

Entrepreneurial Idea Development to Business Start-Up: Teaching Methodological Approach

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Abstract: *The crucial issue on entrepreneurship training in the tertiary institutions of learning is teaching students how to develop innovative business idea to the business venture start-up stage. This is the ability of the students to develop ideas that are out of the theoretical teaching of the academic environment. Several scholars have acknowledged the suitability of conventional teaching application for student ability to memorize and repeat taught exercises. This article form the core principles of idea generation in the business start-up, recognition and feasibility of entrepreneurial idea generation in the students of tertiary institutions of learning, strategic approaches on how best to enable and facilitates business idea in the graduating collegians. The Business Team Project Partnership Program (BT-PPP) identified as a strategic teaching method for facilitating entrepreneurial idea generation. The BT-PPP is where collegians work together in a practical business reality programme for the purpose to establishment a business with the collaboration of guest entrepreneurs and representative from the industries.*

This research paper developed out of the surveys pilot study among the students of real estate students and facilities management students of Universitie Tun Hussein Onn Malaysia (UTHM), in 2012 business team projects partnership program (entrepreneurship education course). Uses SPSS statistical analysis tools analyzed the responses of the participant of the BT-PPP. The mean differential and paired-sample t-test analysis of the students' response (n = 72) computed. The result shows that BT-PPP passed the suitability-fitness for motivating entrepreneurial idea generation, interaction and networking, entrepreneurial learning outcome (value creation). In addition, the pedagogical initiative positively impact entrepreneurial self-employment intention on the students of real estate and facilities management.

Keywords: *Business start-up, Entrepreneurship education, Idea development, Teaching approach, Self-employment intention*

I. Introduction

Development of innovative business idea to the establishment of the business noted to be a critical issue in the entrepreneurship training of the students of the tertiary institutions of learning [58, 44 and 29]. Several scholars have acknowledged the suitability of conventional teaching method for student faculty to memorize and repeat academic exercises instead, applied the knowledge gained creatively into the real life happening [32 and 45]. Against the back drop of this, many eminent scholars recommended applied teaching methodological approach for the entrepreneurship training [6, 23 and 17]. The Malaysian government concern about entrepreneurship training in higher education institutions (HEIs) is as a result of various factors: large share of tax payer funds for promotion of entrepreneurship in higher institutes of learning; problem of increase in the percentage of graduates' unemployment; attitudinal problem of graduates toward entrepreneurship (job seeker instead of been a job creator). As a result, mandatory entrepreneurship education programs for all HEIs in Malaysia, inaugurated by Malaysian government [51, 54, and 71].

The Malaysian universities are currently at a capacity of twenty (20) public and five hundred (500) private universities, and many of these institutions are continuously injecting new graduates into the labour market every year [65 and 70]. By virtues of this development, serious consideration need given to the escalation of the challenges [30]. Hence, Zaidatol, and Abdullah [72], suggested the domain of entrepreneurship identified to some degree strategic initiatives to curb the rise of graduates' unemployment [41]. Several strategic initiatives implemented by the Malaysian government are: introduction of entrepreneurship subject from primary schools to tertiary institutions [53]. The bone of contention is, with the increased number of entrepreneurship courses launched in HEIs, the rate of unemployment is continuously on inflation [73, 3 and 46]. The most challenging of all is that, almost a decade of introduction of entrepreneurship education into the tertiary institutions in Malaysia only 2.1 percent of the graduates are self-employed [51]. This may implies that teaching methodologies employed by educators and quantities of entrepreneurial minded graduates produced is certainly doubtful [45, 20 and 65]. In light of the above, entrepreneurial teaching strategies is to develop a practical understanding of business reality and to create value added skills, by foster the graduating students of

higher institutes of education to develop innovative business idea opportunities and solution approaches for business start-up in the business world after graduation [22 and 15].

