Entrepreneurship education pedagogy: Teacher-Student centered paradox

Journal:	*Education + Training*
Manuscript ID	ET-07-2017-0106.R2
Manuscript Type:	Research Paper
Keywords:	entrepreneurship education, pedagogy, culture

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ABSTRACT

Purpose: The study aims to answer the research question: "How do different pedagogies used in teaching entrepreneurship education influence individual skill development, which then in turn translates into the likelihood of entrepreneurial intention?"

Methodology: The number of total participants for the quasi-experiment was 308 undergraduate students in Malaysia, in which pre- and post-test (N=203) and control (N= 105) groups are included. Students who enrolled in the entrepreneurship course were randomly allocated into a class employing teacher-centred pedagogy or student-centred pedagogy. Learning outcomes are measured by objective and subjective measures.

Findings: Both pedagogical approaches had a positive effect on the development of the learning outcomes. However, the students who learned using the teacher-centered approach statistically developed a higher level of objective and subjective learning outcomes compared to the students that learned using the student-centered approach. The findings also suggest that the relationship between entrepreneurship education and entrepreneurial intention is mediated by learned skills.

Originality: The quasi-experimental design greatly improves the ability to make accurate claims about the impact of entrepreneurial education on entrepreneurship-related outcomes. Further, the study uses the implementation intention strategy in measuring the entrepreneurial intention. Thus, this study provides strongly support for the view that implementation intention improves predictive validity of the behavioural intention within the framework of Theory Planned Behaviour by setting out in advance when, where and how the goal will be achieved.

Keyword: entrepreneurship education, entrepreneurial intention, pedagogy

1. Introduction

The effectiveness of the entrepreneurship education has been measured through entrepreneurial behavior (Rauch and Hulsink, 2015, Souitaris et al., 2007), or through entrepreneurial intention constructs such as attitude, perceived behavioral control, subjective norms, and self-efficacy (Fayolle and Gailly, 2015, Izquierdo and Buelens, 2011, Piperopoulos and Dimov, 2015, Othman and Ishak, 2009). A systematic review of the impact on entrepreneurship education in higher education shows that there are a number of benefits for students. For example, this education will help an individual to bring about personal change (attitude, knowledge, skills, feasibility, and entrepreneurial intention), and also help with business-start-up (Nabi et al., 2017, Othman et al., 2012).

Nevertheless, a few studies have indicated that entrepreneurship education could also achieve negative outcomes. For instance, Oosterbeek, van Praag and Ijsselstein (2010) have reported that the development of entrepreneurial skills is insignificant, and the entrepreneurial intention turns into negative outcomes. Scholars argue that the contradictory findings may be due to methodological rigors or statistical artefacts (Martin et al., 2013, Rideout and Gray, 2013). Issues such as a lack of external validity, no validity or reliability tests, and inadequate sample sizes have decreased the quality of the studies. Furthermore, most of the entrepreneurship education studies have not demonstrated either the comparative studies or longitudinal studies, thus little knowledge exists regarding how well entrepreneurship education can impact on personal attributes, especially behavior intention.

The current study aims to understand the delivery method that can increase the benefits of entrepreneurship education in higher education. The study aims to answer the research question: “How do different pedagogies used in teaching entrepreneurship education influence individual skill development, which then in turn translates into the likelihood of entrepreneurial intention?” Our study contributes theoretically and methodologically in many

ways. First, the current study extends our knowledge regarding the impact of entrepreneurship education. The effectiveness of entrepreneurship education is not only about 'what' the educators deliver (the content), but also about 'how' programs are delivered (Sawang et al., 2016). Our contribution is distinguishable from prior research, which has focused on the intensity of entrepreneurship education (Bae et al., 2014, Fayolle and Gailly, 2015), in that it looks at the pedagogical approaches of how the entrepreneurial contents are delivered.

Second, the current study is methodologically designed to improve greatly the ability to make accurate claims about the impact of entrepreneurial education on entrepreneurship-related outcomes. Most of the entrepreneurial education literature suffers from methodological limitations (Lorz et al., 2013, Martin et al., 2013). For instance, they only focus on ex-post studies (Bakotić and Kružić, 2010, Piperopoulos and Dimov, 2015, Rae and Ruth Woodier-Harris, 2013) and have lacked proper control groups (Radu and Loué, 2008, Von Graevenitz et al., 2010). To address this problem, this study uses a quasi-experimental design in which both of these elements (pre- and post-intervention) are included, as well as a control group.

2. Teaching-Studying-Learning process: Didactic and experiential approaches

The common teaching style in higher education focuses on didactic teaching styles. This method is teacher-centric, educators are seen as transmitters of knowledge, and there is an emphasis placed on getting the "right answer". The didactic approach uses the static learning materials such as notes, power point slides, and textbooks. Students are sometimes assigned additional readings (for example, from newspapers, websites and online learning platform) to enhance their understanding of certain topics.

