and Theoretical Framework**

Entrepreneurship has been defined in many ways by different researchers. Schumpeter (1934) described the entrepreneurship as creative destruction process through innovation. Kirzner (1973) defined entrepreneurship as discovery process that is based upon profit seeking. Schoof (2006) supports the same argument by stating that entrepreneurship was also defined as economic activity for opportunity recognition process to create value and work for that opportunity. According to Valerio et al. (2014) entrepreneurship can be defined from a practitioner's point of view as a process of initiating economic activities as legal enterprise to create wealth. Entrepreneurship takes part in economic development from the process of creating employment to the process of providing employment, from innovation to poverty reduction where entrepreneurship is linked with international and national economic perspectives of development and growth (Carree and Thurik 2003; ILO 2011). As an example entrepreneurship is major source of job creation and self-employment generation in developed and developing countries (Fritsch 2004; Schramm and Litan 2009). Entrepreneurship also provides a constant income flow process. It also

helps to enhance profits of economies for vulnerable populations (Karlan and Valdivia, 2011). Praag and Versoolt (2007) hold the view that entrepreneurship also provides a link between entrepreneurial process, innovation and technological changes.

Entrepreneurship education and training has been introduced at global, international, national, regional and local level on experimental basis. According to Mwasalwiba (2010) entrepreneurship education has been established as recognized field of study with a demand from students as well as policy maker's interest. Therefore, Entrepreneurship education reflects the transformation of entrepreneurial mindset and skills as well as program that incorporates entrepreneurial outcomes among students. Entrepreneurship education can be considered as an educational program or training program or intervention that develops individuals for entrepreneurial mindset. It also imparts entrepreneurial skills to develop learners for participation in entrepreneurial activities of the society (Valerio et al., 2014).

According to Rauche and Frese (2007) and; Cloete and Ballard (2012), entrepreneurial mindset as well as skills are about learning social and emotional skills such as leadership, creativity, innovation, self-confidence, motivation and risk taking propensity. These skills may also include entrepreneurial way of thinking (Fayolle et al., 2006), knowledge and skills required for business management, such as marketing, human resource management and financial management (Russel, Atchisona and Brooks 2008; Karlan and Valdivia 2011).

Literature available on the impact of entrepreneurship education have shown mixed results for example Souitaris, Zerbinati and Al-Laham (2007) found that entrepreneurship education has short term impact on entrepreneurial intentions of the students; whereas in another research study by Haase and Lauteschlager (2011) have found negative or insignificant impact of entrepreneurship education on entrepreneurial intentions of the students. Another complexity presented by Pittaway and Cope (2007) is weakness of relationship between entrepreneurial intentions and entrepreneurial activity (business start-ups). Hence, it may be stated that researches has given variety of outcome but all of them are mixed with each other. It is also worth mentioning that outcomes of interventions also depend on types of training programs for example a study by Martin et al. (2013) has found different effects of training focused and education focused entrepreneurship education interventions on students. Therefore, this study aims to assess the impact of entrepreneurship education on the students in context of Technical Vocational Education and Training in Pakistan.

### *2.1 Theory of Planned Behavior*

Theory of planned behavior (Ajzen 1991) is one of the prominent psychological theories that extend a hand to explain the process of new venture creation in the area of entrepreneurship research. This theory is based on the notion that the best way to research entrepreneurial mindset of the people is asking them about their tendency to start their own business. Theory of planned behavior (TPB) is a social psychological model that describes the changes in behavior through intentions (Liao et al., 2007; Kaiser, 2006; Fretschner, 2014). Theory of planned behavior is among most cited theories in social psychology (Armitage and Conner, 2001; Kidwell and Jewell, 2003; Walker et al., 2001; Watson et al., 2014; Zeng and Ajzen, 2014). It has been used in different studies ranging from food, health, marketing, media studies (Kim et al., 2013; Sparks and Shepherd, 1992; Cook et al., 2002; Arvola et al., 2008) and other field of studies such as

water prevention (Yazdanpanah et al., 2014, and; Yazdanpanah and Forouzani 2015), climate change (Fielding et al., 2008), marketing (Liao et al., 2007), health related issues and entrepreneurial behaviors (Colemont and Van den Brouck, 2008).

The researcher plans to select the TPB by Ajzen (1991) to study the impact of entrepreneurship education on entrepreneurial intentions of the students. This theory describes the antecedents of entrepreneurial intentions formation. According to Ajzen (1991), intentions are based on antecedents such as perceived behavioral control; personal attitude and subjective norms. These factors are combined to affect a person's intentions towards entrepreneurship as career selection (Serida & Tristán 2011; Fretschner 2014; Lortie & Castogiovanni 2015). The factor of education has been added in these antecedents to examine the impact of entrepreneurship education.

