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**Article**

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# DETERMINANTS OF TECHNOPRENEURIAL INTENTION AMONG UNIVERSITY STUDENTS: INDIVIDUAL ENTREPRENEURIAL ORIENTATION (IEO) AS MEDIATOR

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**Abstract:** *Technology-based entrepreneurship or technopreneur-ship is crucial in driving business innovations in a country, especially in the Industrial Revolution 4.0 era. To date, the Malaysian government has put forth various efforts and implemented many strategies to develop youth technopreneurs. However, the establishment of new technological businesses still needed to be higher. In addition, reluctance to embark on entrepreneurship among university students remained a main issue and challenge. Therefore, the ultimate purpose of this study was to investigate the determinants of technopreneurial intention among university students. The mediating role of individual entrepreneurial orientation (IEO) was also tested. This study employed the Theory of Planned Behavior (TPB) and the concept of IEO as the underpinning theories in developing the model of research and hypotheses. The research method adopted was quantitative because all variables were quantifiable. In particular, it utilised a survey questionnaire. The object of the research was individual university students chosen from a public university in Malaysia. A total of 5030 students was identified as the population of the study. Based on the proportionate stratified random sampling, 358 students were selected as a sample and surveyed. The collected data were further analysed using covariance-based structural equation modelling (CB-SEM). The findings empirically confirmed that contextual elements significantly and positively influenced technopreneurs' intentions. However, computer and Internet self-efficacy were not significant in influencing technoprenuerial intention. IEO significantly mediated the relationship between contextual elements and technopreneurs' intention regarding mediation testing. This research proved that aspects of contextual elements such as access to capital, access to information, and social networks were important in encouraging and developing technopreneurs. Furthermore, it confirmed a model for understanding and bolstering technopreneurial intention. It helped the government find significant external factors influencing students' technopreneurial intention. It also sheds light on establishing effective ways of developing technopreneur-ship among youths early.*
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**Introduction.** Entrepreneurship plays a significant role in establishing and evolving business sectors and the growth and wealth of regions and nations (Hisrich et al., 2017). Moreover, it is needed to support the Fourth Industrial Revolution (IR 4.0) current trend. IR 4.0 focuses on digital technology, combining different techniques to make the existing products or services more advanced, such as using big data analytical, 4D printing and augmented reality (Davis, 2018). Thus, as technology grows and becomes more advanced, entrepreneurs need to follow and adapt to the transformation by using technology or digitalised systems in their businesses.

Today's entrepreneurs must convert their businesses from traditional to digital, such as e-commerce platforms. In Malaysia, the government has set up Malaysia Digital Economy Corporation (MDEC) to lead the digital transformation of the country's economy. MDEC is also vital in attracting world-class digital businesses and talents to invest in Malaysia under the Malaysia Digital strategic initiative (MDEC, 2022). Apart from MDEC, Small and Medium Enterprises Corporation (SME Corp) Malaysia has also initiated Women Netpreneur Program to enable women entrepreneurs to continuously tackle the challenge that emerged from IR 4.0, digitalisation and technological convergence (SME Corp, 2023). Undoubtedly, the use of technology and digitalisation in businesses have also bloomed during the COVID-19 pandemic era.

Undeniably, the application of technology in businesses could bring various benefits; that is the main reason for the Malaysian government to continuously encourage entrepreneurs to adopt technology and transform into technopreneurs. It is important to note that a technopreneur-ship combines technology and entrepreneurship. Technopreneurship has long been recognised as an important component of competitive advantage (Abdullah et al., 2013). Technopreneurs use technology as a catalyst for the main business line; they are risk-takers who develop new business ideas from technology mode (Nacu, C. M., and Avasilcai, 2014). They merge technology with people's talents and skills (Balachandran, 2018). It can be said that technopreneur-ship is the future trend of the modern and advanced business world. Although various strategies have been carried out, the establishments of new technology-based business entities are still slow in the process.