The didactic approach has been criticized for not being overly effective in developing entrepreneurial skills, knowledge, and behavior (Yu Cheng et al., 2009), but it is effective at

conveying a lot of information in a short period (Barber, 2007). In particular, the teacher-centered approach is effective in providing theoretical background and foundations in the particular subject matter to large undergraduate classes. Therefore, by learning using a teacher-centered approach, the students typically develop a stronger understanding of the benefit of entrepreneurial activity rather than an understanding of how to be an entrepreneur (Hytti and O'gorman, 2004).

Unlike the didactic approach which is teacher-centred, experiential learning is student-centred. According to Kolb (1984), the experiential learning model is a learning process by which knowledge is created through the transformation of experience. Kolb's concept refers to two different ways in which an individual acquires information in the world, either through direct experience or through a recreation of experiences (Corbett, 2005). Drawing from Kolb's experiential learning model, the quality of learning can be enhanced by direct experience that is meaningful to the learner with guided reflection and analysis (Postareff et al., 2008).

3. Teacher versus student centred approaches

The teacher-centred approach uses the structured and static learning materials such as notes, PowerPoint slides, and textbooks. Educators are seen as transmitters of knowledge, and there is an emphasis placed on getting the 'right answer'. Students are sometimes assigned additional readings (for example, from newspapers, websites and online learning platform) to enhance their understanding of certain topics. As a result, there is less interaction between educators and students in the classroom, thus allowing the students to act as passive learners.

In contrast, the student-centred approach involves experiential learning by doing. Students are engaged in activities, such as starting a micro-business or participating in a pre-existing business. They may be challenged to gather data to test new business hypotheses, or use business simulations to gain experiential learning.

The teacher-centred approach is focused on the subject content, thus increasing the student knowledge. The students gain more knowledge and understanding when listening to the lectures explaining important information. This approach to learning is usually related to behaviourism learning because all behaviour is caused by external stimuli (educator), while the learner is essentially passive. Moreover, all behaviour can be explained without the need to consider internal mental process or thinking.

In contrast, the student cantered approach is focussed on the student's experience and engagement with the content. The approach is experiential and the learner is essentially active. Thus, the learner's mental processes are crucial.

4. Learning outcomes: Objective and subjective measures

Fretschner and Weber (2013) asserted that entrepreneurship education has two purposes: (i) to determine whether the students should learn to develop entrepreneurial knowledge for the purpose of changing mindsets, attitudes, and entrepreneurial desirability; and (ii) learning to be an entrepreneur by acquiring with various managerial and entrepreneurial skills. This is in line with Matlay's (2008) study, which explored the impact of entrepreneurship education on entrepreneurial skills, knowledge, and attitude.

Even though the self-reported measure is often used in the entrepreneurship education literature, there is a possibility of over-estimation responses, as well as the possibility that there could be recall bias (Rauch and Hulsink, 2015). The current study employs a combination of the subjective (self-reported survey) and objective (marks from exams[1]) measures of the skills (managerial and entrepreneurial), which after this will be referring to the objective learning outcomes and subjective learning outcomes.

5. Learning culture: A Malaysian higher education context

[1] Exams include multiple choices and essay-type question i n order to ensure that the students could demonstrate their best objective learning outcomes.

Didactic teaching has been criticized in term of generating rote learning, learning by note taking, and potential boredom as the approach limits student participation and reflection. Nonetheless, students from a particular culture may be more accustomed to this approach. For example, in Malaysia (a context of this study), the culture of "spoon-feeding" during the primary and secondary school and an examination-oriented curriculum in the education system, affects the country's learning culture. The transitions of Malaysians students from schools to higher institutions of learning may be difficult because of the structured learning environment and the emphasis of surface learning, rote memorization (Chang et al., 2011), and dependent learning, rather than deep learning (Maesin et al., 2009). Thus, even though they are studying at higher education institutions, they prefer the 'spoon-feeding' learning as that was the way they were trained in primary school (Keat et al., 2011) . Furthermore, the school systems are generally based on examination systems (Wong, 2004). This is a way to categorize students' knowledge and assign students to the right higher learning institution (Kahl, 2013). As a result, they will memorize information (rote learning) in order to pass examinations.

Furthermore, religion also has a strong impact on transmitted norms, values, beliefs, and behaviours (Cohen, 2009). For example, Malaysian students are influenced by a Muslim culture about the importance of family, as well as the status of their teachers (Halstead, 2004). In this culture, students must respect the eldest family member because of their life experience and their position within the family unit (Dhami and Sheikh, 2000). The teacher possesses a high status in society because they are believed to be knowledgeable. Students are taught to respect, obey, listen, and not to challenge their teachers. As a result, students follow the teacher's instructions because they believe that the teacher knows best for them and their future. Rao, Moely and Sachs (2000) and Lim (2001) find that the learning theories or models developed in Western countries may not be appropriate for the learning cultures of

Eastern countries. This is also in line with Holtbrügge and Mohr (2010), who found that learning style preference varies according to an individual's cultural values, and could thus impact differently on the students.

