The effect of task technology fit and entrepreneurship education on student’s entrepreneurship intention using the theory of planned behaviour

R Rustiana1,2,*, O Mohd1 and N Mohamad1
1 Universiti Teknikal Malaysia, Melaka, Malaysia
2 Universitas Atma Jaya Yogyakarta, Yogyakarta, Indonesia

*Rustiana@uajy.ac.id

Abstract. Entrepreneurship has been proven in various researches in the world to help improve the welfare of society by creating jobs. Many universities in the world have adopted entrepreneurship in their curriculum designs in the form of entrepreneurship education. Besides, the technology fit task variable is also important in increasing student entrepreneurship intention. Therefore, research on entrepreneurship intention (EI) and the factors that influence it among students is very relevant. This study aims to fill the knowledge gap in the effect of task technology fit (TTF) and entrepreneurship education (EE) on entrepreneurship intention (EI) by using the theory of planned behavior (TPB) model. The research sample was 213 undergraduate students at one of the private universities in Yogyakarta selected by the Slovin method. Data were collected through a questionnaire shared with the student by MS Form. Regression analysis tools were used to test the research hypothesis. These results prove that H1, H3a, and H3b have a positive effect on EI with different levels of significance. Meanwhile, H2 has a negative influence on EI. This study has contributed to filling the knowledge gap that TTF and EE can be integrated into the TPB model.

1. Introduction
The use of information technology trends such as social media, mobile services, and cloud computing [1] has now become an inseparable part of the learning process in general and specifically in the field of entrepreneurship. The topic of entrepreneurship is one of the important topics that affect economic development and social change in a country [2]. Furthermore, education without technology is like a knife that is not sharp and less effective for achieving learning goals. Especially now that during the Covid 19 pandemic, the use of various information technology trends is increasing sharply along with the online learning system both synchronously and asynchronously. This is a challenge in itself, especially in learning entrepreneurship education [3]. For example, in making a business plan, students need information technology that fits and meets entrepreneurial tasks. Making a business plan requires data such as consumer behavior, market needs, market types, supply chain, market risk, and so on. This task will be facilitated by the application of technology that fits the tasks. If students feel the benefits of the suitability of tasks with technology in entrepreneurship education (EE) learning, it is hoped that it will increase student EI. The suitability of tasks with technology is called the task technology fit (TTF) proposed by Goodhue and Thompson [4] which focuses on the suitability of tasks with technology [5].
Research on entrepreneurship intention (EI) using the TPB has been widely carried out. According to Ajzen [6] the TPB explained that three factors influence EI, namely attitude toward entrepreneurship, social norms, and perceived behavioral control. However, apart from the three antecedent variables, EI is also influenced by several other variables such as entrepreneurship education EE and TTF, even though the two exogenous variables are not integrated with the TPB model together. Student entrepreneurship skills begin with EI which can be trained and educated through EE [7-9]. However, it is different from previous studies, some research results such as Ahmed et al. [10] and Ndofirepi and Rambe [11] showed that EE did not affect EI. However, there is still little research linking TTF and EE into TPB in the entrepreneurial field. The incorporation of EE and TTF variables into the TPB model is very important because it can increase student entrepreneurship intention. Thus the novelty of this research is to offer a conceptual model as well as empirical evidence, a new model namely the Theory of Planned Behavior (TPB) with the addition of EE and TTF. Therefore, the research problem is formulated as follows how the effects of TTF and EE together are integrated with the three antecedent variables of the TPB on student EI? Thus there are three hypotheses in this study, namely:

- H1: entrepreneurship education has an impact on students' entrepreneurship intention
- H2: task technology fit have an impact on students' entrepreneurship intention
- H3a: attitude toward entrepreneurship have an impact on students' entrepreneurship intention
- H3b: subjective norms have an impact on students' entrepreneurship intention
- H3c: perceived behavioral control have an impact on students' entrepreneurship intention

This study aims to firstly, fill the knowledge gap for the effect of task technology fit (TTF) and entrepreneurship education (EE) on entrepreneurship intention (EI) by using the theory of planned behavior (TPB) model. Secondly is to confirm the robustness of the effect of the three antecedent variables of TPB on IE.