The Malaysian government is well aware of the importance of training the young generations to take up technology-based entrepreneurship. One of the efforts is offering entrepreneurship as a core subject for students in public universities (Rahim et al., 2015). The National Entrepreneurship Policy (NEP) 2030 clearly states that one of its five objectives is making entrepreneurship a preferred career choice. In addition, the Entrepreneurship Action Plan Higher Education Institutions (EAP-HEIs) 2021-2025 has also strategised to leverage innovation and technology in business and establish innovation, technology and digitally-driven businesses. Although the government has allocated many funds to developing technology-based entrepreneurs, the number of newly-formed technopreneurs still needs to grow.

Furthermore, as stated in EAP-HEIs 2021-2025, one of the issues and challenges in entrepreneurship development is that some students would prefer to take up entrepreneurship as a career. The low participation of youths in becoming technopreneurs would cause disadvantages to Malaysia. Eventually, the country would need to catch up to the developing current of IR 4.0.

It is a fact that developing technopreneurs is a challenging task. This is because technopreneurs need to be creative, innovative and well-versed in information-communication technology; and also be able to understand dimensions of high technology to produce products or services based on technology (Fowosire et al., 2017). Apart from providing sufficient knowledge about technology, a high level of intention towards technopreneurship is also important and could be considered the initial stage in developing competitive technopreneurs. However, technopreneurs' intention is still considered a relatively new research area in Malaysia and has yet to be fully explored. Therefore, the purpose of this study is to investigate the determinants of technopreneurial intention among university students.

**Literature Review.** Technopreneurship is a concept which involves merging technology ability with entrepreneurial talent and skill (Suradi et al., 2017). Technopreneurship is also known as establishing a new-technology-based firm (Colombo and Delmastro, 2001). An entrepreneur who uses technology as a catalyst for the main business line is known as a technopreneur. The technological entrepreneur is also a risk taker when developing a new business idea from technology mode (Nacu, C. M., and Avasilcai, 2014). In today`s knowledge economy, technopreneur-ship has been recognised as an important part of competitive advantage (Abdullah et al., 2013). The new ideas that come from these technopreneurs will be interpreted in technological products and then sold in markets. Technology entrepreneurship is also related to forming new technology ventures (Jones-Evans, 1995).

In Malaysia, the development of technopreneurship is relatively new, and it has a lower level of acceptance as compared to America and other European countries in which the concept started in the early 1990s

(Colombo and Delmastro, 2001; Jelinek, 1996; Suradi et al., 2017). Technopeneurship is a significant term in today's IR4.0 era, whereby technology innovation is given top priority as the most current trend in the world. Relevant Malaysian governmental agencies have devised various strategies to encourage and support technology-based enterprises. For instance, MDEC has initiated Malaysia Tech Entrepreneur Program (MTEC), Malaysia External Trade Development Corporation (MATRADE) has implemented e-TRADE Program 2.0, and Malaysia Research Accelerator for Technology and Innovation (MRANTI) was established to escalate the commercialisation of technology. These agencies provide good opportunities, funds, business advisory services and physical infrastructures for Malaysians to explore, create and develop technology-based firms (IMoney, 2014). In addition, Majlis Amanah Rakyat (MARA) is another agency which actively engages in the development of technopreneurs based on Technical and Vocational Education and Training (TVET) (Suradi et al., 2017).

Undeniably, many efforts have been devoted to technopreneurship development in the country; however, the establishments of technology-based enterprises still need to be more satisfactory. Specifically, the number of young adults who take up technopreneur-ship as a career still needs to grow. Therefore, youths need to be encouraged to embark on technopreneurship. Cultivating positive intention towards technopreneurship is a significant initial stage in developing technopreneurs.

Entrepreneurial intention forms the foundations of new organisations (Krueger, 1993). As entrepreneurship occurs over time (Gartner et al., 1994), entrepreneurial intentions are considered the first step in developing a long-term process of founding an organisation. Technopreneurial intention is rather similar to entrepreneurial intention. The only difference between them is that the term entrepreneurial is widely used in business nature; meanwhile, technopreneurs are more specific in featuring technology-based entrepreneurs. This means that technopreneurial intention refers to a person's intention to own a business where the nature of business is a technology focused. It is an individual's psychological condition which can be explained by the Theory of Planned Behavior (TPB).