Drawing from the cultural perspectives, we expect that the teacher-centered approach, despite the criticism toward this approach, will have a stronger impact on learning outcomes. Hence, the hypothesis is proposed as below:

Hypothesis 1: Students who learn through a student-centered approach will develop a higher level of (a) subjective and (b) objective learning outcomes, compared to those who learn through a teacher-centered approach (between group differences).

6. Entrepreneurial intention

Unlike past entrepreneurship literature that used intention to start-up as measure (e.g. Othman and Mansor, 2012, Samsudin et al., 2016), the current study employs implementation intention theory to measure the entrepreneurial intention. The study focuses on how the development of learning outcomes (skills) will likely influence the students' future career. This is a novel approach for entrepreneurship education study because by implement the implementation intention it helps to reduce the gap between the intended and the actual behaviour, which has being a main criticism of the entrepreneurial intention studies (Ajzen et al., 2009). Formulating the implementation intention by indicating when, where and how it will carry out the intended action can increase the probability to perform the behaviour. Additionally, according to Gollwitzer and Sheeran (2006), people who form implementation intentions are in a good position to recognize opportunities to act and respond to these opportunities swiftly.

Although the most commonly used theoretical framework in entrepreneurship research is the TPB, there is a belief that utilizing entrepreneurial intention models built on psychological theory can help to examine the development of entrepreneurial behaviour. While the literature widely acknowledges the importance of intentions as the first step toward behaviour, there is no direct link established between intentions and actions (Adam & Fayolle, 2015). For instance, based on the TPB theory intentions were found to explain only about 30% of the variance behaviour (Ajzen, 1987). Similarly, Armitage & Conner (2001), reported that the TPB accounted for on average 27% of the variance in behaviour, and 39% in intention. For that reason, there is a need to pay attention to the intention-behaviour relationship by using the concept drawing from socio-psychological literature, which is the implementation intention. Therefore, Gollwitzer (1999) encourages scholars to apply implementation intention theory because individuals who form an implementation intention are more likely to pursue their intentions (Fayolle, 2013).

The "implementation intention" is when the individual anticipates how to respond to a specific situation and promote goal achievement (Adam & Fayolle, 2015). When the implementation intention interact with the goal achievement, the goal intention are more successful (Gollwitzer & Brandstatter, 1997). According to Gollwitzer & Sheeran (2006), individuals who form an implementation intention (i.e. a specific plan detailing where, when, and how the desired behaviour will be performed) have a greater inclination to act on their intentions. The effectiveness of implementation intention has been established by many empirical studies. These include Churchill & Jessop (2011), who tested the link between behaviour and the consumption of fruit and vegetables consumption; and Sniehotta, Scholz, & Schwarzer's (2005) study of physical exercise.

Additionally, the meta-analysis of 94 studies of implementation intentions that was conducted by Gollwitzer & Sheeran (2006) shows that the implementation of intentions was

effective in promoting goal realization. Therefore, this thesis uses the implementation intention to measure the entrepreneurial intention. By using the implementation intention, the study captures the development of the intention level and enhances the likelihood of goal achievement.

7. Learning Outcomes influence entrepreneurial intention

It has also been noted that entrepreneurial intention can change over time. Voleryand colleagues (2013) argued that the significant effects are often observed directly upon completion of an intervention. This suggests that a third point of measurement could indicate the effect of stability. For instance, Varamäki, Joensuu and Viljamaa's (2015) study found that students' entrepreneurial intention declined, while, Sánchez's (2013) study found that students' entrepreneurial intention increased. Therefore, this study measures how subjective and objective learning outcomes predict the entrepreneurial intention at Time 1 (immediately after the intervention) and at Time 2 (two weeks[2] after the intervention). The two points of time are needed to examine the changes in the entrepreneurial intention over time. Therefore, we propose the following hypothesis:

Hypothesis 2: The subjective and objective learning outcomes will positively predict the entrepreneurial intention over time.

8. Learning outcomes as a mediator between the pedagogies and entrepreneurial intention

Gibb and Hannon (2006) asserted that well-designed pedagogies could nurture the skills and attributes that may be needed by all kinds of organizations and individuals, as well as in a

[2] Due to some students will be graduated and followed after graduation is limited. Two weeks after course completion, before their final grade released) was feasible.

starting venture. Keogh and Galloway (2004) also suggested that a start-up business project provides an educational experience to the students in that it provides them with encouragement and education to work as entrepreneurs in the future, if they wished to do so. Furthermore, this study confirmed that the variation in career intentions, as well as perceptions of entrepreneurship, is affected by entrepreneurship education.