2. Methods

2.1. Design, procedure, and data collection

This research design is in the form of quantitative research. The procedure for a sampling of respondents using a questionnaire as a data collection tool. The Slovin technique with the formula \( n = \frac{N}{1 + Ne^2} \) is used to determine the number of samples to be respondents. Based on Slovin calculations, there were 386 students as nascent entrepreneurship taken from one of the favorite national private universities in Yogyakarta with a population of 11,000 students (\( e = 5\% \)).

Furthermore, from 386 respondents only 218 students participated in filling out the questionnaire (response rate of 56.47%) which consisted of 147 male students and 66 female students. Respondents participated in filling out questionnaires through the MS Form via the link bit.ly/36ksf6u which were distributed in online classes at 6 faculties that have classes in entrepreneurship courses or those related to entrepreneurship. Questionnaires were distributed for the last two weeks in September 2020. Furthermore, only 213 data were analyzed further because there were 4 redundant data and 1 invalid data.

2.2. Dimension of variables and scaling

The six research variables consisted of 52 statements measured using five Likert scales. The EI variable has two dimensions, namely immediate term intention and future intention [12]. Then the ATE variable has the dimensions of autonomy, self-realization, economic opportunity, challenge, authority, and participation in the whole process [8]. While the SN dimensions are family members, friends, and the local business community [8]. Next, the PBC variable has an internal control dimension, powerful other, and chance [13]. Then, there are three dimensions of EE, namely cognitive component, attitude component, and behavioral component [13]. Finally, TTF has the dimensions of fit with tasks, necessary to do a task and meet tasks need.
2.3. Data test and analysis

The results of the validity and reliability test of each variable (in table 1) using SPSS 17.0 software. The validity of each variable is based on KMO and Barlett's test respectively, namely EE 95.5%; TTF 72.6%; EI 88.4%; ATE 60.1%; SN 74.1% and PBC 74%. Furthermore, the reliability of each variable based on the Cronbach Alpha value is TTF 88%; EE 95.9%; EI 90.3%; ATE 66.4%; SN 92.3%; and PBC 46.6%. To test the hypothesis using multiple regression analysis.

| Table 1. Validity and reliability test. |
|---------------------------------------|
| validity test (KMO and Barlett’s Test) | reliability test (Cronbach Alpha) |
| EI  | 88.4 % | 90.3%  |
| ATE | 60.1 % | 66.4%  |
| SN  | 74.1 % | 92.3%  |
| PBC | 74.0% | 47.6%  |
| EE  | 95.5% | 95.9%  |
| TTF | 72.6% | 88.0%  |

Hypothesis testing uses multiple regression analysis with the following formula:

\[ Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3a + b_4X_3b + b_5X_3c + e \]

where, dependent variable, \( Y = (EI) \);
Independent variables, \( X_1 = EE; X_2 = TTF; X_3a = ATE; X_3b = SN; X_3c = PBC \); \( b_0 = \) constant; \( b_{1,2,3,4,5} = \) beta; and \( e = \) error

3. Results and discussion

Referring to table 2, the research model fitted with five variables shown the indication that the R square value of 66.5% while the remaining 33.5% is a variable outside the research model. The results of the regression test using SPSS version 17.0 proved that H1 and H4 are accepted with a significance level of 0.000 (p-value < 0.01). Meanwhile, H2 is accepted with a positive significance level of 0.043 (p-value < 0.05), and H2 accepted with a negative significance level of -0.87 (p-value < 0.1). Only H3 was not accepted.

| Table 2. The result of multiple regression. |
|-------------------------------------------|
| Model | Unstandardized Coefficients | Standardized Coefficients | t | Sig. |
|-------|-----------------------------|---------------------------|---|------|
|       | B   | Std. Error | Beta |     |     |
| 1     | (Constant) | .510 | .232 | .311 | 2.204 | .029 |
| ATE   | .302 | .047 | .098 | .043** |
| SN    | .058 | .029 | .564 | 10.192 | .000*** |
| PBC   | -.052 | .064 | -.076 | -1.719 | .087* |

Note: *** p value < 0.001; ** p value < 0.005; * p value < 0.1

Based on table 2 and mapped in Figure 1, H1 was supported. It is shown that the strongest factors affecting the entrepreneurship intention of nascent entrepreneurs are EE with \( \beta = 0.609 \) and p-value < 0.001. This result confirms of some researches [7-9,14] which stated that EE had an important tool to

Based on table 2 and mapped in Figure 1, H1 was supported. It is shown that the strongest factors affecting the entrepreneurship intention of nascent entrepreneurs are EE with \( \beta = 0.609 \) and p-value < 0.001. This result confirms of some researches [7-9,14] which stated that EE had an important tool to
accelerate student entrepreneurial activities. Gretzinger et al [15] stated that educational level, academic major, and academic achievement influenced personal attitude and had an impact on EI. Correspondingly with Ahmed et al., Varamäki E and Joensuu; Tiwari et al. [8,16,17] this suggests that EE has an impact on students' entrepreneurial intentions.