In the nut shell, it is doubtful whether the conventional method of teaching can actualized the purpose of the establishment of the entrepreneurship education. Consequently, criticism of the conventional teaching methodology is constantly receiving negative recommendations from various scholars. To develop a dynamic and innovative teaching methodological approach for enterprise education, how prepared are the scholars? As reported in the research work of Cheng [5] larger percentage of the Malaysian universities lack the capacity to deliver entrepreneurship education effectively to the graduating students. One of the key problem noted; mode of teaching is orthodox approach, which lack interactive practical learning initiatives, and the educators lack skills, experience and still unenthusiastic to adjust to the use of modern practice of teaching. Therefore, this research introduced BT-PPP teaching approach for the delivery of entrepreneurship training and assessment on it is strength in developing an entrepreneurial idea generation to business start-up (self-employment) among the students of real estate and facilities management in UTHM.

II. Overview of development of entrepreneurship education in HEIs

The early development of entrepreneurship education acknowledged to American universities [42]. The teaching and program design of entrepreneurship education first established in the American business school has ever growing in scope and reach worldwide [39 and 31]. The program's design and teaching of entrepreneurship knowledge are constantly under serious controversy [13, 14 and 19]. On one hand, some scholars are of the belief that teaching practice of entrepreneurship education needs more academic teaching rigor in HEIs. On the other hand, remarkable numbers of scholars argued that teaching style require innovation and creative initiatives in order to produce the dynamic graduates that can compete favourably in the labour market after schools. Furthermore, the variety of courses, program content; appropriates teaching methodology to be use for teaching entrepreneurship programs are undergoing serious debate in the academic circle. The critical challenge of all is the developing appropriate mechanism for delivery entrepreneurship education [14]. The variety of emerging teaching strategic approach can be recommended based on the past researcher empirical findings.

However, the theoretical knowledge acquired in the university and required fact of real life skill needed to survive has progressively widened. Notwithstanding, the ideological theories in the academic world have relatively little real life impact. For many entrepreneurship programs in HEIs need collaboration of idea development related to the societal benefit and onward economic development of the nation [41]. Therefore, educational training need not be delivering in a vacuum that lack understanding of the outside world requirements, where the students prepared to practice. In a nut shell, entrepreneurship education should focus on practical idea generation through problem based learning approach. The process of business start-up begins with; opportunity recognition, creative idea generation, formulation of objectives and sets of actions before the establishment of a business venture. This entrepreneurial process can only be guaranteed through the use of modern teaching approaches, not by video case studies or mainstream lecturing style [27]. The knowledge of awareness, enterprise and business risk taking proficiency can only be impacted when the participant of the entrepreneurship program passes through effective process of discovery new idea by interacting with an experienced entrepreneur, on how he/she recognise problems, opportunities embedded in the problems and solution development. The sequence of the best teaching practices for entrepreneurial idea development to the establishment of a business venture for the students of tertiary institutions is; business simulation, real cases studies, role playing, team project, multimedia exercises and complimented with theoretical lecturing [52, 47, 49 and 6]. In this regard, the next section of this article is to take a critical look at the sensitivity of the idea generation in the field of entrepreneurship training.

Ardichvilia, Cardozob and Rayc [2] and Gibb [18] described the process of idea generation in the entrepreneurship activity as an embedded practice within the unique personality traits of an entrepreneur. The formulation of business ideas cannot be discussed without the initiator of the very idea. Consequently, the article of Rasmussen and Sorheim [60] stated that every business venture always develops from an idea. Consequently, an entrepreneur in an individual who has meaning generated considerable controversy in the academic circle despite, scholars agreed on some common personality traits. In this context, while an entrepreneur attributed with the following qualities: multi-skilled (creative and innovative), risk taker, result oriented; idea and opportunity identification, self-confident in the face of difficulties but at the end are the commitment and passion. Velmurugan, kalaisevan and Rameswari, [68] noted that developmental stages of the entrepreneurial idea activity belong to two different schools of thought; whether entrepreneur are "born or made". The debate on whether entrepreneur can be taught or not is a debate of the past since several researchers have connected success of an entrepreneur with entrepreneurship training [48, 23 and 14].