For these reasons, in order to develop an entrepreneurial career, certain capabilities are required, including skills. It is reasonable to propose that the level of capabilities can be determined by the relationship between how to teach (pedagogy) and the student's career intentions. For instance, the experiential approach is likely to have a greater impact on the development of skills, and thus will likely influence a student's decision to become an entrepreneur (Sherman et al., 2008).

Additionally, van Auken and colleagues (2006) found that the interaction and involvement of the role models at two Midwestern universities could influence the understanding of career decisions, and thus have the greatest impact on students' intentions. Thus, it was important that educators addressed this development of skills using an appropriate pedagogical approach, as it would contribute not only to skills development, but also to increasing entrepreneurial intention. The current study also proposes that the subjective and objective learning outcomes will positively mediate the relationship between pedagogies and entrepreneurial intention. Thus, the following hypothesis is posited:

Hypothesis 3: The subjective and objective learning outcomes will mediate the relationship between pedagogies and entrepreneurial intention.

9. Methodology

9.1. Participants and procedures

The undergraduate degree of business students (total enrollment of 492 students[3]) who registered in an entrepreneurship course in the current semester were randomly assigned into "teacher-centered" or "student-centered" classes as the experimental groups. Those students who have not yet enrolled in an entrepreneurship course in the current semester and never studied an entrepreneurship course before were assigned to the control group.

The researcher interviewed the educators prior to assigning students into an experimental classroom. Under the same syllabus, two educators voluntarily chose to teach either teacher-focused or student-focused approaches. The educator who preferred the teacher-centred approach used the structured and static learning materials such as notes, PowerPoint slides, and textbooks. The educator transmitted knowledge via lecture format during the class time. Students were assigned additional readings (for example, from newspapers, business cases) to enhance their understanding of certain topics. The students individually prepared answers to those readings and exchanged their thought with the educator during class time.

For the student-focused approach, the educator encouraged students to learn materials (and do additional research) prior attending the classroom. During the class time, the educator exposed the student by learning through the process of acquiring skills and expertise by doing things, such as group discussions of relevant topics. The educator used dynamic learning materials, where students are requested to set-up a 'dummy company' and use it as their own case study for class discussions.

The number of total participants for the experiment was 308 students (62% response rate[4]), and consisted of two experiment groups: students who randomly assigned to the teacher-centered approach classroom (117 students), and students who randomly assigned to

3 Data from the university registrar

4 The survey was a voluntary basis, therefore we could not reach 100% responses. However, researchers did the class presentation before the data collection, explaining the study context and potential scholar and societal benefits from this study in order to encourage students to participate.

the student-centered approach classroom (86 students). There was also a third group of students, which was the control group (105 students), not attending any entrepreneurship courses. To ensure that students' perception regarding the unit deliver method is aligned with the educators' intention, a manipulation check was conducted. The students were asked after the course completion to rate their course based on 7 questions related to whether or not they perceive that the course is delivered by the teacher-centred approach or the student-centred approach. A researcher also observed the classroom in order to triangulate the manipulation survey as well. All participation involved completing a questionnaire (with Likert scale answers) at four points of time, which were: (1) one week before the course commenced; (2) the first week of the course commencement; (3) one week before the course completion; and (4) two weeks after course completion. Final exams were given only to the experimental groups. Table 1 is a summary of studied participants

Table 1 about here

9.2. Measures

9.2.1. Subjective learning outcomes

The students were asked to rate their management and entrepreneurship related skills[5], which derived from previous studies (Chandler and Jansen, 1992, Hood and Young, 1993, Lichtenstein and Lyons, 2001, Man et al., 2002, Smith et al., 2006, Morris et al., 2013). The questions used a Likert Scale, with 1 "Not capable at all", and 7 "Very capable".

9.2.2. Objective learning outcomes

Students who were randomly assigned into teacher-centered or student-centered classrooms were given assessments including a business case essay and exams (multiple choices and

[5] Finance, Marketing/Sales, Business law and regulation, Leadership, Communication, Management, recognizing new business opportunity, Business plan, Networking

True or False) to measure the objective learning outcomes. All educators jointly designed the assessment ensuring the learning contents were covered in the assessments and moderated by the program coordinator.

9.2.3. Entrepreneurial Intention

"Implementation intention" is when the individual anticipates how to respond to a specific situation and promote goal achievement (Adam and Fayolle, 2015). The question asked was "How likely is it that you will pursue a career as an entrepreneur within the next 6 months?" This question reflected the "implementation intention" framework, in which a self-regulatory strategy in the form of an "if–then" plan is posited as leading to better goal attainment.

9.2.4. Control Variables

These variables were included in the study due to the correlation analysis result: (1) majoring course; (2) family background; (3) prior entrepreneurial experience; (4) prior entrepreneurial course; (5) personality-agreeableness; (6) personality-emotional; and (7) mastery approach, as control variables/covariates in the current study. Educator satisfaction was also included (the students were asked to rate overall satisfaction toward the educator and classroom).