The second strongest effect is ATE on EI with a value of β = 0.302 and a p-value <0.001 so that H3a is supported. The more positive the individual's perception of entrepreneurship, the higher the individual's tendency to have high entrepreneurship intention. A "high" or strongly positive attitude towards becoming an entrepreneur is believed to predict that an individual is more inclined to start his/her own business rather than becoming an organizational employee" [10]. This result is in line with the research results from Paray and Kumar [7] and Ahmed et al. [8].

SN factor as one of the antecedent variables of TPB to EI has a low effect β=0.058 and p-value <0.05. This means that the influence of family, friends, and the surrounding environment related to EI is less strong even if they have parents who have a family business to support students in fostering a tendency towards entrepreneurial interest [18]. Students who receive support from their families, lecturers, and friends to become entrepreneurs have high hopes for their business fields so that they can think and act motivated to be more creative and innovative [19]. Thus H3b is supported. This confirms the research [8] but does not confirm the research H2 is supported even though the significance is weak with p-value <0.1 and β= -.027 Its mean that TTF has an effect negatively on EI. These results can be interpreted that the higher the use of technology in participating in entrepreneurship course assignments, it actually reduces students' interest in entrepreneurship. This is an anomaly. Owned information technology, following the task, the independence of completing tasks, and following tasks related to entrepreneurial activities actually reduce students' interest in entrepreneurship. The logical reason that can be used to explain this phenomenon is when data collection was carried out in September 2020 and it was still in the state of the Covid 19 pandemic. Learning is still being carried out online, all course assignments are accessed through the lecture site either synchronously or synchronously. Thus, TTF is not only for carrying out special course assignments for entrepreneurship but for all courses offered in the odd semester of the 2020/2021 academic year.

Figure 1. The research model.
Safra et al. [20] combined TTF variables with TPB to test their effect on the intention to adopt cloud-based retail application (CBMA) used on 348 Malaysian textile cyberpreneurs. The results of the study proved that the combination of TTF and TPB was able to describe the adoption intention of textile cyberpreneurs. Furthermore, the result had proved that both task-related and human behavior factors play significant roles in influencing textile cyberpreneurs' intention to adopt CBMA.

Last, PBC as one of the three antecedent variables of the TPB did not affect EI. It is suspected that the cause is because the points of the questionnaire statements are not understood by the respondents. PBC in entrepreneurship refers to behavior people's perception of how easier or difficult to start a business, and how much to control it [21]. Moreover, filling in this questionnaire during the Covid 19 pandemic has made respondents feel uncertain about self-control. As a result, most respondents answered these statements by choosing neutral. The results did not confirm the study [18].

4. Conclusion
This study proves that EE (H1) and ATE (H3a) have a strong positive effect on EI. Meanwhile, SN (H3b) had a moderate effect on student EI. However, PBC (H3c) as an antecedent variable of Theory of Planned Behavior was not proven to be able to increase student EI. While TTF (H2) has a weak negative effect on EI. This is an anomaly. The logical explanation is that respondents feel TF is not only for helping with entrepreneurial-related subject assignments but for all subjects. Because data collection was carried out during the COVID-19 pandemic, the learning process was carried out online. So that all the technology used is fit for all coursework for all courses online using the internet. Furthermore, the results of this study cannot be generalized because it only uses students at one university as respondents. The second limitation is assured validity for the PBC variable <0.6. Nevertheless, the implication of this study is to fill the knowledge gap of the influence of the EE and TTF variables on EI by using the TPB. Besides, the results of this study are useful for mapping the high EI of students so that it can be used by lecturers and decision-makers in higher education settings.