#### 2.1.1 Attitude towards Entrepreneurship

Keuriger, Reilly, & Carsrud (2000) say that attitude is like or dislike of a certain act as an outcome of beliefs and behaviors. The attitude towards entrepreneurship is a measurement of the individual's perceived probability to run one's own business. It is also individual's motivation to choose entrepreneurship as career choice by keeping in view the inside attraction for new venture creation. Previous researchers have found different components that affect the attitude towards entrepreneurship such as personal wealth, respect or prestige associated with running a business, personal autonomy and social benefits in terms of social and economic improvement (Serida & Tristán 2011; Shapero 1982, and Krueger, Reilly, & Carsrud 2000).

#### 2.1.2 Perceived Social Norms

The people in surroundings of a person such as relatives, family and friends are important in decision-making process of that person, for example what do a person's friends suggest about that person becoming a doctor, lawyer or adopting any other profession of his/her choice. These normative beliefs are measured by the motivations of family or friends to influence with their suggestions, ideas or gestures. In the area of entrepreneurship research, these beliefs are measured with a valid construct through assessing the expected support or motivation of the significant others and friends for running a business. Ajzen (1987); Bagozzi, Baumgartner and Yi (1992); Krueger et al.(2000); and Lortie & Castogiovanni (2015) suggest that perceived subjective norms are weak predictors of high internal locus of control and strong orientation for taking actions. Practically, we can observe these social influencers such as friends, parents and other significant relations who may also include teachers, mentor or consultants.

#### 2.1.3 Perceived Behavioral Control

According to Krueger et al. (2000), perceived behavioral control is an important component of entrepreneurial intentions. It is based on Bandura's (1986) concept of self-efficacy that is perceived efficiency of a person to perform certain acts or behavior (Ajzen 1987). Meyer, Zacharakis and De Castro, (1993) and Fretschner (2014) consider that it is an act of personal consciousness to control the given situation. Bandura (1986); Seligman (1990) and Kreuger et al., (2000) also add that high level of self-efficacy characteristics gives a "learning experience".

#### 2.1.4 Entrepreneurship Education

The component of entrepreneurship education has been added in the antecedents of TPB. There is an increasing interest of entrepreneurship education throughout the world

(Kuratko 2003). The popularity of entrepreneurship educational programs has been fueled by the requirements of various stakeholders such as policy makers (political will for eliminating the problem of unemployment), students (due to non-availability of jobs in market) and educational institutions (to fulfill national needs and student's needs). Educational institutions incorporate entrepreneurship education as a component of education to enhance entrepreneurial intentions. This study will find out the impact of entrepreneurship education on the antecedents of entrepreneurial intentions through the testing of the following hypothesis based on TPB;

**H<sub>1</sub>:** There is no difference between entrepreneurship education participants and non-participants in terms of:

- i. Attitude towards entrepreneurship
- ii. Perceived behavioral control towards entrepreneurship
- iii. Subjective Norms towards entrepreneurship

**H<sub>2</sub>:** There is no significant relationship among antecedents of entrepreneurial intentions such as attitude, perceived behavioral control and subjective norms

### *2.2 Components of Entrepreneurship Education*

The antecedents of entrepreneurial intentions need to be tested with reference to the components of entrepreneurship education (Long, 2011). Entrepreneurship education has been divided into various components according to the classification of Johannisson (1991). These are stated as follows:

#### *2.2.1 Know-Why*

Know why deals with the attitude, values and motivation of the learners for entrepreneurship education. It is meant to enhance the learner's self-efficacy, motivation for achievement and risk taking propensity of the learner's in context of the development of the entrepreneurial spirit and availability of mentors and role models.

#### *2.2.2 Know-How*

Know how helps to enhance entrepreneurial skills and abilities of the learners by providing them entrepreneurial and vocational skills in the context of complex occupational and business structures.

#### *2.2.3 Know-Who*

It aims to impart social and networking skills to the learners in the context of production and social network development.

#### *2.2.4 Know-What*

Know what is to learn entrepreneurial knowledge like encyclopedic knowledge and be a part of information networks in the world of vocational and entrepreneurial training.

The hypothesis derived from the above mentioned discussion are as following;

**H<sub>3</sub>:** There is no significant relationship among different components of entrepreneurship education

**H<sub>4</sub>:** There is no significant relationship between the components of entrepreneurship education and the antecedents of entrepreneurial intentions

### **3. Research Methodology**

A casual comparative survey has been conducted from the students who have participated in entrepreneurship education (n=198) and who have not participated (n=202). These students were selected from GIII level courses of Technical Vocational education and

Training (TVET) Institutions of Punjab. Entrepreneurial Intention Questionnaire (EIQ) has been used in this study to find out difference between the intentions of entrepreneurship education participants and non-participants. t-test was used to compare the intentions of entrepreneurship education participants and non-participants. Structural Equation Modeling (SEM) was used to find out relationship between the components of entrepreneurship education and the antecedents of entrepreneurial intentions.