Timmons and Spinelli [67] supported the first school of thought "entrepreneurs are born", "not made" while, Matlay [47] and Watson [69] were of the contrarily position by their assertion. They further supported their claims, even though some successful entrepreneurs do not pass through any traditional classroom

instruction but, do learn through the real life experience which is another form of education. However, teaching and training are both education in respect of mode of delivery and impact. Gurol and Atsan [21] maintain development of entrepreneurial capacity in the student of HEIs involves teachable science section (marketing and management skills) and not easily teachable art section (creative innovative characteristic traits). They concluded, earlier can be taught with traditional teaching method while the later need advanced strategic approach. Consequently, Henry [24] emphasised the need to develop remarkable capacity in idea generation and attitude toward the ability to risk taken. In their assertion, they take risk taking quality as the determinant factor in differentiating successful entrepreneur from unsuccessful one. Therefore, entrepreneurship is a discipline that can be learned and the next focus will be idea generation as noted by many researchers.

The word idea development has a multi-directional meaning, which depends on the context of its usage. In the instance, the entrepreneur's idea generation is an act of innovation at different capacity; which could be an inborn personality trait or individual could develop the act over a time, as discussed earlier. Idea generation is a state of mind that can be developed even though a group of people are prone to perform more entrepreneurial more than the other, depending on the societal pull and push influence people found themselves [35, 62 and 37]. On one instance, process of idea development in entrepreneurship can be defined as process of creating new business venture [25]. On the other instances, Delmar and Davidsson [11] acknowledged words: opportunity recognition, newness, uniqueness and innovation as value added to an existing venture; most importantly ability to think extensive all constituted idea initiatives. Developing a global standard definition can be difficult [28].

III. Entrepreneurship teaching approaches in the academic environment

Having provided supportive argument and agreed that entrepreneurship can be taught, the next hurdle is what to teach and what teaching instruments to use in delivering the entrepreneurship reality to the diverse background students of higher institutes of education. According to Hynes' model [26], stated that entrepreneurship education process needs to start with the student and the educators before focusing on program content and teaching methodology. The outcome of the program can only be determined in accordance to tangible (human resources capacity), intangible learning facilities (academic setting) and the macro environment (societal setting). The Hynes' process model of entrepreneurship education clearly showed the significant of idea generation in the course content and the process nature of the entrepreneurship education (see fig. 1). The larger percentage of the program content dedicated to concept development process (Opportunity identification and resolution, idea generation, product and services development, feasibility of the idea). Aforementioned unambiguously reveals the ranking of the idea development as a key determinant of business success in entrepreneurial activities.

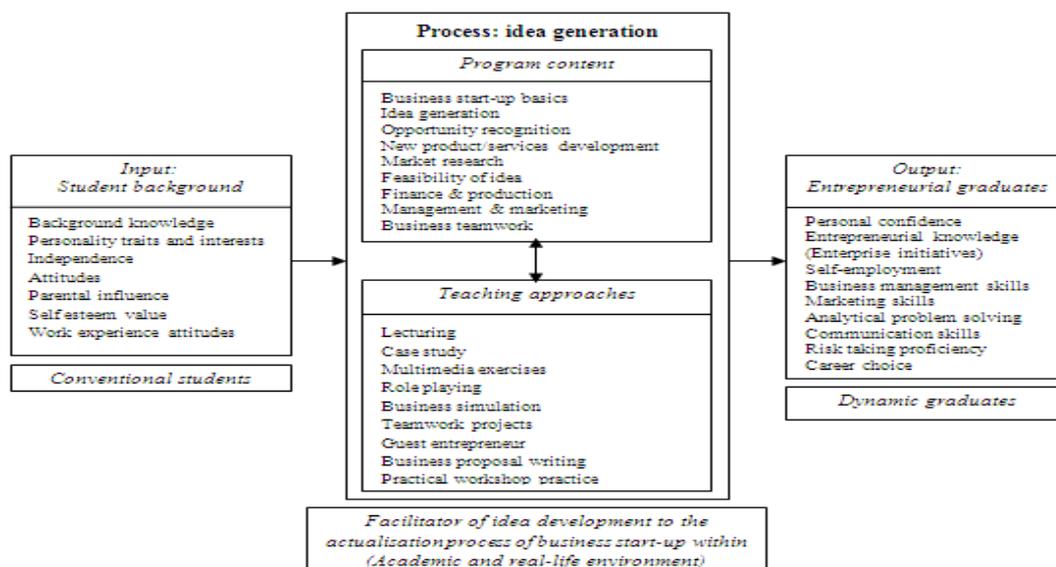


Fig. 1: Hynes [26] process model of entrepreneurship education

Rasmussen and Sorheim [60] supported Hynes' process model of entrepreneurship education in their publication that, idea development is the critical factor to the creation of new business and innovativeness of an existing business organisation before resultant contribution to national development. They suggested in their research finding, the best teaching strategies method to develop more innovative entrepreneurial minded graduate is to employ more action-oriented (team work collaboration project, university and industry training) as