TPB, developed by Ajzen (1991), is an extension of the Theory of Reason Action (TRA) introduced by Fishbein and Ajzen (1975). Both theories stress that a person's behaviour is an outcome of intention. However, TPB further highlighted that intention is a function of attitude towards a behavioural outcome, public opinion (subjective norm) and control of behaviour (perceived behavioural control). To date, many studies have employed TPB in studying an individual's intention and behaviour; thus, this study also employed TPB as the underpinning theory and foundation of the dependent variable, technopreneurs intention.

As Ajzen (1991) explained, TPB has based on the philosophy of understanding that an individual's performance on certain behaviour depends on his or her intention relating to that behaviour in a specific context. When individuals show their intention, they will do it. However, it does not mean that they will perform the behaviour instantly at the same time as their intention; it might take time for that behaviour to happen. It is believed that intention is a good and influential predictor of behaviour (Armitage and Conner, 2001; Teo and Lee, 2010). Meanwhile, the intention is affected by attitude, social norms and perceived behavioural control (PBC). According to Ajzen (1991), attitude can be explained as the degree of favourable or unfavourable evaluation of behaviour. Subjective norms concerning the perceived normative specific reference group towards engaging or not engaging in a particular behaviour. In comparison, PBC can be regarded as the perceived ability to carry out a behaviour. It is related to self-efficacy in Bandura's Social Learning Theory (Bandura, 1977) and is used interchangeably with PBC in many previous studies.

As mentioned in the previous section, PBC or self-efficacy was one-factor affecting technopreneurial intention. Self-efficacy is «people's judgements of their capabilities to organise and execute courses of action required in attaining designated types of performance» (Bandura, 1986). It can be called self-belief or self-perceived ability to accomplish something (Bandura, 1997). As such, people will try something when they think they can do it and vice versa. In this study, self-efficacy consisted of general computer self-efficacy and Internet self-efficacy.

General computer self-efficacy is a fundamental construct of information technology which refers to an individual's judgment of competency across multiple computer application domains (Albashrawi and Alashoor, 2017). They further stated that there was a positive relationship between computer self-efficacy and entrepreneurial intention. Sitaridis and Kitsios (2019) identified computer self-efficacy as a measure of the general ability to use computers and software. They further concluded that students who gained a high level of computer self-efficacy would increase their entrepreneurial intention. Meanwhile, He and Freeman (2010) described computer self-efficacy as a set of beliefs about being able to perform tasks using a computer. They also found that computer self-efficacy determined an individual's attitude and career choice. Regarding

entrepreneurship research, Chen (2013) investigated college students and found that self-efficacy affected information technology entrepreneurial intention.

Internet self-efficacy can be defined as a Web user's self-perceived confidence and expectations of using the Internet (Wu and Tsai, 2006). It is the belief in one`s ability to organise and implement Internet functions to complete certain tasks (Eastin and Rose, 2000; Hsu and Chiu, 2004). Previous studies have successfully proven the relationship between Internet self-efficacy and individual intention. For instance, Cong-Lem (2018) found that Internet self-efficacy was related to the intention to use the Internet as language learning. Eastin and Rose (2000) stated that prior Internet usage, experience and outcome expectancies were significantly related to Internet self-efficacy judgement.

General computer and Internet self-efficacy are two factors that are considered personal or individual. However, environmental or external factors should also be addressed in understanding technopreneurial intention. The surrounding business and societal environment that affect entrepreneurial activities and intentions can be collectively recognised as contextual elements (Indarti and Kristiansen, 2003; Setiobudi and Herdinata, 2018; Tran and Korflesch, 2016). In addition, the contextual element was recognised as an environmental factor related to the concept of entrepreneurship supports and barriers (Luthje and Franke, 2003; Schwarz et al., 2009). Nowadays, there is much research examining the influence of contextual elements on entrepreneurial intention, for example, Mat et al. (2015), Setiobudi and Herdinata (2018) and Tran and Korflesch (2016), to name a few. The three most noticeable aspects of the contextual element are access to capital, information accessibility, and social networking (Kristiansen and Indarti, 2004; Ramayah and Harun, 2005), and they are essential in motivating entrepreneurial intention.

