**An Integrative Model of Theory of Planned Behavior to investigate Graduates Intentions in agriculture: Case of Sindh Province of Pakistan**

Abstract:

Currently, increasing unemployment rates among alumnae, especially agricultural graduates, perceived to be diminishing, self-employment has become a big socio-economic issue in Pakistan. The self-employment has significant value in agriculture for the entire economy and individuals who set up their business to achieve sustainable socio-economic growth and development. It has led to extensive research on the economic impact to demonstrate the critical drivers of self-employment to use in their talents for future projection.This empirical study employs the integrative Theory of Planned Behavior (TPB), the well-established model explaining social behavior, to test the impacts of attitude, social pressures and perceived control, among Pakistani male and female. To attain this, the survey methodology used to collect data. The author applied a structural equation model, and partial least square on 255 samples of agricultural students and present PLS path modeling by mediation and multi-group analysis. The TPBs, the results showed that the most potent determinant of individuals’ intention of attitude towards becoming self-employed in agriculture significantly stems from behavioral beliefs about having one’s line of action. The paper further finds that, along with the attitude, men and women equally influenced by their perceptions, whereas their perceived pressures on their social ambiances affect women. The study shed lights on an individual’s personality traits and entrepreneurial education in the formation of career intentions in agriculture and reveals several significant implications for governments, academia, and trainers’ avenues are discussed.

**Keywords:** Entrepreneurial Intention; TPB Structural Equation Modeling; Personality Traits; Entrepreneurial Education, Agriculture; Sindh Pakistan

# Introduction

Usually, agriculture is considered as poor men’s job, but actually, it is the mainstay of any economic system and plays a principal role in the development and outgrowth. Agriculture is an essential part of the Pakistani economy, accounting for 19% of GDP and an average annual growth rate of 2.04%. (Ahmed, Chandran, & Klobas, 2017) . Agriculture employs 44% of the workforce, and 65% of the rural population depends on agriculture for a living. Sindh is the second-largest agricultural province of Pakistan and is significant; modes of life combine with business innovativeness. (A. Ali, Topping, & Tariq, 2010). It has manifold roles in the economy of the nation, including job creation, poverty reduction, sustainable food security, and economic growth, especially in agricultural societies.

The unemployment catastrophe is a menace of many developing countries, like Pakistan, has become a matter of great concern. Particularly unemployment of agricultural graduates who receive the non-compensation issues in social, economic, and political domains, and are facing difficult situations. (Mahmood Aslam Assistant Professor, Sher Awan Assistant Professor, & Mahmood Khan Assistant Professor, 2012). Prior studies showed that thousands of university graduates enter the job market annually, but the market capacity does not meet their job needs (Sargani et al., 2018). The rising unemployment rate of educated people, especially agricultural graduates, has become one of the problems in today's society. (Sargani et al., 2018) To deal with a big task, especially in Sindh Province of Pakistan is a massive matter of angst for the government to resolve the unemployment problems which may bring stability and sustainability for the rural population.(Mahmood Aslam Assistant Professor et al., 2012; Roomi & Parrott, 2008) Therefore, it is an urgent need for appropriate and consistent planning to solve and overcome this socio-economic problem.

So that entrepreneurship, development recognized as the best solution and has emerged as a university function, which yields the future mass of entrepreneurs (Ahmed et al., 2017) Stated that entrepreneurial development process creates opportunities for educated people to achieve financial independence through increased innovation and new business opportunities, avenues, and stimulates economic growth (Munir, Jianfeng, & Ramzan, 2019). Revealed that the trait of entrepreneurs has become a matter of concern when looking for opportunities, taking the initiative, making decisions, seeing things, finding problems, and creative solutions. (Roomi & Parrott, 2008; Swain, 2008). As universities produce the future pool of entrepreneurs so, the attention towards agricultural entrepreneurship in new economic theories shows enormous potential and significances as a proactive engine, which creates employment opportunities, competition, reduce poverty, improving productivity and increasing the economic, political, social and spiritual well-being of individuals’ sustainable development.

## Entrepreneurship in Pakistan

Pakistan, home to about 200 million people, is the fastest emerging economies in the large competitive global market. It is becoming essential to create a vibrant and robust entrepreneurial society by 2025 gradually (Ahmed et al., 2017) Pakistan has great potential to become an entrepreneurial country, found in some studies, but some problems prevent it from becoming an entrepreneurial society get rich overnight, (Mahmood Aslam Assistant Professor et al., 2012). Due to lack of understanding an appropriate business education and technology, this has led to the collapse of many startups. Another reason hindering the development of Pakistani enterprises is that most women do not have the opportunity to start a business, and females are seen “food makers” rather than “food creators.” However, research showed that to strive and gain access to the business economy, women’s entrepreneurship is spurring some excellent business enterprises.(Roomi & Parrott, 2008) Therefore, startup activity has surged as businesses emerge to satisfy unmet demands across the country. The government has taken the lead by building national and provincial incubators, introducing a three-year tax relief and creating regulations to allow local venture capital (VC) firms and investors to set up a new business. The universities and academia to promote entrepreneurship, mainly by providing space for students to test and incubate potential enterprises to and learn entrepreneurial skills in the agriculture sector, which is reflected to be a sustainable business in prospects. The potency of the entrepreneurial class is usually evident in the entrepreneurial attitudes of university students.