Semi structured interviews were also conducted from entrepreneurship education participants (n=15). These participants were selected through convenient sampling. Descriptive analysis was used for analysis purpose. According to Creswell and Clark (2007) it is not all time possible to draw the conclusion based on quantitative research or only qualitative research therefore both approaches support each other to answer the research question. The embedded research design has been used in this study to endorse or reject the results of quantitative data set by qualitative data set (Creswell and Clark, 2007). The embedded research design is a type of research design in which quantitative data set is supported by qualitative data set or vice versa.

#### **4. Data Analysis**

Data was analyzed in two steps. First of all quantitative survey was analyzed then qualitative data was analyzed to endorse or reject the results of quantitative survey.

##### *4.1 Quantitative Data Analysis*

Data was screened and checked for assumptions before applying SEM such as normality, linearity, outliers, uncorrelated error terms, non-spurious relationship and homogeneity. Data was screened for upper and lower values of quartiles to identify outliers. It was confirmed that data was free from outliers before application of the analysis. A Shapiro-Wilk's test was applied ( $p > .05$ ) (Shapiro and Wilk, 1965; Razali and Wah, 2011) and visual graphics of their normal Q-Q plots, box plots and histograms showed the approximately normal distribution of the data for independent variables of Att; PBC; SN; Know-What; Know-Why; Know-How; and Know-Who for dependent variable entrepreneurial intentions with z-values ( $-1.96 < Z < 1.96$ ) of the skewness and kurtosis (Cramer & Howitt 2004; Doane & Seward 2011). The scatter plot of the distribution of independent variables data with dependent variable was approximately around the slope that showed the linearity of the data with positive relationship among variables. Prior to executing the SEM the assumption of the uncorrelated error terms was checked. The plot of residuals confirmed that there was no evidence found of violation of the assumption. Observed covariance was found true that confirms the assumption of Non-spurious relationship. Homogeneity of the sample demographics was assessed through t-test ( $p > 0.5$ ) which confirmed the homogeneity of the data with student's same background of the years of study.

Here are given the descriptive statistics of the samples' demographics in table 1 (a) and descriptive statistics for variables in table 1 (b):



**Table 1 (a): Descriptive Statistics for the Demographics of Sample**

		<b>Freq.</b>	<b>%</b>	<b>Valid %</b>	<b>Cumulative Percent</b>
<b>Entrepreneurship Education</b>	Non Participants	202	50.5	50.5	50.5
	Participants	198	49.5	49.5	100.0
	Total	400	100.0	100.0	
<b>Gender</b>	Male	230	57.5	57.5	57.5
	Female	170	42.5	42.5	100.0
	Total	400	100.0	100.0	

**Table 1 (b): Descriptive Statistics for Variables**

	<b>Entrepreneurship Education</b>	<b>N</b>	<b>Mean</b>	<b>Std. Dev.</b>
INTENT	Participants	198	4.21	.581
	Non Participants	202	4.06	.874
ATT	Participants	198	4.47	.563
	Non Participants	202	4.12	.902
PBC	Participants	198	4.29	.539
	Non Participants	202	4.16	.754
SN	Participants	198	4.17	.603

The descriptive statistics has shown that entrepreneurship education participants have high level of entrepreneurial intentions (EN); Perceived behavioral control (PBC); Subjective norms (SN); and Attitude (Att.) as compared to non-participants. Inferential statistics was applied to confirm the results of descriptive statistics. Correlation among variables was measured to apply the inferential statistics as shown in the table 2.

**Table 2: Correlation among Variables**

		<b>Kn_Who</b>	<b>Kn_How</b>	<b>Kn_Why</b>	<b>Kn_What</b>	<b>PBC</b>	<b>ATTI</b>	<b>SN</b>	<b>EIN T</b>
<b>Kn_Who</b>	Pearson Correlation	1	.346**	.344**	.341**	.348* *	.207**	.572* *	.249* *
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000	.000
	N	198	198	198	198	198	198	198	198
<b>Kn_How</b>	Pearson Correlation	.346**	1	.301**	.271**	.311* *	.191**	.218* *	.230* *
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000	.000
	N	198	198	198	198	198	198	198	198
<b>Kn_Why</b>	Pearson Correlation	.344**	.301**	1	.371**	.255* *	.233**	.231* *	.194* *
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000	.000
	N	198	198	198	198	198	198	198	198
<b>Kn_What</b>	Pearson Correlation	.341**	.271**	.371**	1	.281* *	.239**	.200* *	.147* *
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000	.000
	N	198	198	198	198	198	198	198	198
<b>PBC</b>	Pearson Correlation	.348**	.311**	.255**	.281**	1	.598* *	.521* *	.361* *
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000
	N	400	400	400	400	400	400	400	400
<b>ATTI</b>	Pearson Correlation	.207**	.191**	.233**	.239**	.598**	1	.301**	.300* *
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000	.000
	N	400	400	400	400	400	400	400	400
<b>SN</b>	Pearson Correlation	.572**	.218**	.231**	.200**	.521* *	.301* *	1	.175* *
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000
	N	400	400	400	400	400	400	400	400
<b>EINT</b>	Pearson Correlation	.249**	.230**	.194**	.147**	.361* *	.300**	.175* *	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	
	N	400	400	400	400	400	400	400	400

\*\* . Correlation is significant at the 0.01 level (2-tailed).