Individual entrepreneur orientation (IEO) was developed based on firm-level entrepreneurial orientation (EO). IEO and EO have similar dimensions: innovativeness, risk-taking, proactiveness, autonomy and competitive aggressiveness. Ibrahim and Lucky (2014) and Robinson and Stubberud (2014) found a significant relationship between IEO and entrepreneurial intention. In addition, the research found that self-efficacy was an influencing factor in IEO (Mutluturk and Mardikyan, 2018; Khedhaouria et al., 2015). The relationships between self-efficacy, IEO and entrepreneurial intention were rather complex. Rahim et al. (2018) suggested that IEO could mediate the relationship between self-efficacy and entrepreneurial intention. The suggestion was supported by Martins and Perez (2020), which indicated that IEO significantly mediated between close environmental factors and entrepreneurial intention.

Based on the above discussions, this study further suggested the following research model (Figure 1) and hypotheses (H1 to H10).

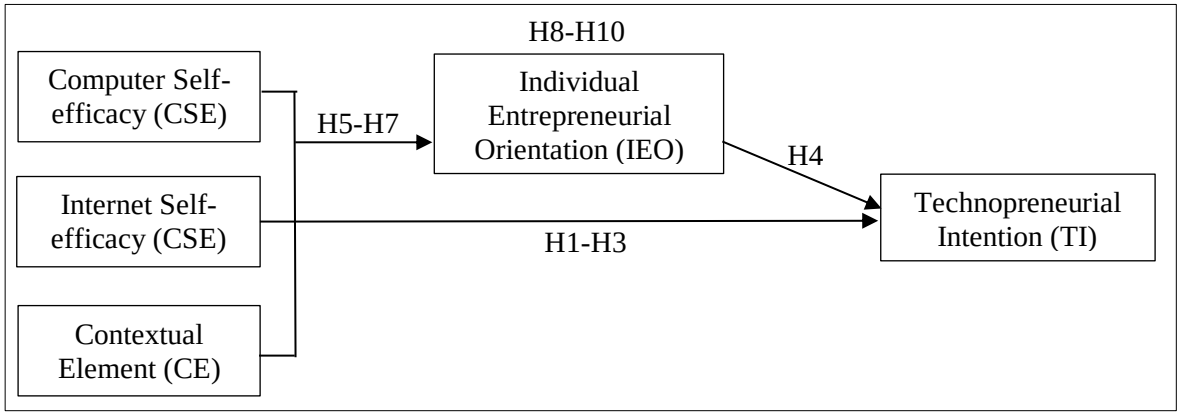


**Figure 1. Research model**

Sources: developed be the authors.

H1: There is a positive relationship between CSE and TI.
H2: There is a positive relationship between ISE and TI.
H3: There is a positive relationship between CE and TI.
H4: There is a positive relationship between IEO and TI.
H5: There is a positive relationship between CSE and IEO.
H6: There is a positive relationship between ISE and IEO.
H7: There is a positive relationship between CE and IEO.
H8: IEO mediates the relationship between CSE and TI.

H9: IEO mediates the relationship between ISE and TI.

H10: IEO mediates the relationship between CE and TI.

**Methodology and research methods.** This study was quantitative because all of its variables were measurable and quantifiable. As this was a cause-and-effect study, ten hypotheses were developed and tested statistically. The unit of analysis was an individual student selected from a local Malaysian university which offered entrepreneurship as a core subject. Specifically, a self-administered questionnaire was used to collect the desired data. It is worth mentioning that a single cross-sectional time frame was adopted for data collection.

The population of this study encompassed Malaysia's public university students. They were selected because they studied technology-related and entrepreneurship courses during their semesters. In addition, they would need to choose to be employed or start their own business soon after graduation. The population size was 5030 students. This study employed proportionate stratified random sampling in terms of sample selection technique. The elements of the population were categorised into strata according to the university's three campuses. Subsequently, samples were drawn proportionately from each stratum. Referring to Krejcie and Morgan's (1970) Sample Determination table, this study required a minimum of 357 subjects.