The prior research confirmed the impact of the traits in explaining EIs either direct and indirect or within TPB (Krueger, Reilly, & Carsrud, 2000)(Rosique-Blasco, Madrid-Guijarro, & García-Pérez-de-Lema, 2018) evaluate the model to support the education and personality, an intention-based framework establishing self-employment. Despite this, so far, relevant research work on college students’ entrepreneurial attitude has been published. However, its agricultural evidence has not been addressed yet in research and practice. To fill this gap, the current study employs an integrative model to examine the role of entrepreneurial education (EE); and personality traits (PT), on EIs mediated by three domains of TPB (attitude toward behavior (ATB), subjective norms (SN) and perceived behavioral control (PBC). The impacts of entrepreneurial education and personality traits in predicting Entrepreneurial Intentions among agriculture university students in Sindh province of Pakistan.

# Literature Review

In the literature, by considering different personal and background factors, and taking into account psychological factors, we focus on the antecedents of entrepreneurship, so that exploring entrepreneurship from a people-oriented perspective is broadly sustainable.(Obschonka & Stuetzer, 2017) An intention is individuals a state of minds, actions that guides, generate and develop a new entrepreneurial activity or business is reflected as the primary variable in this study (Atkinson, Netana, Pickernell, & Dann, 2017). An entrepreneurial intention is an effective instrument to predict individuals’ entrepreneurial behaviors and doings (Icek, 1991). Numerous research debated the impacts of personality traits on EI (Lüthje & Franke, 2003) as the locus of control (Mazzarol, Volery, Doss, & Thein, 1999) risk propensity (Miao, 2016; X. Zhao, Lynch, & Chen, 2010) inelegance, directness to practice, emotional stability, extraversion (X. Zhao et al., 2010) tolerance of ambiguity and self-efficacy (Carr & Sequeira, 2007; H. Zhao, Hills, & Seibert, 2005) Also, entrepreneurial passion (Molino, Dolce, Cortese, & Ghislieri, 2017), creativity (Biraglia & Kadile, 2017; Miao, 2016) passionate intellect and proactive personality features are measured by many scholars.

It is complicated to create a new venture (Krueger et al., 2000) and implicates various mediating factors (Fayolle & Liñán, 2014). To understand the launching of the entrepreneurial process, literature has made numerous, valuable theoretical contributions. (Schlaegel & Koenig, 2014) Stated that the personal entrepreneurship requires careful preparation; entrepreneurial intentions and behavior (Bird, 1988) Revealed the direct predictor of actual behavior is reflected by behavioral intention (Icek, 1991; Kautonen, van Gelderen, & Fink, 2015) explained that entrepreneurial action is a significant predictor of EIs. Whereas to understanding, individuals’ planned behavior, numerous intentional-based frameworks has been proposed.(Ajzen, 2002; Schlaegel & Koenig, 2014) to predict individuals’ behavioral intentions, the TPB is an extensively accepted framework the theory is widely used in literature and clearly explains the entrepreneurial process in this regard. (Bird, 1988) Entrepreneurial intention is a person's efforts to execute an entrepreneurial activity based on three attitude factors/domains that envisage the behavior based on the theory of planned behavior (Icek, 1991; Liñán & Chen, 2009) Measured the entrepreneurial intention as the intent of an individual in performing risky actions when developing a new business or entrepreneurial activity believed to be accurate and actionable (Lüthje & Franke, 2003) . Therefore, entrepreneurship is an act of behavior that subjectively determined by numerous internal and external factors.

## Attitude toward Behavior

An individual’s positivity or negativity directed by the attitude and behavior (Ajzen, 2001; Autio, H. Keeley, Klofsten, G. C. Parker, & Hay, 2001; Icek, 1991; Liñán & Chen, 2009) enlightened this as inclinations and compensations or drawbacks, though others define it as an attitude towards becoming an entrepreneur (Maes, Leroy, & Sels, 2014). ATB is the most significant factor, including the expectations of an entrepreneurial career, explained in previous research.(Kautonen et al., 2015; Liñán, Urbano, & Guerrero, 2011). Therefore, it is a consent regarding the positive association between ATB and EIs in the TPB framework (Kautonen, van Gelderen, & Tornikoski, 2013; Roy, Akhtar, & Das, 2017)

## Subjective Norm

The persons’ societal pressure concerning an intention or behavior defined by (Icek, 1991) Individuals have to reflect on the support or abandonment of close associations with opening a business (Liñán & Chen, 2009; Shinnar, Giacomin, & Janssen, 2012) Preceding research has discovered unpredictable results of the subjective norm: (Schlaegel & Koenig, 2014) . Whereas the study has found that SN is a strong significant manipulating factor in EIs interpretation; but other research did not confirm to be a substantial predictor of EIs (Autio et al., 2001; Krueger et al., 2000; Marques, Ferreira, Gomes, & Rodrigues, 2012). However, to generate a positive association between the impact of EIs and SN as “reference individuals” will be a consistent consideration when deciding to become an entrepreneur 28.