It was found out minimum correlation ( $r=0.147$ ) between entrepreneurial intentions and know what component of entrepreneurship education while it was observed maximum correlation ( $r=.598$ ) between attitude and perceived behavioral control. Inferential statistics is applicable on these variables to study the nature of relationship among them.

#### 4.2 A Casual Comparative Survey to study the Impact of Entrepreneurship Education

t- test was run to compare the difference between entrepreneurial intentions of the entrepreneurship education participants and non-participants.

- **H<sub>1</sub>:** There is no significant difference between entrepreneurship education participants and non-participants’;

- i- Intentions towards entrepreneurship
- ii- Subjective norms towards entrepreneurial intentions
- iii- Perceived behavioral control towards entrepreneurial intentions
- iv- Attitude towards entrepreneurship

T-test shown that hypothesis was rejected for entrepreneurial intentions ( $p < 0.5$ ); attitude towards entrepreneurship ( $p < .05$ ); perceived behavioral control ( $p < .05$ ) towards entrepreneurial intentions and subjective norms ( $p < .05$ ) as shown in the table 3.

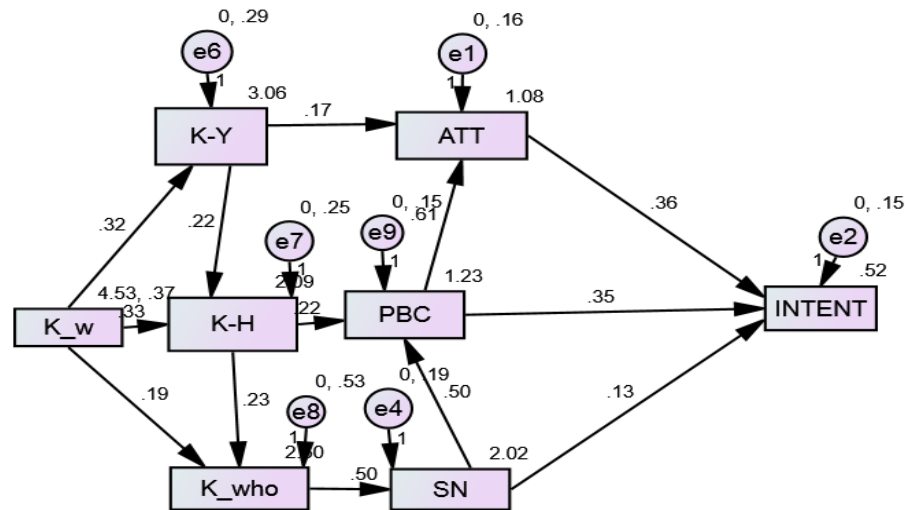
**Table 3: Independent t-test for Entrepreneurship Education Participants and Non Participants**

	Participants (n=198)		Non Participants (n=202)		F	T	Sig
	M	SD	M	SD			
INTENT	4.21	.58	4.06	.874	28.9	2	.045
ATT	4.47	.563	4.12	.902	32.8	4.7	.000
PBC	4.29	.539	4.16	.754	11.6	1.9	.048
SN	4.77	.603	3.88	.859	10.2	3.8	.000

Participants have; higher mean value ( $M=4.21$ ) for entrepreneurial intentions as compared to mean value ( $M=4.0$ ) for non-participants; mean value ( $M=4.47$ ) for attitude towards entrepreneurship as compared to mean value ( $M=4.1$ ) of non-participants; higher value ( $M=4.2$ ) for perceived behavioral control as compared to mean value ( $M=4.1$ ) of non-participants; higher mean value ( $M=4.7$ ) for subjective norms as compared to mean value ( $M=3.8$ ) for non-participants.

### 5. Relationship between Components of Entrepreneurship Education and TPB

The relationship between components of entrepreneurship education and antecedents of entrepreneurial intentions was found out through structural equation modeling as shown in the figure:



**Figure 1: Components of Entrepreneurship Education and Entrepreneurial Intentions**

This research has utilized structural equation model (SEM) to test the relationship among dependent and independent variables using AMOS software. Path analysis was used as subset of SEM to study the multi relationship between one or more multi variables and one or more dependent variables (Ullman, 1996). SEM path analysis was important to use in this research because the relationship of component of entrepreneurship education was estimated as multi independent variables on dependent variables of the antecedents of the entrepreneurial intentions. Another reason to use the SEM was its ability to measure the goodness of fit to indicate that proposed model is good fit or not (Kline, 1998). The parameter of good fit for SEM is given in the table:

**Table 4: Parameters of Good Fit for SEM**

Fit Test	Good Fit	Moderate Fit	
$\chi^2$	$0 \leq \chi^2 \leq 2df$	$2df \leq \chi^2 \leq 3df$	(Bollen & Long, 1993, p. 6)
$\chi^2 / df$	$0 \leq \chi^2 / df \leq 2$	$2 \leq \chi^2 / df \leq 3$	(Schumacker & Lomax, 2004)
P value	$0.05 \leq p \leq 1.00$	$0.01 \leq p \leq 0.05$	(Bollen & Long, 1993, p. 6)
GFI	$0.95 \leq GFI \leq 1.00$	$0.90 \leq GFI \leq 0.95$	(Olobatuyi, 2006)
CFI	$0.97 \leq CFI \leq 1.00$	$0.95 \leq CFI \leq 0.97$	(Schumacker & Lomax, 2004)
RMSEA	$0 \leq RMSEA \leq 0.05$	$0.05 \leq RMSEA \leq 0.08$	(Steiger & Lind, 1980)
NFI	$0.95 \leq NFI \leq 1.00$	$0.90 \leq NFI \leq 0.95$	(Hair et al., 2006)
TLI	$0.95 \leq TLI \leq 1.00$	$0.90 \leq TLI \leq 0.95$	(Hair et al., 2006)

Minimum was achieved with Chi-square = 59.782 at Degrees of freedom = 15 and Probability level = .000. Then it was employed multiple good fit indices NFI= .922, CFI=.939, TLI=.853 which shown good fit of model as given in table 4 (a);

**Table 4 (a): Baseline Comparisons for Variables**

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	.922	.812	.940	.853	.939
Saturated model	1.000		1.000		1.000
Independence model	.000	.000	.000	.000	.000

Significance values of paths between variables show that all paths were significant at probability level 0.05. The overall summary of paths is given in the Table 4 (b);

**Table 4 (b): Regression Weights: (Group number 1 - Default model)**

			Estimate	S.E.	C.R.	P
Know why	<---	Know what	.323	.057	5.695	***
Know how	<---	Know why	.216	.061	3.567	***
Know how	<---	Know What	.329	.057	5.814	***
Know who	<---	Know what	.193	.085	2.264	.024
Know who	<---	Know how	.226	.092	2.460	.014
SN	<---	Know who	.503	.038	13.273	***
PBC	<---	SN	.499	.045	11.022	***
PBC	<---	Know how	.221	.046	4.782	***
ATT	<---	PBC	.612	.053	11.620	***
ATT	<---	Know why	.175	.048	3.640	***
INTENT	<---	ATT	.364	.064	5.720	***
INTENT	<---	SN	.131	.058	2.276	.023
INTENT	<---	PBC	.354	.071	5.015	***

The above mentioned table shows the significant paths between know why and know what; know-how and know why; know-how and know what; know who and know what; know who and know how; SN and know who; PBC and SN; PBC and know how; ATT and PBC; ATT and Know why; Intent and SN; as well as Intent and PBC. The detail entrepreneurship education components and their relationship with each other as well as antecedents of entrepreneurial intentions is given as following;

*Perceived Behavioral Control and Attitude towards Entrepreneurship*

**H<sub>2</sub> (a):** There is no significant relationship between ‘Perceived Behavioral Control’ and ‘Attitude towards Entrepreneurship’ components of entrepreneurship education. The hypothesis H<sub>1</sub> (a) was rejected at significance level <0.5 at standard error =0.053 and estimate =0.612.

*Know Why and Attitude towards Entrepreneurship*

**H<sub>2</sub> (b):** There is no significant relationship between ‘Know Why’ and ‘Attitude towards Entrepreneurship’ components of entrepreneurship education. The hypothesis H<sub>2</sub> (b) was rejected at significance level <0.5 with standard error 0.048 and estimate .175.

*Attitude towards Entrepreneurship and Entrepreneurial Intentions*

**H<sub>2</sub> (c):** There is no significant relationship between ‘Attitude towards Entrepreneurship’ and ‘Entrepreneurial Intentions’ components of entrepreneurship education. The hypothesis H<sub>2</sub> (c) was rejected at significance level <0.5 with standard error 0.364 and estimate .064.

*Subjective Norms and Entrepreneurial Intentions*

**H<sub>2</sub> (d):** There is no significant relationship between ‘Subjective Norms’ and ‘Entrepreneurial Intentions’ components of entrepreneurship education. The hypothesis H<sub>2</sub> (d): was rejected at significance level <0.5 with standard error 0.131 and estimate .058.

*Perceived Behavioral Control and Entrepreneurial Intentions*

**H<sub>2</sub> (e):** There is no significant relationship between ‘Perceived Behavioral Control’ and ‘Entrepreneurial Intentions’ components of entrepreneurship education. The hypothesis H<sub>2</sub> (e): was rejected at significance level <0.5 with standard error 0.354 and estimate .071.