Acknowledgment
We would like to express our appreciation to the Center for Advanced Computing Technology (C-ACT), Faculty of Information and Communication Technology (FTMK), Centre for Technopreneurship Development (C-TeD), Faculty of Technology Management and Technopreneurship (FPTT), Universiti Teknikal Malaysia Melaka, and Fakultas Bisnis dan Ekonomika, Universitas Atma Jaya Yogyakarta for supporting this research.

References
[1] Elia G, Margherita A and Passiante G 2020 Digital entrepreneurship ecosystem: How digital technologies and collective intelligence are reshaping the entrepreneurial process Technol. Forecast. Soc. Change
[2] Obschonka M 2017 ScienceDirect The quest for the entrepreneurial culture : psychological Big Data in entrepreneurship research COBEHA 18 69–74
[3] Liguori E and Winkler C 2020 From Offline to Online: Challenges and Opportunities for Entrepreneurship Education Following the COVID-19 Pandemic Entrep. Educ. Pedagog.
[4] Goodhue D L and Thompson R L 1995 Task-technology fit and individual performance MIS Q. Manag. Inf. Syst. 19 213–33
[5] Cheng Y M 2019 How does task-technology fit influence cloud-based e-learning continuance and impact? Educ. Train. 61 480–99
[6] Ajzen I 1991 The theory of planned behavior Organ. Behav. Hum. Decis. Process. 50 179–211
[7] Paray Z A and Kumar S 2020 Does entrepreneurship education influence entrepreneurial intention among students in HEI’s?: The role of age, gender and degree background J. Int. Educ. Bus. 13 55–72
[8] Ahmed T, Chandran V G R, Klobas J E, Liñán F and Kokkalis P 2020 Entrepreneurship education programmes: How learning, inspiration and resources affect intentions for new venture
creation in a developing economy *Int. J. Manag. Educ.* 18 100327

[9] Jiang X, Yang Y, Pei Y L and Wang G 2016 Entrepreneurial Orientation, Strategic Alliances, and Firm Performance: Inside the Black Box *Long Range Plann.* 49 103–16

[10] Ahmed T, Chandran V G R and Klobas J 2017 Specialized entrepreneurship education: does it really matter? Fresh evidence from Pakistan *Int. J. Entrep. Behav. Res.* 23 4–19

[11] Ndofirepi T M and Rambe P 2017 Entrepreneurship education and its impact on the entrepreneurship career intentions of vocational education students *Probl. Perspect. Manag.*

[12] Kim-soon N, Ahmad A R and Ibrahim N N 2016 Theory of Planned Behavior : Undergraduates ’ Entrepreneurial Motivation and Entrepreneurship Career Intention at a Public 2016

[13] Jena R K 2020 Measuring the impact of business management Student’s attitude towards entrepreneurship education on entrepreneurial intention: A case study *Comput. Human Behav.* 107 106275

[14] Fayolle A and Gailly B 2015 The impact of entrepreneurship education on entrepreneurial attitudes and intention: Hysteresis and persistence *J. Small Bus. Manag.* 53 75–93

[15] Gretzinger S, Fietze S, Brem A and Ogbonna T U 2018 Small scale entrepreneurship – understanding behaviors of aspiring entrepreneurs in a rural area *Compet. Rev.* 28 22–42

[16] Varamäki E and Joensuu S 2015 The development of entrepreneurial potential among higher education students *J. Small Bus. Enterp. Dev.* 22 563–89

[17] Tiwari P, Bhat A K and Tikoria J 2017 Predictors of social entrepreneurial intention : an empirical study 6 53–79

[18] Bueckmann-Diegoli R, García de los Salmones Sánchez M del M and San Martín Gutiérrez H 2020 The development of entrepreneurial alertness in undergraduate students *Educ. Train.*

[19] Lagúa A, Moriano J A and Gorgievski M J 2019 A psychosocial study of self-perceived creativity and entrepreneurial intentions in a sample of university students *Think. Ski. Creat.*

[20] Safra W, Wan D, Ghani A, Zulkarnaen N and Tse T 2018 ScienceDirect ScienceDirect Analysis on Factors Influencing Textile Cyberpreneur’ s Intention to Adopt Cloud-Based m-Retail Application *Procedia Comput. Sci.* 124 345–53

[21] Al-jubari I 2018 Entrepreneurial intention among University students in Malaysia : integrating self-determination theory and the theory of planned behavior *Int. Entrep. Manag. J.*