

Study on intention mediating role in cyber entrepreneurship adoption among the undergraduates in Malaysia

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Abstract

This study aims to develop an understanding on the role of mediator in Behavioural framework in testing the Cyber Entrepreneurship (CE) adoption among the undergraduates in Malaysian Higher Education Institutions (HEI's). While several well established variables were used as Independence Variables (IV's), the role of Intention (I) was used as mediator. Relevant tests were conducted based on 323 samples obtained from HEI's throughout Malaysia. All models were tested using Partial Least Square (PLS) and the mediator was tested using two well established mediation testing approaches: Baron and Kenney's (1986) mediation analysis and the Preacher and Hayes (2008) Approaches. The research finding shows that all the hypotheses were statistically significant.

Keywords: *Cyber Entrepreneurship, Perceive Ease Of Usefulness, Attitude, Perceive Usefulness, Intention, Mediator*

The research Objective of this research is to analyze the Mediating Role of Intention in CE Adoption among the undergraduates in higher education institutions in Malaysian HEI's, while, the research question is: What is the role of Intention in mediating PEOU, Attitude, CE as well as PU in HEIs

2. Literature Review

The Intention has been widely used as mediator in many CE research (Nizam, 2017). Mediating role in this study is paired with other constructs that is being widely adopted in behavioral approaches. Having full knowledge of all the IV's and DV is very crucial as it will determine the research's direction. Moreover, reviewing the literature is fundamental for further studies in order to gain a clear and logical

relationships of the two, which in turn abets the researcher to establish the research gap. It also helps the researcher to anticipate the mediating role between all the IV's and DV (Kim et al., 2014).

2.1.1 Perceived Ease of Usefulness (PEOU)

Previous researchers have shown the association between perceived ease of use (PEOU) and behavioral intention (Ajzen, 1991; Mathieson, 1991). In the entrepreneurship context, several studies have shown significant associations between PEOU and entrepreneurial intention such as: Kansal (2014); Autio et al., (2001); Gelderen et al., (2008); Gird and Bagraim, (2008); Kolvereid (1996); Krueger et al., (2000); and, Souitaris et al., (2006). Specifically, in these studies PEOU was shown to have a significant effect on Intention, either directly or indirectly (Agarwal and Prasad, 1999; Davis, 1989 and Sentosa et al., 2012). The concept was seen as a factor that affects user satisfaction in having to fulfill what has been desired (Rupak et al., 2014; Norshima and Vimala, 2015; Doll and Torkzadeh, 1998). Another researcher, Gafen et. Al. (2000) suggests PEOU would strengthen the Intention of entrepreneurship on the Net (Gafen et al., 2000) as it will easily increase the number of online entrepreneurship activity.

In other study, Autio et al. (2001) found that PEOU is the most important influence on intention among Swedes to go into business. A similar study done in Norway and China was concerned with fostering positive and creative student attitudes and intentions towards starting a new business venture (Gong, W., Stump, R., L., and Maddox, L., M. 2013). For

individual constructs, researchers like Davis et al., (1989), Igbaria et al., (1997) and Venkatesh et al., (2003), have found PEOU as an important determinant of BI in the early adoption period, but its effect becomes less important in the post-adoption period. Hence, we can therefore suggest that Perceived Ease of Use (PEOU) towards cyber entrepreneurship is closely associated with the Intention.

2.1.2 Attitude (ATT)

Any research on intention must be paired with attitude or behavioral attitude. In this relation, Sentosa and Kamariah (2012) defined Attitude as an individual's positive or negative feeling associated with the action of displaying specific behavior. Similarly, Celik (2008) linked Attitude to a person's own favorable attitude towards behavior. Ajzen (1987) explained Attitude towards performing a behavior as a perception of personal desirability to perform the intended behavior. Meanwhile, Husna et al. (2010) opined that the attitude towards performing a behavior refers to the perception of personal desirability to perform the behavior. In the case of entrepreneurship, Holden (2008) explains the attitude towards entrepreneurship as the level of an individual's desire to become an entrepreneur. Manjeet et al. (2011) claimed that there is evidence that the process of entrepreneurship initiates the demand for work assignments, interpersonal relations and social obligations. Similarly, Douglas and Shepherd (2002) found that a more positive attitude toward risk and independence leads to stronger entrepreneurial interest.

Attitude is seen as close association with motivation in many research areas such as in education (Wu and Wu, 2008). Recent studies have shown that Attitude has emerged as the most important antecedent of the intention to become self-employed (Chau et al., 2011). Another research has shown that a person's decision and intention to start up their business and a person's desirability to become an entrepreneur is an indicator of their intention to become self-employed (Husna et al., 2010). Vestergaard et al. (2012) traced a similar pattern of attitude towards entrepreneurship on Dutch students. Meanwhile, on the contrary, Storan (2014) and Packham et al. (2010) found that entrepreneurship education had a positive impact towards an attitude of entrepreneurship.