a practical learning approach in HEIs. Cooper [6] and Garavan and O’Cinneide [17] noted main challenges for most entrepreneurship educator impacting entrepreneurial training is finding appropriate cost effective and innovative learning approach to develop future entrepreneurs. In regard to this challenge, Rasmussen and Sorheim [60] made appreciable steps with plotted various teaching approaches against potentiality of business idea to business start-up development. This equally supported by experimental scale of teaching [6]. The integration of the two exemplary of entrepreneurship learning strategic approaches for students of HEIs demonstrated in fig. 2.

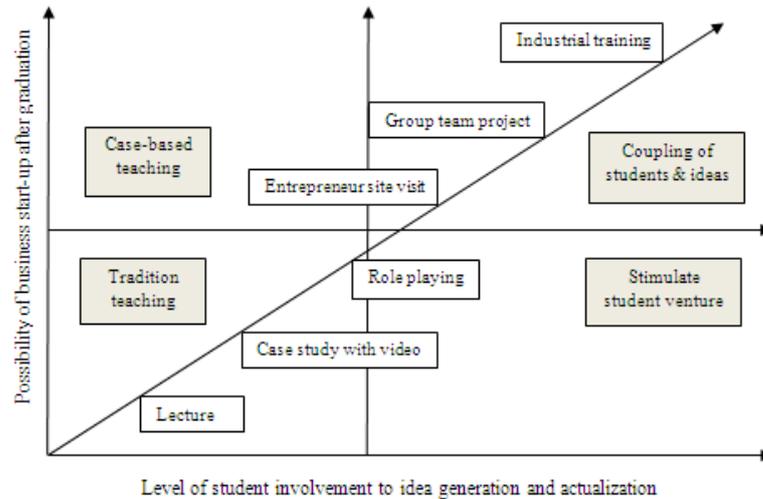


Figure 2: Experimental scale of teaching (Cooper [6] and Rasmussen & Sorheim, [60])
Strategic learning evaluation scale

Finally, within the understanding of the foundation of entrepreneurial idea generation Matlay [50, 47, 24, 14 and 13] maintain the obvious chance to trained and develop entrepreneurial creative minded student through effective entrepreneurship education. This assertion formed the basis for the team project collaboration strategy. The team collaboration teaching approach provided a platform to students of different major. The partnership aimed at developing entrepreneurial graduates through a process of business idea generation to start-up stage for the duration of one semester academic program. The guest entrepreneurs and the academic educators of entrepreneurship education program in the university collaboration assistance employed.

IV. Research methodology

4.1 Research design and approach

This pilot study research aimed to find out the appropriateness and challenges of the team project collaboration for encourage entrepreneurial idea generation and possibility of impacting entrepreneurial self-employment intent on the students of two majors (real estate management and project management). Entrepreneurial intent of the graduating students could best be inspired and impacted with the use of effective training approaches [60, 59, 55 and 63]. The research reported is an indication for a future research on large population sampling of real estate students in public universities in Malaysia.

4.2 Population sample procedure

The population selection was purposive in nature targeted at a selected group of students. The selection of the Real Estate Management department was on the ground of the challenges facing the profession. Also, need to verify the strength and weakness of a specific teaching methodological approach for entrepreneurship course delivery. The real estate management profession noted to be one the most invaded by other professionals in built environment [57, 56, 1 and 10]. Therefore, there is the need to re-strategising the profession for a sustainable future. To combat the present challenges and position for the future economic uncertainty, clearly demands a more enterprise education on the student of real estate management profession. The student population selected comprises of Real Estate and Facilities Management students. The statistical percentages were presented in the data analysis section below.