This study employed a quantitative research method; a survey questionnaire was utilised. In particular, a self-administered electronic questionnaire was used. All questionnaire items were adapted from previous studies to ensure reliability and validity. Seven items related to CSE were adapted from Aesaert et al. (2017) and Hatlevik et al. (2018); seven items for ISE were adapted from Lai (2008) and Wu and Tsai (2006); seven items for CE were adapted from Kristiansen and Indarti (2004), Taormina and Lao (2006) and Miranda et al. (2017); ten items for IEO were adapted from Bolton and Lane (2012) and, six items for TI were adapted from Linen and Chen (2019)—all items employed seven-point Likert Scale. As for the data collection process, the questionnaire link was distributed to respondents with the help of their lecturers before the classes began. The collected data were statistically analysed using covariance-based structural-equation modelling (CB-SEM) to test the hypotheses.

**Results**. This study distributed 450 questionnaires and successfully collected 360 responses at the end of the data collection process. Hence, the response rate of this study was 80.0%. The high response rate could be attributed to the data collection done with the help of lecturers. Missing data (or missing value) was not found in this study; thus, there were no significant problems concerning data invalidity. In terms of outliers, two cases were deleted. The remaining 358 responses have proceeded to subsequent analyses because they fulfilled the minimum sample size requirement. Since CB-SEM analysis requires the data to be normally distributed, this study employed skewness and Kurtosis to examine normality. The Skewness range is normal between -2 to +2, and the Kurtosis range should be around -7 to +7 (Hair et al., 2010; Kim, 2013). The data obtained normality because skewness and Kurtosis values recorded by each variable fell within the desired range.

Of the 358 respondents, more than half of them were female (n=218; 60.89%). Regarding the respondents' academic background, most of them studied in the business and management cluster (n=201; 56.15%). This cluster consisted of accountancy, business and management, information management and hotel and tourism management. About half of the respondents answered that no one in their family owned a business (n=207; 57.82%). Most of them (n=250; 69.83%) lived in urban areas. Most received financial assistance for the study (n=194; 54.19%).

It is important to ensure unidimensionality and that all fitness indices were met in evaluating the measurement model. Unfortunately, the initial model consisted of several items with low factor loadings (loading<0.50), and its fitness indices was below the cut-off values (GFI=0.617; AGFI=0.566; RMSEA=0.117; TLI=0.674; CFI=0.696). As such, a revised model was developed by eliminating items with factor loadings less than 0.50. Specifically, two items from CSE (i.e.: CSE6 and CSE7), four items from ISE (i.e.: ISE4, ISE5, ISE6 and ISE7), three items from CE (i.e.: CE1, CE2 and CE7), seven items from IEO (i.e.: IEO1, IEO5, IEO6, IEO7, IEO8, IEO9 and IEO10) and, one item from TI (i.e.: TI2) were deleted.

The revised model could be considered fit, and the values of fit indices are summarised in Table 1.

**Table 1. Indices of model fit**

| Indices | Value | Decision |
|---|---|---|
| CMIN/DF | 3.060 | <5.00, achieved |
| GFI | 0.886 | < 0.90, slightly not achieved |
| AGFI | 0.850 | < 0.90, slightly not achieved |
| TLI | 0.925 | >0.90, achieved |
| CFI | 0.936 | >0.90, achieved |
| RMSEA | 0.076 | < 0.08, achieved |

Sources: developed be the authors.

As shown, the normed chi-square (CMIN/DF) (3.060), TLI (0.925), CFI (0.936) and RMSEA (0.076) have successfully met the cut-off values. It was regretted that GFI (0.886) and AGFI (0.850) were slightly below the required values. However, Sharma et al. (2005) mentioned that GFI was affected by sample size and should not be used to determine the fit. Therefore, construct validity was achieved.

On the other hand, Table 2 shows the values of the standardised loading, average variance extracted (AVE), composite reliability (CR) and Cronbach's alpha (α). All items indicated loading values greater than 0.50. Meanwhile, all AVE values were greater than 0.50 (except AVE of CE), and all CR and α values were higher than 0.70. Although the AVE of CE was below 0.5, it was still deemed acceptable because its CR was greater than 0.60. Therefore, reliability and convergent validity were achieved.