*Know What and Know Why*

**H<sub>3</sub> (a):** There is no significant relationship between ‘Know what’ and ‘Know Why’ components of entrepreneurship education. The hypothesis H<sub>3</sub> (a) was rejected at significance level <0.5 with standard error 0.075 and estimate .323.

*Know Why and Know How*

**H<sub>3</sub> (b):** There is no significant relationship between ‘Know why’ and ‘Know How’ components of entrepreneurship education. The hypothesis H<sub>3</sub> (b) was rejected at significance level <0.5 with standard error 0.061 and estimate .216.

*Know What and Know How*

**H<sub>3</sub> (c):** There is no significant relationship between ‘Know what’ and ‘Know How’ components of entrepreneurship education. The hypothesis H<sub>3</sub> (c) was rejected at significance level <0.5 with standard error 0.057 and estimate .329.

*Know What and Know Who*

**H<sub>3</sub> (d):** There is no significant relationship between ‘Know what’ and ‘Know Who’ components of entrepreneurship education. The hypothesis H<sub>3</sub> (d) was rejected at significance level <0.5 with standard error 0.085 and estimate .193.

*Know How and Know Who*

**H<sub>3</sub> (e):** There is no significant relationship between ‘Know How’ and ‘Know Who’ components of entrepreneurship education. The hypothesis H<sub>3</sub> (e) was rejected at significance level <0.5 with standard error 0.092 and estimate .226.

*Know Who and Subjective Norms*

**H<sub>4</sub> (a):** There is no significant relationship between ‘Know who’ and ‘Subjective norms’ components of entrepreneurship education. The hypothesis H<sub>4</sub>: (a) was rejected at significance level <0.5 with standard error 0.503 and estimate .038.

*Subjective Norms and Perceived Behavioral Control*

**H<sub>4</sub> (b):** There is no significant relationship between ‘Subjective Norms’ and ‘Perceived Behavioral Control’ components of entrepreneurship education. The hypothesis H<sub>4</sub> (b) was rejected at significance level <0.5 with standard error 0.499 and estimate .045.

*Know How and Perceived Behavioral Control*

**H<sub>4</sub> (c):** There is no significant relationship between ‘Know How’ and ‘Perceived Behavioral Control’ components of entrepreneurship education. The hypothesis H<sub>4</sub> (c) was rejected at significance level <0.5 with standard error 0.046 and estimate .221.

**6. Embedded Research after Intervention**

Fifteen students who have participated in entrepreneurship education were interviewed to explore the impact of entrepreneurship education. These interviews were conducted after delivery of entrepreneurship education and conducting quantitative survey from entrepreneurship education participants and non-participants. These interviews were based on four questions as given.

*6.1 Question No.1: Has Entrepreneurship Education Increased Your Attitude Towards Entrepreneurship?*

93% of the entrepreneurship education participants replied that entrepreneurship education has increased their attitude towards entrepreneurship. Answers were also analyzed that which component of entrepreneurship education increased attitude. 92% respondents told that knowledge of the importance of entrepreneurship increased their interest and motivation level. The source of motivation to 'know why'; important is entrepreneurship was 'know what' domain of the entrepreneurship education.

Component why of entrepreneurship education was further explored to identify the factors those enhanced attitude. It was found out following factors those enhanced the attitude of the entrepreneurship education participants towards entrepreneurship.

6.1.1 Importance

22% of the entrepreneurship education participants told that entrepreneurship education increased their attitude towards entrepreneurship education by creating an awareness of the importance of entrepreneurship.

Interview #1: This course motivated me to do my own business. It educated me why to do business and why it is important to run own business.

Interview# 4: Importance of self-business was conveyed that motivated me to run own business.

6.1.2 Interest

28% of the entrepreneurship education participants told that entrepreneurship education increased their attitude towards entrepreneurship education by developing interest in entrepreneurship to motivate them for self-business;

Interview# 2: After participation in entrepreneurship education my interest has been increased for self-business. It has given me motivation to do own business.

Interview# 3: Entrepreneurship education increased my interest level after observing the importance of self-business.

Interview# 5: It gave me motivation to run own business.

6.1.3 Benefits

22% of the entrepreneurship education participants told that entrepreneurship education increased their attitude towards entrepreneurship education by realizing them the benefits of entrepreneurship.

Interview # 7: Entrepreneurship education participation gave me awareness about the importance of own business and its benefits.

Interview # 9: I am well aware of the fact that you can earn more money with your own business rather than employment.

Interview #11: I learnt through course that I can generate my own employment as well employment for others if I will have my own business. This is the reason I would like to do business.

Interview# 12: After participation in course it was clear to me that how much I will do struggle my business will give me benefits.