## Perceived Behavioral Control

The perceived behavioral, control denotes personal belief in the way to plan and execution, and how individuals feel in controlling behavior in the TPB, (Icek, 1991). Someone must describe the comfort or trouble in implementation the entrepreneurial behavior (Cardon & Kirk, 2015; Wilson, Kickul, & Marlino, 2007; H. Zhao et al., 2005). Described the positive connotation between ATB, SN; PBC and EIs and empirically confirmed by the prior research in the TPB model. Therefore, a hypothesis developed as below:

H1. The TPB dimensions (a) ATB, (b) SN and (c) PBC are positively associated with agricultural students’ EIs

## Application of Entrepreneurship Education to TPB

Entrepreneurship education is a course that offers students with entrepreneurial skills, knowledge, and a wide range of vocational skills. (Ekpoh & Edet, 2011). Previous researchers have found that entrepreneurship education is an efficient means to motivate students to consciously move into an entrepreneurial career, transform into entrepreneurial behavior, and improve student entrepreneurship.(Fayolle & Gailly, 2004) Stated that they had become entrepreneurs in the ten years of graduates who have received entrepreneurship education. However, to assess and mitigate the issues according to (McMullan, Chrisman, & Vesper, 2018) suggested the measured likelihood of business startup as a proxy for educational effects while TPB offers such proxy. It represents this strong likelihood of business creation as an individual when it comes into an actual behavior tend to stick their intention (Ajzen, 2002). The TPB showed the highly influential model on entrepreneurship during prior studies. Thus, the entrepreneurial behavior determines entrepreneurial intention, via TPBs three dimensions. Therefore, the following hypothesis is developed as:

H2. EE have positive associations with (a) ATB, (b) SN, (c) PBC and (d) agricultural students’ EIs

## Application of Personality traits to TPB

To understand the impacts of numerous variables, like individual abilities and personality traits, the TPB is an effective theoretical measuring tool (Paul & Shrivatava, 2016), as antecedents to EIs (Sesen, 2013; H. Zhao et al., 2005) In diverse backgrounds, personality traits are significant variations (Fietze & Boyd, 2017; X. Zhao et al., 2010) Based on career decision theory, and human-environment matching theory, to explain professional knowledge, individuals should pursue their personality characteristics.(McClelland, 1965). Personality has a strong influence on individuals becoming self-employed, making entrepreneurs different from other individuals. (McClelland, 1965; H. Zhao et al., 2005). The extensively use of "big five," and narrow traits are associated with entrepreneurial attainment (Caliendo, Fossen, & Kritikos, 2014; Fietze & Boyd, 2017). The narrow trait is defined as a specific trait, also known as entrepreneurial traits; people widely discuss the impact of these traits on career choices (McMullan et al., 2018; Roy et al., 2017). The entrepreneurial culture and EIs are significantly influenced by these traits likewise (H. Zhao & Seibert, 2006), Acting as an antecedent of TPBs indirectly explaining EIs. However, the understanding of the direct and indirect relationship between personality traits and the TPB dimension is still one-sided. (Barba-Sánchez & Atienza-Sahuquillo, 2017). This study was mainly conducted in Sindh province agricultural students to this research object and explores to what extent the direct and indirect effects of personality traits closely related to their internal and external factors on entrepreneurial career decisions. Thus, a hypothesis developed as below:

H3. PT have a positive association with (a) ATB, (b) SN, (c) PBC and (d) agricultural students’ EIs

## Mediation effects of Planned Behavior Theory

In many studies, the dimensions of TPB are used as intermediaries while examining the effects of other cultural, psychological, and socioeconomic variables. (Kautonen et al., 2013; Liñán & Chen, 2009; Rosique-Blasco et al., 2018; Xu, Ni, & Ye, 2016) There is also an indirect relation between personality and entrepreneurial behavior variables, which is mediated by many factors, including attitudes and intentions(Shepherd & Krueger, 2002; Zapkau, Schwens, Steinmetz, & Kabst, 2015) Understanding the entrepreneurial process through personality variables is very complicated. The interpretation of this procedure, the facilitating role of TPB and EE is reflected to be an important explanation. Entrepreneurial intentions (Schlaegel & Koenig, 2014) Previous studies have enlightened that the attitudes; mediating the role of TPBs dimensions in predicting personality traits; entrepreneurial education and EIs (Lüthje & Franke, 2003; Nabi & Liñán, 2013). Thus, the hypotheses can be developed as:

H4. There is a positive association between (a) PT, (b) EE and agricultural students’ EIs mediated by the ATB.

H5. There is a positive association between (a) PT, (b) EE and agricultural students’ EIs mediated by the SN.

H6. There is a positive association between (a) PT, (b) EE and agricultural students’ EIs mediated by the PBC