**Table 2. Loading, AVE, CR and Cronbach's alpha**

| Construct and Item | Loadings | AVE | CR | α |
|---|---|---|---|---|
| Computer Self-efficacy (CSE) | | 0.580 | 0.871 | 0.873 |
| CSE 1 | 0.833 | | | |
| CSE 2 | 0.845 | | | |
| CSE 3 | 0.682 | | | |
| CSE 4 | 0.820 | | | |
| CSE 5 | 0.594 | | | |
| Computer Self-efficacy (ISE) | | 0.858 | 0.948 | 0.867 |
| ISE 1 | 0.887 | | | |
| ISE 2 | 0.961 | | | |
| ISE 3 | 0.929 | | | |
| Contextual Element (CE) | | 0.486 | 0.788 | 0.840 |
| CE 3 | 0.724 | | | |
| CE 4 | 0.724 | | | |
| CE 5 | 0.777 | | | |
| CE 6 | 0.540 | | | |
| Individual Entrepreneurial Orientation (IEO) | | 0.576 | 0.799 | 0.827 |
| IEO 2 | 0.864 | | | |
| IEO 3 | 0.595 | | | |
| IEO 4 | 0.792 | | | |
| Technopreneurial Intention (TI) | | 0.884 | 0.961 | 0.958 |
| TI 1 | 0.833 | | | |
| TI 3 | 0.845 | | | |
| TI 4 | 0.682 | | | |
| TI 5 | 0.820 | | | |
| TI 6 | 0.594 | | | |

Sources: developed be the authors.

Table 3 illustrates the values of Pearson correlation, squared inter-construct correlation (SIC) (value shown in italics), and the square root of AVE (value shown in bold). As AVEs were greater than the corresponding SIC and the square root of AVE was greater than the next value across its row and column, discriminant validity was achieved.

**Table 3. Correlation, squared interconstruct correlation and the square root of AVE**

| | CSE | ISE | CE | IEO | TI |
|---|---|---|---|---|---|
| **CSE** | **0.762** | *0.498* | *0.009* | *0.064* | *0.010* |
| **ISE** | 0.698** | **0.926** | *0.029* | *0.087* | *0.020* |
| **CE** | 0.094 | 0.169** | **0.697** | *0.272* | *0.376* |
| **IEO** | 0.253** | 0.295** | 0.522** | **0.759** | *0.150* |
| **TI** | 0.100 | 0.140** | 0.613** | 0.387** | **0.940** |

CSE: computer self-efficacy; ISE: Internet self-efficacy; CE: contextual element;
IEO: individual entrepreneurial orientation; TI: technopreneurial intention
**. Correlation is significant at the 0.01 level (2-tailed).

Sources: developed be the authors.

Figure 2 shows the structural model with model fit indices.