#### 6.1.4 Respect/ Image

28% of the entrepreneurship education participants told that entrepreneurship education increased their attitude towards entrepreneurship education by developing a good image of entrepreneurship which will further give them respect to become an entrepreneur.

Interview# 13: It seemed that Small and Medium Enterprise is Small and Medium Enterprise. We learnt that even a small business can be growing into larger business and smaller business does not remain smaller if we do effort. It gives a respectable growth from future perspective.

Interview# 14: It changed my likeness towards self-business by enhancing my leadership skills. Group activities gave me a sense of business ownership with my own decisions and leadership qualities. I enjoyed my position.

Interview # 15: It realized me that doing own business is respectable in society.

#### 6.2 *Question No. 02: Have your self- confidence increased due to participation in entrepreneurship education?*

80% of the participants told that entrepreneurship education participation has increased their confidence while 20% of the participants told that were already confident to run their own business because they were entrepreneurs. During class knowledge about entrepreneurship and skills to do business helped to increase their confidence level. It is basically 'Know what' knowledge of entrepreneurship and "know how" entrepreneurial skills component of entrepreneurship education. It was analyzed that all of the interview participants learnt the entrepreneurial skills of business planning, communication and self-confidence development through 'know what' and 'know How' component of the entrepreneurship education.

The following themes were developed for the factors those helped to enhance confidence level of the students to become an entrepreneur.

##### 6.2.1 Business Planning Skills

40% of the interview participants respond that business skills such as ideas development, market analysis, business planning has increased their self-confidence to run their own business.

Interview#7: Class room activities and team work develop a confidence among us that we can plan and launch a business together.

Interview#8: We came to know that if we learn the things to do business such as seeking opportunities, developing ideas and business planning and marketing than doing a business is not a big deal.

Interview#9: Presentation of ideas and business plans in class gave me lot of confidence for self-business.

##### 6.2.2 Success Stories

20% of the interview participants respond that listening success stories has increased their confidence to run their own business. Guest entrepreneurs and their class fellows who has run their own business and their success stories helped to enhance confidence level of the module participants.



Interview#2: Course activities were designed to enhance confidence success stories, role plays played an important role to boost your confidence level to run own business.

Interview#5: Success stories of entrepreneurs, motivation by facilitator increase your confidence.

Interview #14: It enhanced my confidence through interacting with other participants, listen their experiences, discussion with them and presenting different ideas before class.

#### 6.2.3 Already confident

20% of the participants respond that they were already confident to run their own business because they were had experience to become an entrepreneur. Entrepreneurship education helped them to understand the process.

Interview#11: I was already confident that I can run my business but group discussion, team work and planning to do things prepared us to solve problems together enhanced it more.

Interview#12: It has not impacted so much my confidence level as I am confident to do own my business. I am also running my own business already but it has clear the things more that how to deal with difficult situation.

Interview#15: I don't think so it has increased my confidence as I was already confident enough to run my own business.

### 6.3 Question No. 3: Have Subjective Norms Influence on Decision to Become Entrepreneur?

92% of the participants respond that friends, family, colleagues, teachers, guest speakers in class and linking with entrepreneurial environment and relevant business people can influence your decision to become an entrepreneur. 8% of the participants told that it is self decision no one can influence to become someone an entrepreneur.

It was also analyzed that entrepreneurship education component 'know what' i.e. entrepreneurship knowledge and 'know who' i.e. who has influence can help students to understand and communicate the relevant people those can influence their decision to become entrepreneur.

Here is given the analysis of the subjective norms those can influence decision to become entrepreneur.

#### 6.3.1 Friends and Family

40% interviewee's respondents replied that friends and family have influence on their decision to choose entrepreneurship as career choice.

Interview#1: My friends always told me that I can run my own business. After participation in course it was clear to me that my friends were true that I have capabilities to do business.

Interview#3: My friends think that I cannot run my own business but after participation in course guest speakers experience told us that I can also run my own business.

Interview#5: My friends told me that I can do my business after participation in course activities it was more clear to me that I can handle the situation with the help my team, friends and networks.

### 6.3.2 Guest Speakers/ Teachers

26% of the respondents replied that guest speakers and teachers influenced their decision to become entrepreneur. Success stories of successful entrepreneurs give encouragement.

Interview#4: It has given me sense to listen the point of view of my friends and colleagues to measure risks in order to avoid loss in business and get more benefit from available resources.

Interview#7: My teachers have prepared us to do own business. They are source of motivation for us to run own business. They have done it by introducing with different activities.

### 6.3.3 Entrepreneurial Environment

34% of the respondents told that entrepreneurship education helped them to introduce with entrepreneurial eco system which influenced their decision to become an entrepreneur. Entrepreneurship education has also given them a sense to realize the people relevant with their business as well how to choose those people and contact them.

Interview#11: Our family is a business family and our entrepreneurship education modules have also taught us that I can run my own business. I need to be more linked with business environment and business people so that I can understand market.