## Gender Differences

There are still gender gaps around the world in terms of entrepreneurship and self-employment. . (Atkinson et al., 2017) Although this issue is relevant, to women’s lower entrepreneurial behavior tendencies are not fully understood. (Bhutta, Cleves, Casey, Cradock, & Anand, 2002; Gupta, Turban, Wasti, & Sikdar, 2009) found, men have higher levels of EI (Wang, Chen, & Benitez-Amado, 2015); however, other studies do not provide evidence in this regard, but rather investigate gender stereotypes. (Kolvereid, 1996). Different background factors explain gender roles and discrimination in market access. (Ooi, Selvarajah, & Meyer, 2011). Countries support societal means of entrepreneurship, human capital and education 36 and social capital (Keong, 2008) as well as personal characteristics such as self-efficacy [18] personality traits, adventurous spirit and fear of failure (Roy et al., 2017; Sargani et al., 2018) found that women lower entrepreneurial propensity and confidence in corporate competences, social network characteristics, and higher levels of fear of failure. (Swain, 2008) Believes that there is a problem related to the intangible nature of the credibility revealed by female entrepreneurs; that is, it needs to be taken seriously.(Munir et al., 2019) In Pakistan, because of some deep-rooted discriminatory social and cultural values, women, entrepreneurs cannot enjoy the same opportunities as men; in the support mechanisms that help these fledgling businesspersons, they must abide by tradition. In a male-dominated society, men are better than women are, and women are best suited to be homemakers, which poses enormous challenges.(Munir et al., 2019) As women are rarely encouraged by male family members, resulting in limited geographical mobility and lack of social capital, society is changing (Bhutta et al., 2002). Since the literature mentions the gender differences in entrepreneurship and venture capital, and reports, sometimes-conflicting results, in this study, we explored the potential differences between men and women at the level of perspective exploration. (Gupta et al., 2009) To test the postulated model through both groups; therefore, the hypothesis is developed as below:

H7. The effects of (a) personality traits (PT) and Entrepreneurial Education (EE) on TPB’s dimensions (ATB, SN, and PBC) and (b) TPB’s three antecedents on EIs are likely to differ between male and female students.

# Material and Methods

## Target Population

Data for current research data were collected from the Sindh agricultural university, the main and only one agriculture university in Sindh Province of Pakistan. The data were gathered from different departments and faculties from December 2016 to January 2017. To verify the validity of the measurement questionnaire based on previously used and confirmed measurement methods. (Wang et al., 2015) Conversely, to ensure the intelligibility and reliability of questions in this study, the authors conducted pre-survey tests on 30 respondents found that some problems were moved and changed to simplify the investigation.

## **Insert Figure 1**

## Data Collection Procedure and Participants

The overall 320 questionnaires distributed,298 surveys returned out of which total useful questionnaires 255 remains and equivalent to the response rate was 79.69 %; students from different agricultural disciplines participated in this study; in particular, 169 (66%) were male and 86 (34%) were female. Regarding the education of the sample 63 male, 51 female undergraduates (45%), the master /sophomore (27%) of 40 male; 28 female 11 male; 4 female of (5%) the master of philosophy; whereas 55 male and 5 female in total (24%) doctoral students respectively participated.

## Measures of Sample Constructs

All items in the questionnaire employed in this study derived from previous literature associated with TPB based on a 5-point Likert-scale type. The indication level from 1 (strongly disagree) to 5 (strongly agree). Entrepreneurial Intention (EI) and Perceived Behavioral Control (PBC) were measured by five items extracted from (Liñán & Chen, 2009); Attitude toward the behavior (ATB) was measured on five items taken from (Kolvereid, 1996). Subjective Norm (SN) was measured by four items derived from (Kolvereid, 1996) Entrepreneurial Education (EE) was measured by five items based on (Ooi et al., 2011), and finally, Personality Traits (PT) were measured by five items constructs adopted from 58.

## Control variables

Different control variables have been recognized to be related to Entrepreneurial Intention (EIs); (Liñán & Chen, 2009). To measure gender using the author used dummy-coded variables for (1 = Male; 2 = Female) and (1=Yes;2=No) for Entrepreneurial Intention (EI), Prior Entrepreneurial Knowledge (PEK), Parental Entrepreneurial Exposure (PEX), Prior Entrepreneurial Exposure (PEE), Prior Farming Exposure (PFE). Previous research confirms gender differences in entrepreneurial activities (Arshad, Farooq, Sultana, & Farooq, 2016); the male is more inclined toward self-employment, whereas the female is less likely to be betrothed in the entrepreneurial activities (Mazzarol et al., 1999).

## **Data Analysis**

To this research objective, the author uses SPSS 25 and Smart PLS 3. Empirically to verify the relationship of model variables whereas the (SEM) is a methodical technique that commonly used to testing in the different areas of social behavioral and agricultural sciences.(Bauldry, 2015) The adoption of this model consists of a series of continuous and preliminary stages: a description of the theoretical model to be tested; parameter estimation and evaluation. The reflective measurement model evaluated based on two groups of criterion, the first set of item criteria principal component factor loading reliability >0.5, based on convergent validity of Cronbach alpha (α) ≥ 0.7, composite reliability (CR)>0.708 and average variance of the extraction (AVE)>0.5. The second set is the square root of discriminant validity AVE > correlation values between exogenous items 61. Smart-PLS 3 algorithm and iterations are carried out alternatively until fulfilled all the evaluation criteria. This model involved six iterations and evaluation processes and resulted to the deletion of two indicators in each construct/group which are having a low factor loading (<0.5) by this action; it improved the errors of average variance extracted (AVE) to an acceptable level.

Precisely Table 1- provides demographic characteristics of the participants, The reliability, and validity test presented in Table 2, discriminant validity criterion, Table-3, Estimates of path coefficients in a model, Table 4. Female Specific indirect effects in Table 5., Specific indirect results of Male in Table 6, Total indirect effects in Table 7 and Table 8. Presents Male vs. Female Multi-group difference whereas Fig-1 Integrative Model of Theory of Planned Behavior, and Fig-2 PLS structural equation model.