4.3 Data collection instrumentation design

In the research; quantitative methodological approach adopted with the use of the questionnaire as data collection instrument. The questionnaires administered directly to the second year student of the UTHM students at two different stages (Time 1 and Time 2) of the business team project 2012. Several researchers supported the suitability of employed teaching methodological approach. David & Sutton [9] and Creswell [8] noted that generalization of the quantitative research findings is a tool used by the government and stakeholders for policies development, improvement and adoption. The design of the questionnaire structured into four sections: The student demographical section; student awareness and motivation; interaction and networking of the students in the BTPC; human resource capacities (educators and guest entrepreneur); entrepreneurial capacity outcome of the student. All the questions in the questionnaires adopted from renowned past scholars research work, as an acceptable validation criterion (tested and re-tested validated approach) in a research process [9 and 66]. Hence, the validation and reliability of the questionnaire based on the past research works of Cheng [5] and used five Likert scales of measurement for the students' response on all the sections structured question respectively. Some of the adopted questions, sources of adoption, SPSS analysis software reliability alpha (α) Cronbach's factors presented in the Appendix 1.

V. Research data analysis and findings

5.1 Data analysis

The summary of the descriptive analysis of the demographic standing of the respondents were presented in Table 1. A total of Seventy-two (72) student participated in the BT-PPP. The percentage of real estate students is 83.1 percent as against 13.9 percent of the facilities management students respectively. The questionnaires administered at two stages during the program at time (t1), and instantaneously the following sets of questionnaires administered at the completion of the training program (t2). The rate of response on the questionnaire was hundred percent due to the compulsory nature of the program for all the third year student of both majors.

Table 1: The students' demographic information

Sample Demographic background			Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Department	Real estate management	62	86.1	86.1	86.1
		Facilities management	10	13.9	13.9	100.0
		Total	72	100.0	100.0	
	Gender	Male	24	33.3	33.3	33.3
		Female	48	66.7	66.7	100.0
		Total	72	100.0	100.0	
	Ethnicity	Malay	41	56.9	56.9	56.9
		Chinese	31	43.1	43.1	100.0
	Total	72	100.0	100.0		

Therefore, students of the real estate management are the majority of the entire population of the training program. Also, the proportion of female to male in the population studied, is at ratio 2:1, where females are the predominate respondents. The difference in percentages between both races, Malay and Chinese, are less significant as presented in Table 3.

The SPSS analytical software employed to compute the data collected. The reliability test of the questionnaire is to verify the consistency of the findings and internal reliability of the scales of measurement (multi-item scales). The test conducted using Cronbach's Alpha Reliability Measure. The internally consistent scales acceptable for a questionnaire design is when the Cronbach's Alpha (α) is above 0.60 [40 and 61]. Therefore, the sectional reliability tests of the questionnaires used for data collection in the BT-PPP program presented in the table 5. The overviews of the Cronbach's Alpha (α) of all scales are above the recommended cronbach's alpha (α) minimum value of 0.60. Therefore, we assumed internally consistent scales.

5.2 Research findings

The data collected analysed through the SPSS statistical software, paired t-tests. The purpose is to determine the suitability-fitness and significance of the BT-PPP teaching methodological approach with all the measured variables and its impact on the entrepreneurial self-employment intention of the students of real estate

and facilities management. The synopsis of the analysed data tabulated in the Table 2 (T1 & T2 evaluation measurement with their differential values).

Table 2: Evaluation measurement of T1 & T2 and Impact of BT-PPP on students' business idea development toward venture creation self-employment intention

Measured variables	Nos. of question items	Mean (average)	Standard deviation	
T1 measurement :				
• Students' demographic information	8	Not applicable	Not applicable	
• Students' awareness and motivation	13	3.55	0.653	
• Students' interaction and networking	5	3.23	1.286	
• Entrepreneurial learning outcome (value creation) and self-employment intention	12	2.43	1.652	
T2 measurement:				
• Students' awareness and motivation	13	3.67	0.520	
• Students' interaction and networking	5	3.80	0.345	
• Entrepreneurial learning outcome (value creation) and self-employment intention	12	3.53	0.981	
T2 – T1 measurement:	Not applicable	Mean (average) difference	Standard deviation	Level of sig.
• Students' awareness and motivation		0.12	0.213	0.035
• Students' interaction and networking		0.57	1.301	0.007*
• Entrepreneurial learning outcome (value creation) and self-employment intention		1.10	1.426	* 0.001*