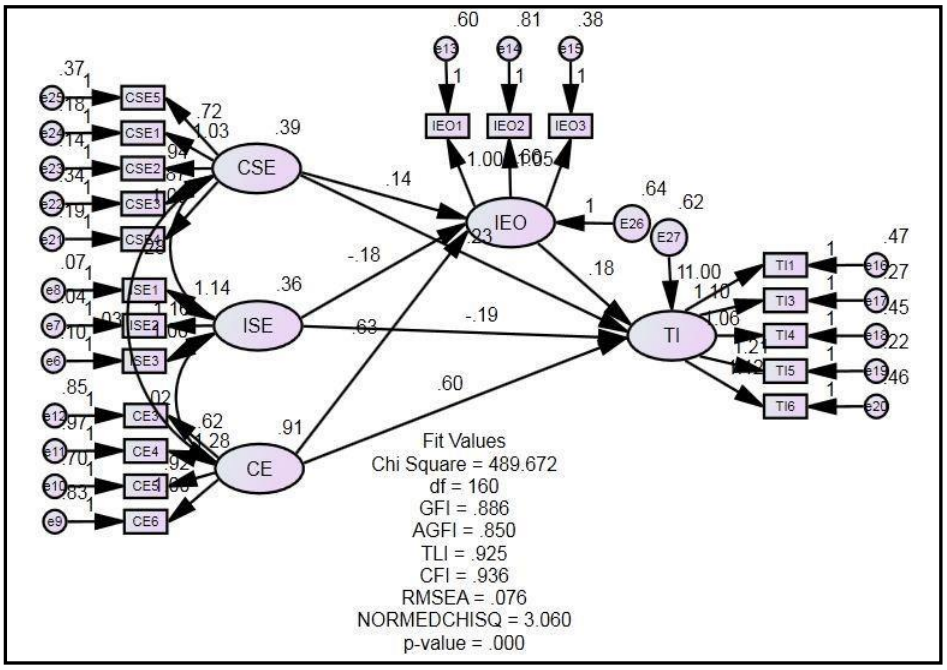


**Figure 2. Structural model**

Sources: developed be the authors.

Table 4 summarises the standardised estimates of direct effect and its significant level. CE was identified to have a positive and significant relationship with IEO and TI. Meanwhile, IEO significantly influenced TI. The other constructs, such as CSE and ISE, had no positive relationship with IEO and TI.

**Table 4. Path analysis and decision**

| Path | Estimate | C.R | P | Decision |
|---|---|---|---|---|
| IEO ← CSE | 0.089 | 0.998 | 0.318 | Not significant |
| IEO ← ISE | -0.108 | -1.239 | 0.215 | Not significant |
| IEO ← CE | 0.601 | 8.557 | <0.001*** | Significant |
| TI ← CSE | 0.137 | 1.765 | 0.078 | Not significant |
| TI ← ISE | -0.106 | -1.408 | 0.159 | Not significant |
| TI ← CE | 0.538 | 7.124 | <0.001*** | Significant |
| TI ← IEO | 0.173 | 2.579 | <0.010** | Significant |

Sources: developed be the authors.

Table 5 depicts the results of the bootstrap mediation analysis. The results revealed that IEO did not contribute to any significant mediation effect between CSE and TI (p>0.05), as well as between ISE and TI (p>0.05). However, IEO significantly mediated the relationship between CE and TI (p<0.05).

**Table 5. Bootstrap mediation analysis**

| Path | Standardised Indirect Effect | | | | Decision |
|---|---|---|---|---|---|
| | Estimates | 95% Confidence Interval | | Significance (BC) | |
| | | Lower Bound | Upper Bound | | |
| TI ← IEO ← CSE | 0.015 | -0.004 | 0.061 | 0.217 | Not significant |
| TI ← IEO ← ISE | -0.019 | -0.066 | 0.002 | 0.136 | Not significant |
| TI ← IEO ← CE | 0.104 | 0.025 | 0.194 | 0.029* | Significant |

Sources: developed be the authors.

Table 6 summarises the results of the hypotheses testing. Computer and Internet self-efficacy were not significant in influencing technoprenuerial intention and individual entrepreneurial orientation; thus, H1, H2, H5 and H6 were unsupported. As Albashrawi and Alashoor (2020) pointed out, individuals who were good at computers and technology did not necessarily show interest in becoming entrepreneurs. Furthermore, Ratten

(2013) stressed that computer self-efficacy was important in determining an individual's performance in using technology innovation. True, people with high technological knowledge might be more interested in becoming technologists than entrepreneurs.

Meanwhile, a significant relationship was found between contextual elements, individual entrepreneurial orientation and entrepreneurial intention; hence, H3, H4 and H7 were supported. As supported by Indarti and Kristiansen (2003), Taormina and Lao (2006) and Mat et al. (2015), a person's decision to embark on entrepreneurship was influenced by contextual elements, such as access to capital, access to information and social network. Undeniably, a person's background factors would affect his or her career decision. In addition, previous scholars have identified a positive relationship between individual entrepreneurial orientation and entrepreneurial intention (e.g., Suartha and Suprapti, 2016; Koe, 2016). It is well understood that a person would become an entrepreneur when exhibiting entrepreneurial qualities and characteristics.