# Results

## Descriptive statistics of Demographic Sample Characteristics

The results regarding exposure, of the participant, were coded into dichotomous answers of male and female (M=1.34; S.D=0.474). Regarding entrepreneurial intention (M=1.64; S.D=0.489); parental entrepreneurial exposure denotes highest (M=1.79; S.D=0.457); to have prior entrepreneurial knowledge demonstrated (M=1.53; S.D=0.495), however prior entrepreneurial exposure revealed (M=141; S.D=0.492) whereas prior farming exposure shows lowest (M=1.29; S.D=0.457) of agri-students towards agriculture presented in table 1.

## Insert Table I

## Validity and Reliability Test Results

The overall construct entrepreneurial intention (EI), loaded with 3-items observed composite reliability CR (0.92) the average variance extraction (0.80) with the Cronbach alpha (α) = 0.87, in the whole sample. However, attitude toward the behavior was assessed with 3-items resulted in the average variance extraction AVE was (0.58) According to (Kahle & Malhotra, 1994) argue that AVE is often too strict, and reliability can be established through CR alone, its composite reliability was (0.81) with the Cronbach coefficient (α) = 0.65, in the whole sample. Hence, the subjective norm constructs loaded with 3-items, so the Cronbach coefficient (α) = 0.81, the average variance extraction was (0.72) with the composite reliability was (0.89) for the whole sample. Therefore, the perceived behavioral control constructs loaded with 3-items, so the construct reliability was (0.86), and the average variance extraction was (0.66) with the Cronbach coefficient (α) =0.75 in the whole sample. Thus, the personality trait structure loaded of 3-items; therefore, the composite reliability was (0.89), the average variance extraction was (0.73), and the Cronbach coefficient (α) = 0.87 in the whole sample. Similarly, entrepreneurial education constructs loaded with 3-items evaluated the composite reliability (0.89), the average variance extraction (0.73) with the Cronbach coefficient (α) =0.82 of students entrepreneurial intention in the agriculture sector for the whole sample presented in the Table- 2.

The test of the goodness of fit index shows that the equal constraint of specific structural parameters continuously liberated, and the fitting effect of the overall model retested.(Hu & Bentler, 1999), "cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives") endorse threshold-grouping measures of Chi-Square (617.454), CFI (0.93) and SRMR (0.07).

## **Insert Table II**

Discriminant Validity Criterion

After testing the validity and reliability of each variable, a PLS (SEM) employed to examine the concurrent existence relations under consideration of factors influencing intention to the resultant of PLS (SEM). It is validated that path coefﬁcients for the set of criteria that is discriminant validity; the evaluation conducted according to the Fornell-Lacker criterion which is to compare the square root of the average variance extraction to the relationship of exogenous constructs (Leguina, 2015). Table -3 depicts criterion results the discriminant validity.

Insert Table III

The results in Table 3 show that exogenous the constructs including attitude toward the behavior (ABT), perceived behavioral control (PBC), the subjective norm (SN), entrepreneurial education (EE) & personality traits (PT). The square root value of AVE made more significant than other correlation values between the external constructs and is considered sufficient for achieving discriminant validity.(Gye-Soo, 2016). However, for the ABT construct the value of its square root of the AVE is lower when compared with, SN, PBC PT & EE values with the differences respectively. The overall discriminant validity well established in the model. Therefore, differences in the square root of the AVE accepted significantly (Henseler, Ringle, & Sarstedt, 2014).

## **Insert Figure 2 PLS-SEM Model**

## **Measurement of** Structural Equation Model

To validate the correctness of the hypothetical model, the measurement of the structural model was verified by using PLS-SEM, and 2000 subsamples were bootstrapped, and these relationships were explained by applying bootstrap techniques and t statistic. The path coefficient and the determinant coefficient (R2) are thoroughly explained. The path coefficients of H1, H2 and H3 evaluated by the structural model (see Figure- 2) Mediation analysis of completely specific indirect and complete indirect effects represented by bootstrap H4; H5 and H6 (see Tables 5 and Table 6). The authors used MGA to examine the non-statistical path between the male and hypothetical female models of H7. All parameters of the multiple theoretical models were equal within the group, and the differences between gender factors found (Henseler, Ringle, & Sinkovics, 2009). The results revealed that the variances are associated with the observed heterogeneity, and there may be non-observed heterogeneity, so it is expected that these heterogeneities will not affect anyone or more pre-specified variables

## Insert Table IV

## Testing of Hypotheses

To recognize the significance of the projected association between entrepreneurial education and personality traits on TPB antecedents and EIs (H1; H2 & H3) for the whole sample, a bootstrapping method was applied with 1,000 sub-samples’ relationship values, and their significance level, considered in PLS analysis and the variance explained R2 (X. Zhao et al., 2010). The significant results of each anticipated relationship revealed in Table IV and Figure 2.

The explained variance of the full model, representing the R2 =34.9%. For the whole student sample, ATB 7.6 %, SN 23.3%, and PBC, 3.0% explained together in TPBs’ three dimensions of the variance in EIs. TPB has a positive significance level in explaining EIs regarding H1, except SN, while PBC element support H1 only. The main aim of statistical analysis is to distinguish the differences between the two subsamples. In the entire model, the difference between men and women is significant.