2.1.3 Perceived Usefulness (PU)

As far as research is concerned, PU has been well studied from many perspectives. Derived from the

TAM, Chee et al. (2012) defined PU as the degree to which a person believes that using a particular system would enhance his or her job performance. In early studies by Cheng et al. (2006), PU was determined by cost and productivity. If the activity was perceived to reduce the cost and seen as useful to them, then the chances for them to adopt such activity would be higher, and vice versa.

Some studies identified PU in other areas such as users' desired results in an online search or the web base purchase (Lim et al., 2015), and motivation to do online shopping (Cha, 2009; Hasbullah et al., 2015; Lim et al., 2015). Extensive research shows evidence of the significant effect of PU on usage intention (Celik, 2008; Venkatesh and Davis, 2000). In particular, Celik (2008) suggested that PU has a significant impact on Internet banking Intention. Having said this, we hypothesize that applying PU to CE activities may reflect undergraduates' views of involvement in cyber entrepreneurship and help them to start as self-employed entrepreneurs, even while they are still studying. Specifically, if the undergraduates perceive the performance of CE activities is easy and useful, it will stimulate their perception towards starting a cyber entrepreneurship activity while still on campus.

In addition, Perceived Usefulness (PU) is very important variable which is being applied in many studies, especially when conducting studies on behavior as well as technology acceptance (Ajzen, 1987). According to Ajzen, if a person perceives a behavior as easy to perform, they will be motivated to perform it. Meanwhile, a person's viewpoint towards Perceived Usefulness (PU) on performing online activity may vary; it is subject to his/her motivation to perform the said online activity. However, if he perceives it negatively, then the outcomes may not be as desired (Chee et al., 2012). Similarly, Kim et al. (2008) indicated that PU has a significant relationship to motivate towards involvement in cyber entrepreneurship. This has been confirmed by a research carried out in Taiwan by Liao and Hsieh (2010) where they have found that PU has a positive relationship with performing cyber entrepreneurship.

2.1.4 Intention

Intention to get involved in entrepreneurial activities or start-ups can be identified as a key factor that will determine the undergraduates' move towards fulfilling their desire in entrepreneurship. In fact, treating Intention as a mediator has been widely applied in various theoretical models, such as in Shapero's Model of the Entrepreneurial Event (SEE)

and Ajzen's Theory of Planned Behaviour (TPB) (Lim et al., 2015), to name a few. Intention can also play an interchangeable role. It can be translated into action by those who really want to start up entrepreneurship activities (Krueger *et al.*, 2000). TPB, for example, focuses on attitude as the best predictor of intention. It uses three factors to predict entrepreneurial intention, which are attitude toward the act (PEOU), Attitude and PU towards the activity, all of which are in turn aligned with perceived desirability and perceived behavioral control (Autio *et al.*, 2001).

Ajzen (1991) suggests there are some differences when applying Intention in the models to suit the nature of the research framework development. It has been tested on students' intentions to start a business. Unfortunately, researchers have faced dilemma when they are required to determine whether to focus on the Intention in one model or both. These include Krueger, (1993; Krueger and Brazeal, (1994) and Autio *et al.* (2001). In addition to that, Sonnenfeld and Kotter (1982) concluded that personality and lifestyle can affect a person's decision to become involved in entrepreneurship. Besides that, other factors such as financial stress and uncertainty in an individual's future, can affect their intention to perform entrepreneurship activities.

When studying undergraduates' entrepreneurial behavior, social scientists have widely researched entrepreneurship intention and education and training (Nabi & Holden, 2008). In studying undergraduate entrepreneurship behaviors, the TPB has been proven successful in explaining intention from various perspectives, particularly towards performing a particular behavior (Ajzen and Driver, 1992; Krueger, Reilly and Carsud, 2000). Krueger (1993) in his study indicated early entrepreneurs were seen as willing to take risks in order to gain and achieve their objective in entrepreneurship activities. In the same vein, Gaddam (2008) revealed that the university environment is a major underlying dimension which influences entrepreneurial intentions, which to some extent is supported by Codurus et al. (2008) who argue that universities need to establish supportive measures to create favorable environments for entrepreneurship.

Ahmed (1985) suggests that graduates who wish to have full control of their entrepreneurial life and to improve their social status must have the intention to venture into entrepreneurship (Cromie, 1987). There are a number of studies focusing on the intention on current modern era entrepreneurship such as (Minniti and Bygrave 2005a). Entrepreneurship intention has

been extensively researched in the past few decades and continues to be of interest to researchers due to its importance to development for many countries (Graham and McKenzie, 1995; Mazzarol et al., 1999; Nabi and Holden, 2008; Ismail et al., 2009). Likewise, Husna et al. (2010), found that intention is an indication of how hard people are willing to try or how much effort they are planning to accomplish in order to perform the intended behavior. Finally, research on entrepreneurial intention has also identified a number of other factors influencing the entrepreneurial decision, which includes the willingness to take risks in order to gain (Krueger, 1993), personal wealth creation and social goals (Brush, 1992), family tradition (Dubini, 1989), a need for independence, to gain autonomy; and a need to improve social status (Cromie, 1987).