9.2.5. Validity and reliability[6]

In this study, besides assessing the content validity through the pilot test, an exploratory factor analysis was used to gather information about the interrelationships among a set of variables. In psychological research, Exploratory Factor Analysis (EFA) belongs to the most extensively statistical technique (Fabrigar, Wegener, Maccallum, & Strahan, 1999). EFA is particularly useful to specify the latent structure among the sub-scores in an analysis. According to O'Connor & Jackson (2007), an exploratory factor analysis is required to establish the correct number of factors and assess the unidimensionality of factor loadings.

[6] Due to space limitation, full details about validity and reliability tests can be obtained from authors

For analysing the data (n=308), SPSS Statistics 22.0 was used to conduct an EFA and determine how the 27 items in the given data set load onto factors.

10. Results

Table 2 shows the results of normal distribution of data test. Table 3 show correlation among variables which were moderated[7]. Cronbach's alphas (internal reliability test) are also presented in Table 3 below and suggest a strong relationship amongst the items in each scale for each variable at Time 1 and Time 2.

Table 2 and 3 about here

H1(a) Students who learn through a student-centered approach will develop a higher level of (a) subjective compared to those who learn through a teacher-centered approach (between group differences)

The two-way repeated measures ANCOVA analysis was used to determine the difference between the groups (teacher-centred and student-centred) and within the groups (subjective learning outcomes) over the two points of time based on experiment conditions. Due to only two points of time (pre-test and post-test 1), the Mauchly's Test of Sphericity indicated that the assumption of sphericity had been met therefore, a Sphericity Assumed was used. The results show that there was a statistically significant two-way interaction between treatment (group pedagogies) and time on the subjective learning outcomes, F (3.155, 154.175) = 3.090, $p < .05$. Therefore, simple main effects were run. The result showed that the mean of subjective learning outcomes was statistically significantly different over time (Time 0 to Time 1), F (3.575, 154.175) = 7.002, $p < .01$. Table 4a indicates the estimates means for the interaction between groups and times.

Table 4a about here

[7] The test was performed to examine the absence of multicollinearity. Multicollinearity is a situation where two or more predictor variables in a multiple regression are highly correlated. As a rule of thumb, the value of below 0.3 is considered to be a weak relationship, between 0.3 and 0.7 is moderate, and above 0.7 is a strong relationship. Tabachnick and Fidell (2007) suggest that no correlation should be above r = .90. Therefore, it is important that the dependent variables be moderately correlated with each other.

H1(b) Students who learn through a student-centered approach will develop a higher level of (b) objective learning outcomes, compared to those who learn through a teacher-centered approach (between group differences)

An independent T-test was used to compare between two experimental groups (as control did not take any exams). Findings reveal that the teacher-centred approach group (M = 77.06, SD = 12.46, N = 117) scored much higher on the objective learning outcomes compared to the student-centred group (M = 72.31, SD = 8.76, N = 86), t (201) = 3.208, $p <$ .01 (Table 4b) Thus Hypothesis 1 is supported.

Table 4b about here

H2: *The subjective and objective learning outcomes will positively predict the entrepreneurial intention over time*

The subjective learning outcomes were found to have a significant influence on the entrepreneurial intention at Time 1 for, but not the objective learning outcomes. The R^2 change and its significance level show it is predicted a significant change in the DV ($R^2Ch.$ = .283, ΔF (2, 190) = 42.484, $p<0.001$). Further, subjective learning outcomes still predict the entrepreneurial intention after two weeks of intervention, but not the objective learning outcomes. The R^2 change and its significance level show it is predicted a significant change in the DV ($R^2Ch.$ = .179, ΔF (2, 190) = 26.173, $p<0.001$). However, the objective learning outcomes failed to predict the entrepreneurial intention in both times (Table 5a). Thus hypothesis 2 is supported for subjective learning outcomes.

Table 5a about here

H3: *The subjective and objective learning outcomes will mediate the relationship between pedagogies and entrepreneurial intention*

*T*he effect of subjective and objective learning outcomes as mediators was tested using PROCESS Macro[8]. The inspection shows a significant indirect effect of pedagogies through the mediator effects of subjective learning outcomes (β= -.302, 95% CI from -5.14 to -.089) to entrepreneurial intentions (Y) (β=.705, 95% CI from .557 to .853). Nonetheless, the pedagogies had an indirect effect on the mediator of objective learning outcomes (β= -4.724, 95% CI from -7.845 to -1.604), but not to entrepreneurial intentions (β= .007, 95% CI from -.003 to .017) (Table 5b). The examination on the bootstrap result confirmed that only the subjective learning outcomes mediate the relationship between pedagogies and entrepreneurial intention. The results have been interpreted as significantly positive because the bootstrap confidence interval is entirely above zero for subjective learning outcomes (95% CI from -.378 to -.077), but not for objective learning outcomes (95% CI from -.108 to 0.004). Thus hypothesis 3 is supported for subjective learning outcomes.