*p<0.05, **p<0.001

This research was interested in examining whether these means (T2 and T1 measurement) differed significantly. The Table 6 presented the findings. It shows that the mean (students: awareness and motivation; interaction and networking; entrepreneurial learning outcome value creation and self-employment intention) for all the respondents at the two point measurement were significantly different. The SPSS statistical analysis t-test shows significant positive impact of the BT-PPP teaching method on all measured variables (SAM, SIN, and SELOSI). The students responded more positively towards all the units' of questions under variables SIN AND SELOSI respectively. The analysis regarding the impact of the teaching approach on the overall students business idea development toward business start-up initiative positively influenced, and most significant are at the 0.01 level (p = 0.007 and 0.001) for the both cases of students' entrepreneurial interaction and networking; entrepreneurial learning outcome (value creation) and self-employment intention respectively. However, all questions regarding, how valuable was your entrepreneurial knowledge gained after the BT-PPP program to your idea development; opportunity recognition; analytical problem solving capacity; business decision; risk taking proficiency; self-employment intention, all received most strongly responses. Consequently, the most challenge consideration is the sustenance of this significant impact after the completion of the academic programmes for the real life implementation of the venture creation.

V. Discussion of research findings

The findings of this research practically supported the works of past renowned researchers contribution in the field of entrepreneurship education [50, 47, 24 and 13]. In addition, the teaching approach demonstrated the realistic process nature of the entrepreneurship activity. In particular, research further consolidated the assertion of Rasmussen & Sorheim [60] business idea development can only be initiated with the use of modern and active based learning approach not by the stereotypical teaching style. Furthermore, findings indicated that training the students of HEIs for the idea recognition and development, innovation of existing ventures of business is beyond the classroom theoretical ideology far into networking and practical interaction among the students, academic and industry collaboration, with an experienced entrepreneur for a balanced input from all

parties. The issue on developing appropriate ways on how to impact the education need a collective collaboration between all the stakeholders; educators, public and private bodies, government and with the paramount commitment from the target respondent (students). This is in the light of Kolvereid and Isaken [33] emphasis in their research publication on the important of joint collaboration from all the parties in the education policy maker. The research also indicated a positive demonstration that effective entrepreneurship education could guarantee a sustainable and impacting entrepreneurial attitudinal change toward self-employment as a career option among the graduates of the higher institutes of education. In this regard, appreciable motivation and risk taking proficiency could be positively increased for the entrepreneurial venture creation for the future self-employment intention. Krueger and Dickson [38] assertion "How believing in ourselves increases risk taking perceived self-efficacy and opportunity recognition" is a fact and determinant of self-employment intention as a career option.

VI. Conclusions and recommendation

Entrepreneurship education is a process, the channel to inculcate entrepreneurial mind set on the students of higher education and guarantee dynamic graduates can only be actualised with the use of out of classroom learning initiative. The indication is that formulaic academic philosophy cannot impact any remarkable impetus and motivate the graduating students for an innovative entrepreneurial idea development to business venture creation. In fact, real estate management is a dynamic and competitive innovation driven profession, operating in a turbulent and volatile economy. The university policy makers need to educate and train their employee (educators) to develop innovative and dynamic pedagogical approach for teaching enterprise education across all the profession especially the challenged business managers of the built environment.

In fact, Drucker [12] idealistic statement is now a reality, the panacea for the universities of the 21st century as giants of knowledge think tanks of the current era depends on training the new generation of universities graduates both innovation and entrepreneurship. He concluded, the focus of the new economic world, would not be based on productivity, information, technology but, knowledge based of the dynamic individual (graduates) who uses the information, technology and breed innovative business concept that can challenge world problems.