3 Methodology

Questionnaire has been used to collect data for this research, the seven-point Likert Scale was applied for all the inferential questionnaires. Likert type Table 1 Data of Inner and Outer Value Without Mediator

scales enable measurement of questionnaires from very negative to very positive such as (1) Strongly disagree; (2) moderately disagree; (3) disagree; (4) neutral; (5) moderately agree; (6) agree; and (7) strongly agree. All the data were collected from 5 public HEIs and remaining 3 were from private HEIs throughout Malaysia. A total of 373 questionnaires were distributed. Upon filtering the collected questionnaires, only 323 sample applied.

In the model developed for this study, Intention played as a mediating role between PEOU to CEAHEIs, Attitude to Intention to CEHEIs and PV to Intention to CEAHEIs. Hadi and Sentosa, (2016) and Noor (2016) proposed the following approaches towards conducting mediating analysis. In this research, we discussed two analytical approaches: Baron and Kenney's (1986) and the bootstrapping approach of Preacher and Hayes (2008). The first mediating analysis method was selected because Baron and Kenney's is a well established analysis method. Baron and Kenney's (1986) have been cited more than 8120 times, mostly on the ISI Web of Science (Osman and Sentosa, 2013). In order to validate the analysis output, this research run another mediating analysis with the aim to do a comparison on the outcome of the analysis. The second mediating analysis is by uses Preacher and Hayes (2008).

3.1 Baron and Kenney Mediating Approaches

IV's	Path Coefficient (a)	Mediator	DV
PEOU	0.156	-	CEAHEI's
PEOU	0.162	Intention	CEAHEI's
Attitude	0.202	-	CEAHEI's
Attitude	0.205	Intention	CEAHEI's
PU	0.356	-	CEAHEI's
PU	0.359	Intention	CEAHEI's
Intention	-	-	CEAHEI's

In Baron and Kenney's (1986) mediating analysis approach, it involved a four step, activity. In the first step, the researcher must establish evidence that there is a statistical significance between IV's and DV second steps. In third steps, researcher then must establish statistical significance between IV's and the Mediator (M). Meanwhile, in final steps, there must also be statistical significance between M and the CEHEI's. The last steps in Baron and Kenney's approach are researcher must look at the direct effect after controlling the mediating variable. Analysis of Baron and Kenney's approaches was done via Analysis on model displayed in Figure 1. Designing the direct path between IV's to mediate and IV's to DV analysis output. The model in Figure 1 can be summarised in the table as shown in Table 1

There are the direct path between all the IV's and the DV. Referring to both Figure 1 and Table 1. All the paths show positive values. The path value between PEOU to Intention shows value of 0.162. The direct path between PEOU to CEHEI's shows value of 0.156. Meanwhile the path value between Attitude to Intention and Attitude to CEHEI's showed values of 0.205 and 0.202. The last variable which is PU, a path value between PU to Intention and PU to CEHEI's showed a path value of 0.359 and 0.356. The above analysis fulfilled the steps a, b and c in Baron and Kenney's analysis approach. Step d was to add the mediating role between Intention to CEHEI's as shown in Figure1.

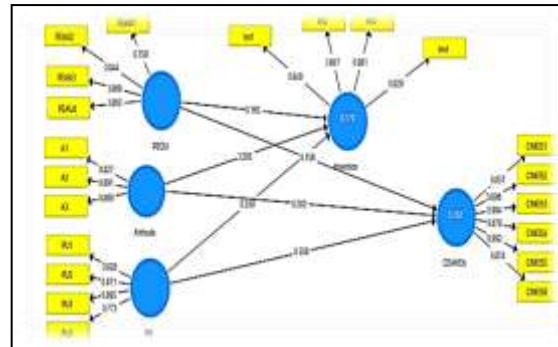


Figure 1 Inner and Outer Value without the Mediator

The mediator of Intention to CEHEI's showed the path coefficient value at 0.468. Introduction of a mediator does affect other variables. The path value from PEOU to Intention decreased to 0.161 and the direct path PEOU to CEHEI's reduced to 0.80. Path value Attitude to Intention does slightly increase to 0.207. The indirect path decreased to 0.106. PU to Intention path value reduced to 0.357 and the indirect path decreased to 0.188. The analysis outcomes fulfilled steps in Baron and Kenney's mediating approaches.