Table 5b about here

11. Discussion

The first hypothesis aimed to analyses the relationship between the pedagogical approaches (teacher-centred versus student-centred) and the subjective and objective learning outcomes. The results are informative. The researcher found that both pedagogical approaches (teacher-centred versus student-centred) had a positive effect on the development of subjective and objective learning outcomes. Nonetheless, the students who learned under the teacher-centred approach developed higher levels of subjective learning outcomes (at sig. p< .001) and objective learning outcomes (at sig. level p< .01). In other words, students who learned under the teacher-centred approach improved significantly on their subjective and objective learning outcomes, compared with the students who learned under the student-centred approach.

[8] The PROCESS Macro is a plugin command used together with the SPSS. The PROCESS introduced the concepts of the relative indirect, direct, and total effect in the mediation analysis.

This study's findings contradicted previous studies that had highlighted the effectiveness of the student-centred approach in teaching entrepreneurship education (Tynjälä, 1998; Rasmussen & Sørheim, 2006), and counter the western-based studies that have suggested that the teacher-centred approaches failed to develop skills (Cheng et al., 2009; Ismail & Ahmad, 2013). A review of previous literature acknowledged that most of the studies that examined the impact of student-centred pedagogy in entrepreneurship education were conducted in Western regions. The way that students learn in Malaysia (which is an 'Eastern' country) might be different to how students learn in Western countries, and this may be due to Malaysia's learning culture as previously discussed in section 5: Learning culture: A Malaysian higher education context.

Based on the previous literature, entrepreneurship education appears to have succeeded in encouraging students to embark on entrepreneurial careers. Thus, the second hypothesis predicted that the subjective and objective learning outcomes would positively predict the entrepreneurial intention over time. The multiple regressions result demonstrated that the subjective learning outcomes were good predictors of entrepreneurial intention at Time 1 (R^2 = .368) and Time 2 (R^2 = .314), but not the objective learning outcomes. This study is in line with Liñán (2008) and Lope Pihie & Abdullah Sani (2009), who affirmed that if students believe that they had improved on their learning outcomes, they would likely develop the intention to start a business. Given the insignificant result for objective learning outcomes, this finding also acknowledges that receiving a good grade in entrepreneurship education does not mean that students are more likely want to choose an entrepreneurial career.

The results also suggest the stability of entrepreneurial intention over time, at the post-test 1(Time 1) and post-test 2(Time 2). Entrepreneurial intentions proved to be significant for both times. Nonetheless, this may be due to a short period of time-lag between

the Time 1 and Time 2, which is only two weeks. Therefore, the entrepreneurial intention still remains. This can be explained by Ajzen's (1987) theory, which suggests that a stronger relationship between intention and behaviour will be achieved when the time interval between the two measures is closer.

Based on the third hypothesis, the study explored how the subjective and objective learning outcomes mediate the relationship between the pedagogical approaches and entrepreneurial intention. The study supported previous research that had shown that the pedagogical approach influences the entrepreneurial intention (Crane, 2014; Kassean et al., 2015; Varamäki, Joensuu, & Viljamaa, 2015). The study's findings have several implications for students and educators. First, they support studies by Fischer & Schoar (2014) and Seymour et al. (2002), which showed that training can influence the skills, and increase the possibility of performing the related behaviour. Thus, educators can focus on developing the subjective and objective learning outcomes through entrepreneurship education, as this will influence the students' entrepreneurial intentions. Thus, the findings show that the teacher-centred approach has been effective for Malaysia students. Yet these findings also demonstrate that the student-centred approach helped develop student subjective and objective learning outcomes.

Additionally, to make sure that the student-centred approach is more effective in learning, students should engage in the activities. For instance, the cooperative approach will not enable students to be productive if group members do not contribute to the discussion, or if they only allow some people to dominate the group discussion. Therefore, students should be taught the social skills and be motivated to use them in the classroom (Johnson & Johnson, 1989).

Although the current study found that only subjective learning outcomes mediate the relationship between pedagogical approaches and entrepreneurial intention, the result still

contributes to our understanding of the direct relationship from pedagogical approaches towards the subjective learning outcomes, and in turn, the entrepreneurial intention. The results also suggest that the differences in levels of attitude towards entrepreneurial careers are associated with variability in the relationship between subjective learning outcomes and entrepreneurial intention. Therefore, the relationship between subjective learning outcomes and entrepreneurial intention appears to be stronger among students who are developing more subjective learning outcomes.

Our findings also shed some lights to the rising issues on the entrepreneurship pedagogy in the global context. There is a growing trend developed nations towards a practice-based approach to entrepreneurship education (Brush, Neck and Greene, 2015) and "the integration of the entrepreneurship university and entrepreneurial ecosystems" (Maritz, Jones and Schwetzer, 2015 p 1023), which reflects a trend towards student-centred learning. This research challenges this trend by studying students in a different culture, where the teacher's authority is highly accepted (Keat et al., 2011).