The research demonstrated a practical exploratory evaluation of the BT-PPP method in teaching entrepreneurship education, its suitability-fitness of impacting business idea recognition, idea development to business venture creation among the students of real estate and facilities management in Universiti Tun Hussein Onn Malaysia.

The limitations of the research are on the area of funding, time duration of the study and size of the population sample used. Therefore, there is the need to cover larger population size for the effective generalization of the objective seeks with precise measurement of analysis of the target concept for educational policy recommendation and onward future implementation. In summary, developing a robust innovative capacity reform in the university system in term of human resources capacity, infrastructure facilities, funding and using modern teaching initiative (e-learning) with the support of active practical based learning approaches. A strong recommendation is complete integration of entrepreneurship courses across all levels of the tertiary institution and entrepreneurship activity is not one day process. This implies entrepreneurship training need considerable time more than one semester program most university apportioned the entrepreneurship course in tertiary institutions, in order to reduce the number of risk averter and increase the quality and quantity of the entrepreneurial risk loving graduates for a sustainable future. In the nut shell, the practical reality is that enterprise education stand a risk of it is the manifestation on the new crop of university collegian. Therefore, is either we invest positively toward entrepreneurship, through a systematic modern pedagogical application or infect the future generation profligately.

Reference

- [1] S. Abdul, S. Mustapa, and H. Adnan, Facility Management Challenges and Opportunities in the Malaysian Property Sector, *Journal of Sustainable Development*, Vol. 1 (2), 2008, 79–85.
- [2] A. Ardichvilia, R. Cardozob and S. Rayc, A theory of entrepreneurial opportunity identification and development", *Journal of Business Venturing*, Vol. 18 No. 1, 2003, 105–123.
- [3] A. and Azlan, B., Getting more graduates to become entrepreneurs, Retrieved August, 2012, from <http://skorcareer.com.my/blog/unemployment-issue>, 2009.
- [4] K. Boge, Learning to think- outside the box, Learning by Developing – New Ways to Learn Proceedings of Conference on Creativity, *Interdisciplinary Studies Journal*, Vol. 2 (3), 2013, 26-36.
- [5] Y. Cheng, M., S. Chan, W. and A. Mahmood, The effectiveness of entrepreneurship education in Malaysia, *Education + Training*, Vol. 51 (7), 2009, 555–566.
- [6] S. Cooper, C. Bottomley, and J. Gordon, Stepping out of the classroom and up the ladder of learning: An experiential learning approach to entrepreneurship education, *Industry & Higher Education*, Vol. 18 (1), 2004, 11-22.
- [7] N. Culkun, Developing Excellence in Entrepreneurship – From Business Facing to Business Creating, Received from: www.ncee.org.uk/developing-entrepreneurial-graduates, 2010, 1–24.

