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## The Influence of Contextual Elements on Technopreneurial Intention

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### Abstract

Technopreneurship is a combination of technology and entrepreneurship. High-technology context has been apply in this type of entrepreneur. The purpose of this study is to identify technopreneurial intention among Bumiputera university students in Malaysia. This study specifically examined the direct influence of contextual elements on technopreneurial intention through individual entrepreneurial orientation (IEO). Quantitative research method has been applied and 150 respondents has been take part in this study. Simple random sampling method has been employed to obtain data from the respondents and the data were analysed using Statistical Package for Social Science (SPSS) version 25. The results indicated that contextual element positively and significantly related to technopreneurial intention. Moreover, the results also showed a significant partially mediating role of individual entrepreneurial orientation and technopreneurial intention. Thus, this study contributed a few vital factors in technology based entrepreneurship intention or known as technopreneurial intention as well promoting young entrepreneurship towards university students in Malaysia.

**Keywords:** Entrepreneurship, Technopreneur, Intention, Individual Entrepreneurial Orientation (IEO), Environmental Factor

### Introduction

Entrepreneur play an important role in economic development specifically in developing countries by creating jobs, new technologies, increasing productivity as well increase of economic growth of the country. Industrial revolution 4.0 or known as IR 4.0 is the current trending era in the world where information communication technology (ICT) is essential in the every business operations. In a simple terms, IR 4.0 is about comprehensive digitalisation where focus on digital technology in business operation and services. An entrepreneur whose business involves in advanced technology or intensive technology context are known as technopreneur. This type entrepreneur plays a major role in the new era of industrial revolution 4.0 (IR 4.0). According to World Bank Group report, Malaysia is still lags behind in adopting digital technology and business are connected to internet is only 62%. In addition, only 18% have online web presence and only 46% has fixed broadband where is often bad and low quality. In simple words, the number of Malaysian businesses

which use and adopt digital technology in operation and services is still low. When this happens, a lot of disadvantages for Malaysia government to be developed country in the world. This was supported from the report of Earnest & Young, (2019) where the majority of SME in Malaysia are in early stages of digital maturity which is 62.7% versus Southeast Asia which is 54.9%. In addition, only 6.8% of Malaysia SME's at level five of digital maturity compare to Southeast Asia which is 8.7%, where at this level, an organisation has a single digital platform to scale technological innovations and consider themselves digital native enterprises compare to Southeast Asia which is 8.7%. According to Global Entrepreneur Monitor (GEM) report in 2017, it recorded that Malaysian still has low intentions to start up new business where only 3.82% compare to 4.70% in 2016 and also low and declining early-stage of entrepreneurship rate. In conclusion, adopting digitalisation in business operations in Malaysia is still a big challenge.

As the new era IR 4.0 has been introduced worldwide, Malaysia also has announced Malaysia Education Blueprint 2015-2025 (Higher Education) or known as MEB (HE). This blueprint will make Malaysia education ecosystem on track with IR 4.0 and one of the aims of this blueprint is forming greater chances for students to grow entrepreneurial skills and create their own business. Moreover, this blueprint encourages students to be an entrepreneur specifically in technology that is related with the IR 4.0 such as artificial intelligence (AI), augmented reality (AR), IoT, robotics and others. However, Bernama (2017) reported that, only three percent become entrepreneurs from the total 60% student joint entrepreneurship activities and programs where lower than the government target. Malaysia still needs more students to join in the entrepreneur profession.

Contextual elements can be related with environment factors. Where the values, personalities, confidence and environment (contextual element) is the background factor that can influence entrepreneurial intention. This background factor has greater influence and is believed as a contributor to entrepreneurial intention and decision rather than personality part. In addition, contextual elements were recognised as an environmental factor related to the concept of entrepreneurship supports and barriers. Moreover, many researchers have used contextual elements as factors influencing entrepreneurial intention. Based on the above, there are many previous studies examining these variables such as Kristiansen and Indarti, 2003; Setiobudi and Herdinata, 2018; Ramayah and Harun, 2005. However, limited studies related with technopreneurial intention. The study about technopreneurial topics such as intention to be a technopreneur as well as mediating factors which are individual entrepreneurial orientation (IEO) are also limited and scarce. In addition, in the Malaysia context, a study that focuses on technopreneurial topics is also limited. This paper intends to fill the gaps by focusing and exploring on aspects pertaining to technopreneurial topics and giving a clear picture about technology not just helping people do work in daily life but also can make people the richest person. In particular, the aim of this research is to study the direct relationship between contextual elements, individual entrepreneurial orientation (IEO) and technopreneurial intention.