These results have several implications for entrepreneurship education pedagogy. First, the culture of the student needs to be considered. Students from cultural backgrounds where teacher-centred education is the norm, or where there is high respect for the teacher's authority are likely to have a greater impact on entrepreneurship intention using the teacher-centred pedagogic approaches. This means that research results from Western countries may not apply in other cultures. More research is needed to further test these results. Secondly, subjective, as opposed to objective measures of student learning have greater predictive power for entrepreneurial intentions in this context. This means that learning about entrepreneurship may not translate into greater entrepreneurial intentions and could explain some previous results. Finally, subjective learning outcomes mediate the relationship between the entrepreneurship pedagogy and entrepreneurial intention. This means that the focus is on

the development of subjective learning outcomes. This result should be tested in other cultures to see if it maintains.

12. Limitations and future studies

The first limitation concern in this study regards examining the difference between pedagogical approaches (teacher-centered versus student-centered) and the development of objective learning outcomes. The result, even though interesting (because it only partially supports the hypothesis proposed), should be interpreted cautiously, for three reasons. First, the subjective learning outcomes were measured using self-reported questionnaires. Students might over-rate their capabilities in the managerial and entrepreneurial skills (which are referred to as the learning outcomes in this study) based on how they perceived themselves as capable, which is a very subjective question. Second, although the objective measure was used to complement the subjective measure, there are still some issues of concern. The objective learning outcomes was measured using exams and a business case essay, which seem to align more with the teacher-centered themes, rather than student-centered themes. Although the current study aims to capture knowledge through the exams and essay, future research could employ reflective essay or learning dairies, examining how and what students learn. Third, due to the nature of sample limitation, short time lag (two weeks) was used. Future research could investigate the effect of pedagogical approaches using a longitudinal study (e.g., six months, one year), because it can measure changes over time, thus giving an insight in terms of the stability of students' skills and entrepreneurial intention. Furthermore, this study has encourages future scholars to replicate our model, researching a larger sample, involving more higher education students from other cultures, universities and regions.

13. Conclusion

Entrepreneurship education has been found to influence the current behaviour and future intentions of learners. The study has been designed to help researchers reach a better understanding of how the selection of pedagogical approaches in teaching entrepreneurship education impacts the subjective and objective learning outcomes and entrepreneurial intentions of students. Furthermore, to encourage more young people to become entrepreneurs, it is important to instil an entrepreneurial mindset and attitude towards entrepreneur career at the university level.

14. Reference

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Table 1: Demographic and Descriptive Statistics

Demographic Variables	Teacher-centered (N = 117)		Student-centered (N = 86)		Control (N = 105)	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Age	20.13	.483	19.69	.690	19.27	.724
Gender	.30	.460	.35	.479	.23	.422
Majoring Course	.58	.495	.65	.479	.52	.502
Family with business background	.28	.452	.30	.462	.10	.308
Prior entrepreneurial experience	.43	.497	.44	.500	.19	.395
Prior entrepreneurial education	.25	.434	.17	.382	.02	.137
Personality- Extraversion	4.2009	.85616	4.2965	.89567	4.3524	.86581
Personality- Agreeableness	4.4573	.92748	4.6744	.89366	4.3381	.88659
Personality- Conscientiousness	4.1410	.97124	4.3314	.87653	4.3190	.89368
Personality- Emotional	4.6496	.89362	4.6221	.74729	4.6143	.86951
Personality- Openness	4.5214	1.06146	4.6744	.88040	4.4571	.91493
Goal mastery approach	5.4786	.99845	5.3798	1.09325	5.0794	1.19697

Table 2: Descriptive for reviewing the means, standard deviations, skewness, kurtosis, standard errors, and Shapiro-Wilk's for Subjective learning outcomes and Entrepreneurial Intention at Pre-test (Time 0) and Post-test (Time 1 and Time 2) for the three groups.