Observing H2, EE had an assenting influence on TPBs dimensions; also, its influence on EIs was positive significant except PBC which possess a negative impact, and its coefficient was negative and insignificant for the in Agri- student sample concerning Entrepreneurial Intentions. Therefore, H2a; H2b and H2d are supported H2c but is rejected.

The positive impact of PT on the three TPB dimensions and EIs results revealed for H3a–H3c and none of significant found in whole samples. The results indicate that PBC and ATB in PT played a decisive role in the entrepreneurial behavior development, so their relationship was a positive influence of H3a–H3d but insignificant therefore are not supported; however, H3b and H3c, was a cynical and no significant influence and were not supported as well; in the whole sample. In this study, gender used as the control variable, and the effect of gender on the environmental impact index of both groups was significantly negatively correlated.

## Insert Table V

## Insert Table VI.

## Insert Table VII

## Mediating Effects analysis

To evaluate the mediating role of TPBs’ three antecedents viz. (ATB, SN, and PBC) in envisaging the characteristics of entrepreneurial education and personality traits on EIs. This study logical mediation analysis, to test proposed hypotheses, H5–H6, by indirect effects analysis, mediation method (X. Zhao et al., 2010) analysis of bootstrapping with 1,000 sub-samples for whole samples employed and this revealed the specific indirect and total outcomes effects (see Tables 6).

The criteria used by (H. Zhao, Seibert, & Lumpkin, 2010) regulate the mediation type. Explained mediation effects of its five kind, i.e., indirect only mediation; direct only non-mediation; no effect non-mediation; competitive mediation and complementary mediation.(X. Zhao et al., 2010) Whereas the full and partial mediation are parallel according to (H. Zhao et al., 2010) only, and complementary mediation, respectively. To investigate significance value of each direct path’s and the principal function of an individually mediating variable in predicting the influence of entrepreneurial education and personality traits on EIs, the variations, and type of mediation can be perceived in the whole samples (see Tables 6 and 7). Whereas both indirect and direct effects are non- significant, with partial mediation.

Whereas to assess the nature of the partial mediation,(Carrión, Nitzl, & Roldán, 2017) The direct and indirect effects of the product are calculated; if the symbol of the product is positive, a partial complementary intermediary achieved. Regarding H4, the mediating function of the first dimension of TPBs (ATB) between entrepreneurial education and personality traits and EIs. For instance, ATB mediated the positive relation with EE and but negative with PT on EIs. Conversely, SN and PBC mediated with a negative sign with EE on EIs. While either EIs explained directly or indirectly thorough ATB, H4a is non-supportive effects supported for the whole sample. However, ATB had mediation between PT and EIs, but not allows accepting H4a in the example.

Regarding the H5, the SN role of mediation between EE; PT and EIs. In the whole sample, SN had no mediating effect on EE and EIs, which do not support H5a. The SN positively mediated only the relationship between PT and EIs; only not supporting H5b and H5c, concerning PBC the mediating function between PT and EIs relationship not supportive to be confirmed in the whole sample.

Similarly (see table 7) regarding H6 relationship between EE to EI no mediation with a negative sign where PT to EIs found positive mediation in total indirect effects relations of non-supporting to H6a but to accept H6b in the whole sample.

## Insert Table VII

## Multi-group analysis

The main aim of the multi-group analysis was to confirm H7 whether the relationship between TPBs dimensions with entrepreneurial intention; personality traits, on EIs would very in-group of two samples. To test the difference between the two samples considered, an MGA was performed to measure whether there was a statistical difference between the groups.

All non-parametric PLS-MGA, used in this paper according to (Henseler et al., 2009) PLS-MGA encompasses the validation of dimension invariance between two groups (Leguina, 2015) To confirm this, (Henseler et al., 2009) the of approach measurement invariance of composite models (MICOM) employed in the PLS-MGA, the results of this study established the configurable invariance as well as presented the compositional invariance. Concerning the configured invariance, it verified that the data treatment for the two models’ measurement the structural and the PLS algorithm settings were comparable for both samples. For compositional invariance, a permutation method with a sample of minimum 1,000 permutations significance level at the 0.05 from the empirical distribution after running permutation process (Cu); the original score correlations c with the correlations obtained by this method compositional invariance can be established if c exceeds the 5 % quantile of Cu. The novelty of this study depicts in Table -8; there are no significant differences in paths across the two groups. Overall, the results of all paths found that there are no statistically significant differences in male and female, therefore non-supportive of H8.

# Discussion and Recommendations

The main goal of this study was by testing an integrative framework on personal and contextual factors on TPBs antecedents to predict EIs and to understand how individuals’ intentions toward self-efficacy in Pakistani agricultural students. The research focused on the key mediational role of general entrepreneurial education and personality traits, according to (Boyd & Vozikis, 1994) explored gender differences. The results are the strongly generalizable novelty of the research examined how entrepreneurial education and personality traits influencing EIs directly and through the mediation of TPBs attitudinal (ATB, SN, and PBC) dimensions.

The results of the study confirmed that the model was consistent with previous studies in predicting the impact on EI, and recognized the predictive power of TPB.(Autio et al., 2001). However, EIs’ intensity depends on the country; the predictive power of the TPB model is better in an emerging economy context, demonstrates stronger EIs, consistent with the (S. Ali, Lu, & Wang, 2013) found significant differences in the determinants of EIs between men and women.