## Literature Review

Entrepreneurial topics have widely been studied in the world of research as entrepreneurs play a vital role in the economic growth of a country. This topic is very commonly included, including the factors influencing intention to be an entrepreneur. According to Krueger and Brazeal (1994), environment factors are one of the factors influencing entrepreneurial intention where contextual elements are a part of environment factors. Many studies have found the direct relationship between contextual elements toward

entrepreneurial intention. However, in the context of technopreneurial intention is not been fully explore and limited studies.

Individual entrepreneurial orientation (IEO) is originated from entrepreneurial orientation (EO) concept from Miller (1983) and later has been refined as multidimensional construct by Lumpkin and Dess (1996). Many studies has using IEO as related construct on entrepreneurship for example study on multiple dimension IEO on Norwegian student by Robinson and Stubberud (2014). After the end of an entrepreneurship course, the researcher found majority students showed higher risk-taking, innovation, proactiveness and entrepreneurial intention. A research on all elements of EO found that entrepreneurial experience student scored higher than non-entrepreneurial experienced students (Taatala & Down, 2012). Other researchers who have investigated students' IEO include Ekpe and Mat (2012) and Yajid, Khatibi, Azam, & Ranasinghe (2019). As the topic is related to technopreneur, IEO is the best option as it is based on individual prospect.

Contextual element is one of the environment factor that contribute entrepreneurial intention as well this factor has big influence on entrepreneurial decision than personality factor (Gartner, 1989). Many studies such as Kristiansen and Indarti (2003; 2003), Lestari and Susetyo (2014), Mat, Maat and Mohd (2015) also has using contextual element as related construct towards entrepreneurial intention. According to Franke (2003), this factor can be identify as related concept of entrepreneurship supports and barriers. In this contextual element, it consists of three item which is access to capital, access to information and lastly is social networking. This item is the most visible influence on entrepreneur decision (Kirstiansen & Indarti, 2003, 2004; Ramayah & Harun, 2005).

The hypothesis of this study:

H1: Contextual elements positively influence technopreneurial intention.

H2: IEO mediates the relationship between contextual elements and technopreneurial intention.

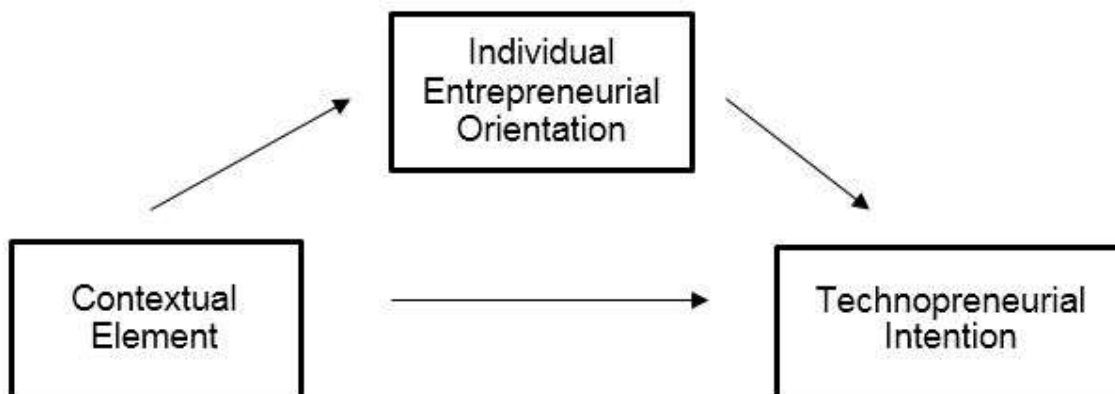


Figure 1: Theoretical framework of the study

### Methodology

This study employed proportionate stratified random sampling in selecting respondent where a list name of sample derived from Academic Affair Unit (HEA) of local university in Malaysia. From total respondent, 36% respondent are male and 64% are female. All the construct of the study were measured with scales adopted from established measurements. For the technopreneurial intention,

this study has adopted the 6-items questionnaire constructed by Linan and Chen (2009). In example of the item adopted are “I am ready to do anything to be a technoprenuer” and “I am determined to create a technology based firm in the future”. Meanwhile for contextual elements, 8-items questionnaire has been adopted where constructed by Kristiansen and Indarti (2003, 2004); Taormina and Lao (2006); Javier, Chamorro-mera and Rubio (2017). The example of items are “I have access to capital to start a business” and “It is easy to obtain a bank loan to start a business”. Last not least, individual entrepreneurial orientation (IEO) consist of 10-items questionnaire constructed by Bolton and Lane (2012). The examples of IEO are “I like to take bold action by venturing into unknown” and “I prefer to my own unique way when learning new things rather than doing it like everyone else does”. All the construct are using 7-likert scale (1-Strongly Disagree to 7-Strongly Agree). The data collected was analysed using Statistical Package for Social Sciences (SPSS) version 25.0. Simple regression test was been apply for hypothesis one (H1) and Baron-Kenny method as used for hypothesis two (H2).