GROUP	Teacher-centered approach Group						
	Mean	SD	Skewness	SE	Kurtosis	SE	Shapiro-Wilk
Pre-test Subjective learning outcomes	4.90	.067	.029	.224	-.661	.444	.270
Post-test 1 Subjective learning outcomes	5.31	.078	.210	.224	-.465	.444	.024
Post-test 2 Subjective learning outcomes	5.31	.062	.192	.224	-.056	.444	.325
Pre-test Entrepreneurial Intention	4.97	.973	-.132	.224	-.275	.444	.248
Post-test 1 Entrepreneurial Intention	5.00	.904	.267	.224	-.101	.444	.012
Post-test 2 Entrepreneurial Intention	5.10	.952	-.453	.224	1.474	.444	.004
GROUP	**Student-centered approach Group**						
	Mean	SD	Skewness	SE	Kurtosis	SE	Shapiro-Wilk
Pre-test Subjective learning outcomes	4.82	.900	.029	.260	-.465	.514	.117
Post-test 1 Subjective learning outcomes	4.97	.082	.071	.260	-.346	.514	.094
Post-test 2 Subjective learning outcomes	5.14	.084	-.087	.260	-.744	.514	.054
Pre-test Entrepreneurial Intention	4.85	.970	-.012	.260	-.363	.514	.332
Post-test 1 Entrepreneurial Intention	4.90	1.004	.077	.260	-.711	.514	.058
Post-test 2 Entrepreneurial Intention	5.03	.870	.070	.260	-.763	.514	.021
GROUP	**Control Group**						
	Mean	SD	Skewness	SE	Kurtosis	SE	Shapiro-Wilk
Pre-test Subjective learning outcomes	4.59	.089	-.135	.236	-.373	.467	.420
Post-test 1 Subjective learning outcomes	4.66	.079	.077	.236	-.209	.467	.686
Post-test 2 Subjective learning outcomes	4.90	.072	.297	.236	-.301	.467	.056
Pre-test Entrepreneurial Intention	4.67	.825	.422	.236	-.486	.467	.005
Post-test 1 Entrepreneurial Intention	4.74	.927	-.322	.236	.497	.467	.004
Post-test 2 Entrepreneurial Intention	4.80	.774	.161	.236	.622	.467	.011

Table 3: Means, standard deviations, and correlation coefficients among the Independent and Dependent Variables

Variables	Mean	SD	Alpha	1	2	3	4	5	6	7	8	9	10	11
Time 1														
1. Entrepreneurial Intention	4.89	.94	.845											
2. Subjective learning outcomes	4.99	.85	.925	.596**										
3. Objective learning outcomes	75.05	11.2	-	.102	.049									
4. Attitude towards entrepreneurial career	5.07	.84	.839	.539**	.647**	.076								
5. Perceived control over entrepreneurial career	4.90	.93	.742	.273**	.293**	.026	.294**							
6. Social acceptance of entrepreneurial career	16.9	17.2	.915	.655**	.669**	.112	.691**	.336**						
Time 2														
7. Entrepreneurial Intention	4.98	.88	.784	.308**	.230**	.119	.307**	.125*	.338**					
8. Subjective learning outcomes	5.12	.74	.900	.203**	.348**	.221**	.372**	.106	.258**	.561**				
9. Attitude towards entrepreneurial career	5.16	.84	.809	.199**	.284**	.189**	.391**	.074	.296**	.525**	.588**			
10. Perceived control over entrepreneurial career	4.88	1.00	.790	.080	.131*	.005	.122*	.245**	.117*	.322**	.265**	.265**		
11. Social acceptance of entrepreneurial career	18.2	16.8	.928	.242**	.291**	.131	.410**	.047	.323**	.547**	.584**	.734**	.194**	

***p<.01, *p<.005*

Table 4a: Estimates means, standard error, and confidence interval for interaction between groups and time for subjective learning outcome

Groups	Time	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Control	0	4.614[a]	.083	4.450	4.778
	1	4.679[a]	.083	4.516	4.841
Teacher-centered	0	4.889[a]	.077	4.737	5.041
	1	5.294[a]	.076	5.144	5.445
Student-centered	0	4.802[a]	.089	4.627	4.977
	1	4.958[a]	.088	4.785	5.132

a = covariates appearing in the model

Table 4b: Results of Independent T-tests of objective learning outcome on Pedagogical Approaches

Outcome	Group						95% CI for Mean Difference	*t*	*df*
	Teacher-centered			Student-centered					
	M	SD	n	M	SD	n			
Objective learning outcome	77.06	12.46	117	72.31	8.76	86	1.65668 - 7.84362	3.028**	201

** $p < 0.01$

Table 5a: A summary of multiple regression analysis for predicting the entrepreneurial intention from the subjective and objective learning outcomes at Time 1 and Time 2

Learning Outcomes	Entrepreneurial Intention (Time 1)	Entrepreneurial Intention (Time 2)
	β	β
Subjective learning outcome	.676***	.616***
Objective learning outcome	.006	.001
R^2	.368	.349
F	9.221***	8.478***

Note *** $p<0.001$; β = unstandardized regression coefficient

Table 5b: Coefficient beta, Confidence Interval and Indirect effect for the Pedagogical Approaches and Entrepreneurial Intention through the subjective and objective learning outcomes

	Subjective learning outcomes	Objective learning outcomes	Entrepreneurial Intention
Group	-.302 **	-4.724**	.152
	95% CI (-.514 to -.089)	95% CI (-7.845 to -1.604)	95% CI (-.079 to .384)
Subjective learning outcomes			.705***
			95% CI (.557 to .853)
Objective learning outcomes			.007
			95% CI (-.003 to .017)