The present study sought to evaluate the personality traits and entrepreneurial education role on TPBs domains and EIs, either directly or by mediating effects. The literature emphasized the significance of personality and education in determining innovative career and business stimulus among young students (Frank, Lueger, & Korunka, 2007). Confirmed that in entrepreneurial entry and endurance there is a role of individual personality (Caliendo et al., 2014), clarified over environmental variables and their significance (Sesen, 2013) also measured as the antecedents of TPB the role of personality traits (Rosique-Blasco et al., 2018; Xu et al., 2016; Zhang & Cain, 2017). This study revealed the significant differences in path coefficients between students who reported higher entrepreneurial intention.

The entrepreneurial education and personality traits exerted stronger impacts of dimensions of TPB among agricultural student towards EIs. These findings showed that extended TPBs have a significant effect in predicting entrepreneurial behavior in an agrarian context. However, in the emerging country students (Caliendo et al., 2014) It confirms that the role of personality traits and entrepreneurial education in their career choices and decision-making goes beyond explaining the function of the personality traits. The different characters of personality traits are based on differences in environment, family background, and socioeconomic status.

The findings further suggest that the gender perspective of entrepreneurial intentions, as men and women seem to use different sources of support, maybe the result of gender stereotypes associated with entrepreneurial behaviors.(Gupta et al., 2009). In this regard, mainstream media and educators can provide a variety of information that links entrepreneurship with gender-neutral characteristics, that is, attributable to men and women. (Gupta et al., 2009). In addition, to support women entrepreneurs, training and education should be tailored to meet the needs of men and women entrepreneurs.

# Conclusion

In conclusion, the current study contributed to the literature on entrepreneurial research by integrating into the theory of planned behavior model to test it on Pakistani agricultural students’ context. The results of this study suggested supporting of this integrative framework approach to focus on literature and recognizing the critical role of personality traits and agricultural entrepreneurship as an incentive feature that mediates the relationship between personal and contextual factors on EI. The results are significant for entrepreneurial professionals and educators. Specific and practical training and education, especially for students, can be provided to enhance their belief in their ability to become entrepreneurs in the agriculture sector.

The study highlights the vital role of family and friend support as a determinant of the entrepreneurial capacity of aspiring Pakistani agricultural entrepreneurs, confirming that focusing solely on personal characteristics is not enough to better understand entrepreneurship. Given this, there is a need to develop an entrepreneurial-oriented social culture, especially in Sindh, Pakistan.

Besides, given the importance and weakness of practical skills among agricultural graduates, it is recommended to revise the teaching methods of practice and skills courses and strengthen the interaction and cooperation between universities, management departments, organizations involved in this field, while adding practical courses and identifying relevant goals. It can be inferred that Sindh, Pakistan needs to establish a robust and constructive entrepreneurial institutional framework. Therefore, it is proposed to revise existing rules and infrastructure to pave the way for students and graduates to quickly enter entrepreneurship and self-employment to this extent; mainstream media should raise consumer awareness of entrepreneurial careers.

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## Table 1. Demographic characteristics of the participants

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable distribution** | **N** | **% age** | **(M)** | **(STDEV)** | **Total** |
| Gender | Male | 169 | 66.3 | 1.34 | 0.474 | 255 |
| Female | 86 | 33.7 |
| Entrepreneurial Intention (EI) | Yes | 92 | 36.1 | 1.64 | 0.481 | 255 |
| No | 163 | 63.9 |
| Prior Entrepreneurial Knowledge (PEK) | Yes | 119 | 46.7 | 1.53 | 0.500 | 255 |
| No | 136 | 53.3 |
| Parental Entrepreneurial Exposure (PEX) | Yes | 75 | 29.4 | 1.71 | 0.457 | 255 |
| No | 180 | 70.6 |
| Prior Entrepreneurial Exposure(PEE) | Yes | 151 | 59.2 | 1.41 | 0.492 | 255 |
| No | 104 | 40.8 |
| Prior Farming Exposure (PFE) | Yes | 180 | 70.6 | 1.29 | 0.457 | 255 |
| No | 75 | 29.4 |

## Table 2 Reliability and Validity Test Measurement

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Constructs** | **Items** | **Factor Loadings** | **Cronbach Alpha (α)** | **Average Variance Extraction (AVE)** | **Composite Reliability (CR)** |
| Entrepreneurial Intention (EI) | EI1 | 0.829 | 0.869 | 0.796 | 0.921 |
| EI2 | 0.833 |
| EI3 | 0.828 |
| Attitude toward the Behavior(ATB) | ATB1 | 0.603 | 0.646 | 0.582 | 0.806 |
| ATB2 | 0.563 |
| ATB3 | 0.682 |
| Subjective Norm (SN) | SN1 | 0.891 | 0.806 | 0.721 | 0.885 |
| SN2 | 0.669 |
| SN3 | 0.727 |
| Perceived Behavioral Control (PBC) | PBC1 | 0.719 | 0.749 | 0.664 | 0.856 |
| PBC2 | 0.585 |
| PBC3 | 0.789 |
| Personality Traits (PT) | PT1 | 0.672 | 0.871 | 0.734 | 0.891 |
| PT2 | 0.774 |
| PT3 | 0.951 |
| Entrepreneurial Education (EE) | EE1 | 0.845 | 0.818 | 0.732 | 0.891 |
| EE2 | 0.651 |
| EE3 | 0.807 |