## Result

### Correlation

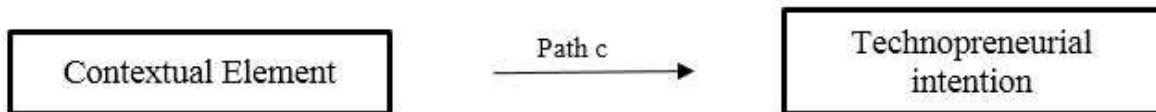
Pearson correlation analysis was used in analysing data to ensure all variables were link each other. The result was presented in Table 1. Based on the table, the correlation coefficients for each path of variables is from 0.456 to 0.666 and statistically significant (sig. < 0.01). As the values of the result is not too high, multicollinearity was not the problem. Thus, condition to test the mediator has been met and regression analysis can be performed.

**Table 1:** Correlation analysis all variable

	Individual Entrepreneurial Orientation	Contextual Element	Technopreneurial Intention
Individual Entrepreneurial Orientation	1		
Contextual Element	0.523**	1	
Technopreneurial Intention	0.456**	0.666**	1

### Regression

Baron and Kenny method was adopted to test the two hypotheses (H1 and H2) suggested. This method consist of four step condition to fulfil. For the first step, contextual element (independent variable) influence technopreneurial intention (dependent variable), showed as “path c” in Fig 2. Based on table 2, the results show a positive and significant relationship ( $\beta=0.666$ ; sig.<0.001) between contextual element and technopreneurial intention. This showed that the first rules in Baron-Kenny test was achieved. Thus, hypothesis 1 (H1) was also supported.



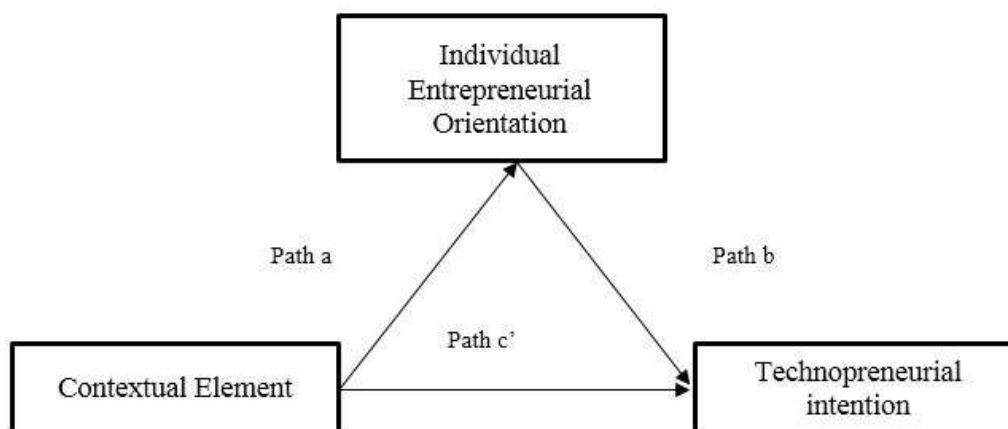
**Figure 2: Path C**

The second step, contextual element on individual entrepreneurial orientation, showed as “path a” in Fig. 3. Table 3 were the results of the second step and it show that contextual element positively influence and significantly ( $\beta=0.523$ ; sig.<0.001) on individual entrepreneurial orientation. This showed that the second rules in Baron-Kenny test was fulfil.

**Table 2: Regression analysis 1**

	Standardized Beta	t	Sig.
Contextual Element	0.666	10.856	<0.001
F-statistics (sig.)	117.846 (<0.001)		
R <sup>2</sup>	0.443		

Dependent variable: Technopreneurial Intention



**Figure 3: Path a, Path b, Path c'**

The third step was to determine to what extant did contextual element and individual entrepreneurial orientation influence the technopreneurship intention. The relationship was

explained as “path b” and “path c” in Fig. 3. Table 4 show the regression results where the individual entrepreneurial orientation and technopreneurial intention is positively and significant ( $\beta=0.149$ ; sig. 0.039) which is below 5% significant level.

The forth step where the last step was to compare the standardized beta of path c and path c'. The values of standardized beta both were derived from Table 2 and Table 4. The standardized beta decrease from 0.666 to 0.588. In addition,  $R^2$  also increased from 0.443 to 0.459. Although the standardized beta value decrease is small, it can be conclude that, there was a partial mediating effect of individual perception between contextual element and technopreneurial intention.