**Table 6. Results of hypotheses testing**

| Hypothesis | Result |
|---|---|
| H1: There is a positive relationship between CSE and TI. | Not Supported |
| H2: There is a positive relationship between ISE and TI. | Not Supported |
| H3: There is a positive relationship between CE and TI. | Supported |
| H4: There is a positive relationship between IEO and TI. | Supported |
| H5: There is a positive relationship between CSE and IEO. | Not Supported |
| H6: There is a positive relationship between ISE and IEO. | Not Supported |
| H7: There is a positive relationship between CE and IEO. | Supported |
| H8: IEO mediates the relationship between CSE and TI. | Not Supported |
| H9: IEO mediates the relationship between ISE and TI. | Not Supported |
| H10: IEO mediates the relationship between CE and TI. | Supported |

Sources: developed be the authors.

Regarding the mediation effect, individual entrepreneurial orientation did not significantly mediate the relationship between computer self-efficacy, Internet self-efficacy and technopreneurs' intention; thus, H8 and H9 were unsupported. The reason for obtaining such results could be attributed to the low influence of individual entrepreneurial orientation on respondents. The respondents may be more likely to be employed in private or public sectors. The result supported H10 because the mediating effect of individual entrepreneurial orientation between the contextual elements and technopreneurs' intention was significant. The result was parallel with studies by Kristiansen and Indarti (2004) and Ramayah and Harun (2005), which found that contextual elements or instrumental readiness influence entrepreneurial intention.

**Conclusions**. This study investigated the relationships between the independent variables: computer self-efficacy, Internet self-efficacy and contextual elements; individual entrepreneurial orientation (IEO) as the mediator variable and technopreneurs' intention as the dependent variable. Based on the results, computer and Internet self-efficacy were insignificant in developing entrepreneurial-orientated individuals with technopreneurs intentions. Meanwhile, contextual elements were a substantial factor in encouraging entrepreneurship among university students. In addition, IEO was an important mediator between the contextual elements and technopreneurs' intentions.

This study contributed to both literature and practice. This study confirmed the application of the Theory of Planned Behavior (TPB) and IEO in entrepreneurship research. It also supported the role of contextual elements in entrepreneurship studies. Practically, it highlighted the need to focus on contextual element factors in entrepreneurship development among university students. It also pointed out the misconception of computer and Internet self-efficacy in technopreneurs' intentions.

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**Наміри студентів університетів займатися технологічним підприємництвом: основні детермінанти впливу**

Технологічне підприємництво відіграє важливу роль у сприянні інноваціям у бізнесі, особливо в епоху Четвертої промислової революції. Незважаючи на різноманітні зусилля та стратегії, розроблені урядом Малайзії для розвитку молодих підприємців у сфері технологій, все ще існує потреба у більшій кількості нових технологічних підприємств. Відмова студентів навчатися на спеціальностях, присвячених підприємницькій діяльності, залишається перманентною проблемою і викликом для країни. Метою даного дослідження є вивчення факторів, що визначають наміри студентів університетів навчатися та займатися технологічним підприємництвом. Об'єктом дослідження були обрані студенти публічного університету в Малайзії. Загальна кількість студентів, що взяли участь у дослідженні, становила 5030 осіб. За допомогою пропорційно-стратифікованої випадкової вибірки було обрано 358 студентів для участі в опитуванні. Методичним інструментарієм проведеного дослідження стали методи структурних рівнянь на основі коваріацій (CB-SEM). Емпіричні результати підтвердили, що контекстуальні елементи, такі як доступ до капіталу, інформації та соціальних мереж, мають значущий та позитивний вплив на наміри студентів займатися технологічним підприємництвом. Однак комп'ютерна та Інтернет самоефективність не виявили значущого впливу на наміри студентів. Дослідження емпірично підтверджує та теоретично доводить, що контекстуальні елементи є важливими для сприяння та розвитку технологічного підприємництва. Результати проведеного дослідження розкривають модель розуміння та підтримки намірів студентів займатися технологічним підприємництвом. Емпіричні результати дослідження допомагають уряду знайти значущі зовнішні фактори, що впливають на наміри студентів займатися технологічним підприємництвом.

**Ключові слова:** підприємництво, мотивація, студенти, технології, університет.