## Table 3. Estimates of path coefficients in a model

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Relationships | **Male** | **Female** | **Full Sample** | **T Values** | **P Values** | **Hypothesis** |
| Entrepreneurial Intention |
| ATB🡪EI | -0.052 | 0.252 | -0.012 | 0.180 | **0.857** | H1a |
| SN🡪EI | -0.089 | -0.030 | -0.075 | 1.116 | **0.264** | H1b |
| PBC🡪EI | 0.468 | 0.289 | 0.456 | 8.529 | ***0.000*** | H1c |
| Entrepreneurial Education |
| EE🡪ATB | 0.196 | 0.208 | 0.203 | 3.073 | ***0.002*** | H2a |
| EE🡪SN | 0.323 | 0.489 | 0.402 | 6.733 | ***0.000*** | H2b |
| EE🡪PBC | 0.057 | -0.212 | -0.071 | 1.110 | **0.267** | H2c |
| EE🡪EI | 0.208 | 0.171 | 0.152 | 2.230 | ***0.026*** | H2d |
| Personality Traits |
| PT🡪ATB | -0.066 | -0.055 | 0.023 | 0.270 | **0.787** | H3a |
| PT🡪SN | -0.211 | -0.169 | -0.132 | 1.603 | **0.109** | H3b |
| PT🡪PBC | 0.169 | 0.318 | 0.179 | 1.783 | **0.075** | H3c |
| PT🡪EI | 0.017 | -0.041 | -0.048 | 0.628 | **0.530** | H3d |

*Notes*: Sig; † *p* < 0.100;\* *p* < 0.050;\*\* *p* < 0.010;\*\*\* *p* < 0.001

## Table 4. Structural Specific indirect effects of Female

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Relationships** | **Original Sample (O)** | **Lower Threshold** | **Upper Threshold** | **T Values** | **P Values** | **Annotation** |
| EE🡪ATB🡪EI | 0.052 | -0.034 | 0.180 | 0.980 | 0.327 | H4a |
| PT🡪ATB🡪EI | -0.014 | -0.106 | 0.049 | 0.346 | 0.729 | H4a |
|  |  |  |  |  |  |  |
| EE🡪SN🡪EI | -0.015 | -0.135 | 0.094 | 0.261 | 0.794 | H5a |
| PT🡪SN🡪EI | 0.005 | -0.036 | 0.059 | 0.225 | 0.822 | H5b |
|  |  |  |  |  |  |  |
| EE🡪PBC🡪EI | -0.061 | -0.143 | 0.100 | 1.084 | 0.279 | H6a |
| PT🡪PBC🡪EI | 0.092 | -0.083 | 0.187 | 1.397 | 0.163 | H6b |

## Table 5. Structural Specific indirect effects of Male

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Relationships** | **Original Sample (O)** | **Lower Threshold** | **Upper Threshold** | **T Values** | **P Values** | **Annotation** |
| EE🡪ATB🡪EI | -0.010 | -0.044 | 0.023 | 0.633 | 0.527 | H4a |
| PT🡪ATB🡪EI | 0.003 | -0.027 | 0.014 | 0.332 | 0.740 | H4a |
|  |  |  |  |  |  |  |
| EE🡪SN🡪EI | 0.019 | -0.036 | 0.059 | 1.058 | 0.290 | H5a |
| PT🡪SN🡪EI | 0.005 | -0.036 | 0.059 | 0.225 | 0.822 | H5b |
|  |  |  |  |  |  |  |
| EE🡪PBC🡪EI | 0.027 | -0.060 | 0.101 | 0.651 | 0.515 | H6a |
| PT🡪PBC🡪EI | 0.079 | -0.028 | 0.046 | 1.312 | 0.190 | H6b |

## Table 6 .Total indirect effects

|  |  |
| --- | --- |
| **Female** | **Male**  |
| **Relationships** | **Coefficients *(β)*** | **T Statistics**  | **P Values** | **Coefficients *(β)*** | **T Statistics** | **P Values** |
| EE🡪EI | -0.023 | 0.252 | **0.801** | -0.012 | 0.232 | **0.816** |
| PT🡪EI | 0.083 | 1.083 | **0.279** | 0.101 | 1.372 | **0.170** |

## Table 7. Multi-group Coefficients difference Male vs Female sample

|  |  |  |
| --- | --- | --- |
| **Relationships** | **Path Coefficients-diff ( | FEMALE - MALE |)** | **p-Value(FEMALE vs MALE)** |
| ATB🡪EI | 0.308 | **0.066** |
| EE🡪ATB | 0.013 | **0.450** |
| EE🡪EI | 0.048 | **0.612** |
| EE🡪PBC | 0.260 | **0.920** |
| EE🡪SN | 0.167 | **0.095** |
| PBC🡪EI | 0.173 | **0.837** |
| PT🡪ATB | 0.014 | **0.484** |
| PT🡪EI | 0.052 | **0.617** |
| PT🡪PBC | 0.147 | **0.199** |
| PT🡪SN | 0.041 | **0.411** |
| SN🡪EI | 0.062 | **0.315** |

**Figures**

## Figure 1 an integrative theory of planned behavior study model



## Figure 2 PLS-SEM Coefficient Path Model