**Table 4:** Regression analysis 3

	Standardized Beta	t	Sig.
Contextual Element	0.588	8.264	<0.001
Individual Entrepreneurial Orientation	0.149	2.088	0.039
F-statistics (sig.)	62.440 (<0.001)		
$R^2$	0.459		

Dependent variable: Technopreneurial Intention

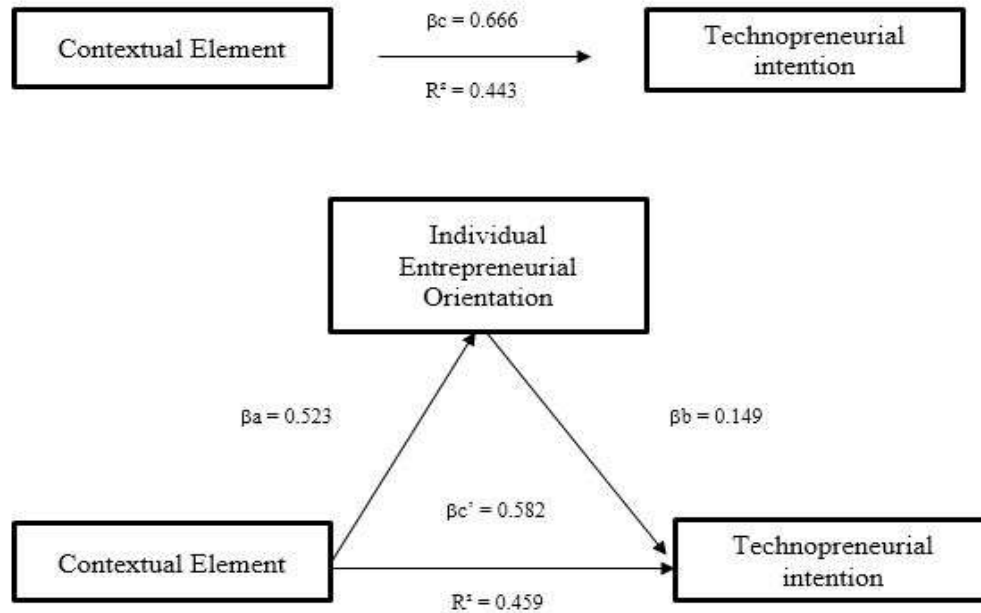


Figure 4: Comparisons of Path c and Path c'

Table 5: Comparison of Standardized beta of Path c and Path c'

	Standardized Beta Path c	Standardized Beta Path c'	Results
Contextual Element	0.666	0.588	Partially mediation

Mediator: Individual Entrepreneurial Orientation  
 Dependent variable: Technopreneurial Intention

Regression results indicated that a partially mediating effect of individual entrepreneurial orientation between contextual element and technopreneurial intention. Sobel's test was implemented to determine the indirect effect and whether such mediating effect was significance. The results were shown in Table 6. The z-score (2.00) and sig. value (0.04) confirmed that indirect effect of individual entrepreneurial orientation between contextual element and technopreneurial intention was significant. Based on Baron-Kenny test, the mediation is partially and Sobel's test result is significant, thus hypothesis 2 (H2) was partially supported.

Table 6: Results of Sobel's Test

Relationship	a	Sa	b	Sb	z	Sig.
CE – IEO – TI	0.366	0.049	0.281	0.135	2.00	0.04

### Discussion

Based on the analyses performed, the first hypothesis (H1) was supported. The contextual element significantly influence technopreneurial intention. The result consistent with previous study conducted by Mat, Maat and Mohd, (2015); Kristiansen and Indarti, (2004) and Setiobudi and Herdinata, (2018). Meanwhile, the second hypothesis (H2) was partially supported. Individual entrepreneurial orientation (IEO) partilly mediated the relationship between contextual element and



technopreneurial intention. The findings found in this study support the previous study that individual entrepreneurial orientation is main factor of entrepreneurial intention (Luthje & Frank, 2003; Duijn, 2009; Awang et al., 2016). The mediation in this study is partial, which mean that, there is other factor can mediate the relationship but IEO still can be reliable factor that influence the relationship. The outcome explained that contextual element influenced individual entrepreneurial orientation and individual entrepreneurial orientation also consequently affected technopreneurial intention. Thus, from the relationship, individual entrepreneurial orientation could not be forgotten as one of the main factor of technopreneurial intention.

### Conclusion

This study conducted to determine whether there is relationship between contextual element, technopreneurial intention and individual entrepreneurial orientation as mediator. Based on the study result, it could be concluded that contextual elements significantly influenced the technopreneurial intention. In addition, the relationship between contextual elements and technopreneurial intention was significantly partial mediated by individual entrepreneurial orientation. Since the contextual elements positively related with technopreneurial intention, it is suggested that university should explore more by providing graduate grant scheme for student and maybe university could collaborate with big company for student who interested in this segment where it could boost student spirit and fulfill their desires. Furthermore, government could give grant or give instant capital and advise for graduate to startup their business nature freely but still under supervision and monitor by government agency. Based on the suggestion, it is hoped that it could help overcome the problems such as limited number of entrepreneurs as well technopreneurs and giving a clear picture about technopreneur in Malaysia.

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