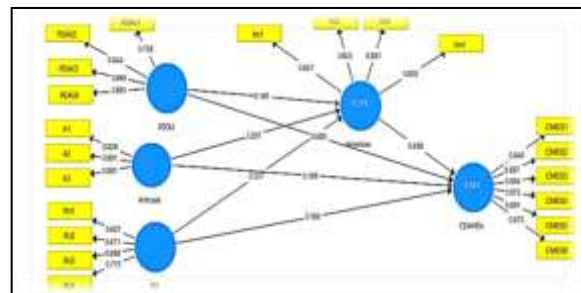


Figure 2. Inner and Outer Values With the Mediator

The mediator of Intention to CEHEI's showed the path coefficient value at 0.468. Introduction of a mediator does affect other variables. The path value from PEOU to Intention decreased to 0.161 and the direct path PEOU to CEHEI's reduced to 0.80. Path value Attitude to Intention does slightly increase to 0.207. The indirect path decreased to 0.106. PU to Intention path value reduced to 0.357 and the indirect path decreased to 0.188. The analysis outcomes fulfilled steps in Baron and Kenney's mediating approaches.

Table 2 Summary Analysis with mediating roles.

Indipende nce Variables (IVs)	Path Coefficient (a)	Mediator	Path Coefficient (b)	Dependenc e Variable (DV)
PEOU	0.080	-	-	CEAHEI's
PEOU	0.161	Intention	0.468	CEAHEI's
Attitude	0.106	-	-	CEAHEI's
Attitude	0.207	Intention	0.468	CEAHEI's
PU	0.188	-	-	CEAHEI's
PU	0.357	Intention	0.468	CEAHEI's
Intention	-	-	0.468	CEAHEI's

3.2 Preacher and Hayes Mediating Approaches

Preacher and Hayes (2008) mediating approach use the bootstrapping technique twice, first without the presence of the mediator and second, with the presence of the mediator. Hair et al. (2014) mentioned a few indicators which should be observed when doing model analysis. If the direct path is not significant, this means there is no mediating effect.

- If the direct path is significant, then researchers can include the mediating variable and run the bootstrapping.
- It is considered no mediation if the indirect path is not significant after running the bootstrapping.
- If the indirect path is significant, then the researcher is advised to do the Variance Accounted for (VAF) analysis.

Table 3 VAF Calculation Formula

Steps	Item	Formula
a.	Indirect Effect (IE)	Indirect values * Mediator
b.	Total Effect (TE)	IE + Direct Effect
c.	VAF	(IE/TE)*100

4. Results and Discussion

To compute the Variance Accounted for (VAF), this research referred to Table 1 for explanation. Analysis of these approaches comes in four steps a, b, c, and

d. All the output in Figure 2 show significant values and fulfilled steps a, b and c. For the final step in verifying the model, Preacher & Hayes suggest performing the Variance Accounted for (VAF) analysis. The steps to perform VAF analysis are as shown in Table 3. The calculation for VAF can be summarized as shown in Table 4.

Table 4 VAF Calculation Results

Construct	Item	Formula	VAF Output
PEOU	IE	0.161 * 0.468	
	TE	0.0753 + 0.080	
	VAF	(0.0753/0.1553) * 100	48.49%
Attitude	IE	0.207 * 0.468	
	TE	0.0969 + 0.106	
	VAF	(0.0969/0.2029) * 100	47.76%
PU	IE	0.357 * 0.468	
	TE	0.167 + 0.188	
	VAF	(0.167/0.355)*100	47.04%

According to Hair et al. (2014), if there is a VAF value of greater than 80%, then there is full mediation. A value between 20 to 80%, would be partial mediation and there is considered to be no mediation if the value is less than 20%. Referring to Table 4 we can summarise the calculation on the VAF for each IV, which link to the M and DV's as shown in Table 5.

Table 5 VAF Calculations Final Results

Construct	Final Values	VAF	Type of Mediation
PEOU	48.49		Partial Mediation
Attitude	47.76		Partial Mediation
PU	47.04		Partial Mediation

5. Conclusion

In conclusion, in-depth analysis has been carried out on each variable PEOU, Att, PU, and the role of Int as a mediator in the adoption of CE activities among the undergraduates in HEI. In Baron and Kenney mediating approaches, all the IVs towards mediator and mediator towards DV, show a positive result of the path coefficient values. Similarly the VAF calculation results in Preacher and Hayes mediation approaches showing in this study, using the guideline in mediating analysis method Hair et al (2014), all the constructs shows partial mediation exist.

Acknowledgments

This study is a partial extraction of the research for my PhD thesis, which focuses on (1) undergraduate behavioural towards CE adoption; (2) Impact of Knowledge on CE adoption; (3) undergraduate views as well as; (4) the impact of mediator towards undergraduate CE adoption in HEIs in Malaysia.

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