Interview#12: My friends and family is not in favor that I should do business. But now I am in circle that encouraged us to do business.

Interview#13: It taught us that we should consult relevant people and what type of people we should consult.

Interview# 14: When I came know that I can generate ideas and after refining my ideas I can communicate with the people of my same trade it gives me strength to do my own business.

Interview#15: Participation in module taught us that how we can link with market to launch our ideas and product.

*6.4 Question 04: Have participation in entrepreneurship education increased your intentions towards entrepreneurship? And how did participation in entrepreneurship increase your intentions towards entrepreneurship education?*

All interview respondents showed their concern to start their own business. The reason behind their entrepreneurial intentions was that they learnt business skills, confidence and links with entrepreneurial eco system. These reasons of enhancing entrepreneurial intentions have been linked with themes of attitude, subjective norms and perceived behavioral control.

### 6.4.1 Attitude towards Entrepreneurship

33% of the interview respondent replied that their intentions were increased because they were motivated by guest speakers and teachers. They learnt that to be an entrepreneur is respectable career. It has economic and social benefits. The reasons described by interview participants were similar with the themes of attitude towards entrepreneurship question as it is clear from interviews:

Interview#9: When I came to know that I can earn extra money with own business I thought to start own business.

Interview#11: Entrepreneurship education taught us that to be an entrepreneur is respectable career therefore I should run my own venture.

#### 6.4.2 Perceived Behavioral Control

46% interview respondent replied that by learning entrepreneurial skills they have gained confidence to run their own business. Business skills, self confidence and organization of resources were discussed under the theme of perceived behavioral control in analysis of the question number two of this interview. The views of the students are given here:

Interview#2: When we define things it makes up your mind. This training taught us procedure which ultimately strengthen my intentions to run own business.

Interview#3: After course participation it totally changed my perceptions about failure in business because things I know learnt is business planning through my own ideas. It dramatically changed my perception that enhances my intentions to run business with my own ideas.

Interview#4: After participation in entrepreneurship education program I came to know that how to run own business which increase my intentions to be an entrepreneur.

#### 6.4.3 Subjective Norms

20% of the respondents replied that their entrepreneurial intentions were increased due to the reason that they learnt how to contact with entrepreneurial eco system as who are those people whom they should contact for successful business. Entrepreneurial eco system and relevant people comes under the themes of subjective norms in question three of this interview. The statements of the students are given here:

Interview#14: My teachers have introduced us with relevant people in market. I can utilize my contacts to run my business.

Interview#15: I am in touch with business people that can be helpful for us to run own business this is reason that I am thinking to have own business.

### 7. Results, Conclusions and Discussion

This study has found out the impact of entrepreneurship education on entrepreneurial intentions on the students of TVET. It is the contribution of this research to link the components of entrepreneurship education with the antecedents of entrepreneurial intentions in the context of TVET Punjab. The embedded research methodology approach has been utilized to endorse the results through quantitative and qualitative research approaches.

A casual comparative survey was conducted to study the mean difference between entrepreneurship education participants and non-participants. It was found out that there was significant difference between entrepreneurial intentions, attitude, subjective norms and perceived behavioral control of the entrepreneurship education participants and non-participants. Students who have participated in entrepreneurship education showed higher mean values for entrepreneurial intentions and its antecedents as compared to the students who have not participated. It shows that entrepreneurship education has an impact on the antecedents of entrepreneurial intentions of the students to become an entrepreneur.

Structural equation modeling was performed through AMOS software to assess the relationship between components of entrepreneurship education and the antecedents of entrepreneurial intentions. SEM results show that '*Know what*' is the base line for other components such as '*know why*', '*Know how*' and '*Know who*'. Attitude towards

entrepreneurship depends on 'Know why' component of the entrepreneurship education, which enhances student's awareness about importance of entrepreneurship. Perceived behavioral control depends on 'know how' component of entrepreneurship education, which enhances student's confidence to become an entrepreneur through developing their business skills. Subjective norms of the students depend on 'know who' component of entrepreneurship education, which enhances the student's communication skills to interact with entrepreneurial eco system. The same results were obtained through semi-structured interviews conducted with the entrepreneurship education participants.

### **8. Limitation of the Study**

The Know about Business (KAB) project was initially introduced by International Labor Organization on pilot basis in TVET, Pakistan. GIII level students participated in the pilot phase of the entrepreneurship education. Therefore this study is limited to the available population of GIII level students of TVET, Pakistan.

### **9. Future Study Directions**

The impact of entrepreneurship education studies can be conducted at GI and GII level as well as, to further expand the scope of the results of TVET students. Follow up or tracer studies of the TVET graduates may be conducted to explore the impact of entrepreneurship education on venture creation and the start-ups. The follow up and tracer studies will help in understanding the impact of entrepreneurship education on graduate's ability to run their own business.

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