- [8] W. Creswell, J. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (2nd Ed.), (London: SAGA publications, 2003).
- [9] M. David, and C. Sutton, (ED), *Social Research*, (London: SAGA publications, 2011).
- [10] E. D'Arcy, and P. Taltavull, Real estate education in Europe: some perspectives on a decade of rapid change, *Journal of European Real Estate Research*, Vol. 2 (1), 2009, 69–78.
- [11] F. Delmar, and P. Davidsson, (2000), Where do they come from? Prevalence and characteristics of nascent entrepreneurs, *Entrepreneurship and Regional Development*, Vol. 12, 2000, 1-23.
- [12] F. Drucker, P., (1985), *The Practice of Entrepreneurship: Innovation and Entrepreneurship Practice and Principles*, Harper & Row, New York, 1985, 141-188.
- [13] A. Fayolle, and Gailly, (2008), From craft to science: Teaching models and learning processes in entrepreneurship education, *Journal of European Industrial Training*, Vol. 32 (7), 2008, 569–593.
- [14] A. Fayolle, and M. Degeorge, *International entrepreneurship education: issues and newness*, (Eds), (Fayolle, A., and Klandt, H Edward Elgar Publishing, USA, 2006).
- [15] A. Fayolle, B. Gailly, and N. Lassas-Clerc, (2006), Assessing the impact of entrepreneurship education programmes: a new methodology, *Journal of European Industrial Training*, Vol. 30 (9), 2006, 701–720.
- [16] N. Franke, and C. Luthje, Entrepreneurial intentions of business students: a benchmarking study, *International Journal of Innovation and Technology Management*, Vol. 1 (3), 2004, 269-88.
- [17] N. Garavan, T. and B. O'Conneide, Entrepreneurship education and training programs: A review and evaluation -part 2, *Journal of European Industrial Training*, Vol. 18 (11), 1994, 13-21.
- [18] A. Gibb, Concepts into practice: meeting the challenge of development of entrepreneurship educators around an innovative paradigm: The case of the International Entrepreneurship Educators' Programme (IEEP), *International Journal of Entrepreneurial Behaviour & Research*, Vol. 17 No. 2, 2011, 146–165.
- [19] A. Gibb, (2002), In pursuit of a new “enterprise” and “entrepreneurship” paradigm for learning: creative destruction, new values, new ways of doing things and new combinations of knowledge, *International Journal of Management Reviews*, (4), 2002, 233-269.
- [20] T. Gerba, D., The context of entrepreneurship education in Ethiopian universities, *Management Research Review*, Vol. 35 (3/4), 2012, 225–244.
- [21] Y. Gurol, and N. Atsan, Entrepreneurial characteristics amongst university students: Some insights for entrepreneurship education and training in Turkey, *Education + Training*, Vol. 48 (1), 2006, 25-38.
- [22] J. Heinonen, and A. Poikkijoki, S., An entrepreneurial-directed approach to entrepreneurship education: mission impossible?, *Journal of Management Development*, Vol. 25 (1), 2006, 80–94.
- [23] C. Henry, M. Hill, F., and M. Leitch, C., Entrepreneurship Education and Training: Can Entrepreneurship be Taught Part1, *Education and Training*, Vol. 47 (2), 2005, 98-111.
- [24] C. Henry, M. Hill, F. and C. Leitch, C., The effectiveness of training for new business creation, *International Small Business Journal*, Vol. 22 (3), 2004, 249-271.
- [25] D. Hisrich, R., P. Peter, M. and A. Shepherd, D., *Entrepreneurship: A Process Perspective*, 6th ed., (McGraw-Hill Irwin, New York, 2005).
- [26] B. Hynes, Entrepreneurship Education and Training – Introducing Entrepreneurship into non-business Disciplines, *Journal of European Industrial Training*, Vol. 20, (8), 1996, 10-17.
- [27] C. Jones, H. Matlay, and A. Maritz, Enterprise education: for all, or just some?, *Education + Training*, Vol. 54 (8), 2012, 813 – 824.
- [28] R. Kao, *Who is an Entrepreneur?* In Donckels, R. and Miettinen, A., eds. *New Findings and Perspectives in Entrepreneurship*, (Aldershot: Avebury, 1990).
- [29] N. Kayed, R., and K. Hassan, M., Saudi Arabia's economic development: entrepreneurship as a strategy, *International Journal of Islamic and Middle Eastern Finance and Management*, Vol. 4 (1), 2011, 52–73.
- [30] Y. Keat, O., C. Selvarajah, and D. Meyer, Inclination towards entrepreneurship among university students: An empirical study of Malaysian university students, *International Journal of Business and Social Science*, Vol. 2 (4), 2006, 206–220.
- [31] C. Klandt, H., and Volkmann, Development and prospects of academic entrepreneurship education in Germany, *Higher Education in Europe*, Vol. 31 (2), 2006, 195-208.
- [32] A. Klegeris, and H. Hurren, Impact of problem-based learning in a large classroom setting: student perception and problem-solving skills, *Advances in physiology education*, Vol. 35 (4), 2011, 408–15.
- [33] L. Kolvereid, and E. Isaken, New business start-up and subsequent entry into self-employment, *Journal of Business Venturing*, Vol. 21, 2006, 866-885.
- [34] F. Kuratko, D., The emergence of entrepreneurship education: development, trends and challenges”, *Entrepreneurship theory & practice*, Vol. 29, (5), 2005, 577-598.
- [35] F. Kuratko, D., and M. Hodgetts, R., *Entrepreneurship: Theory, Process and Practice*, 6th ed., (South Western, OH, 2004).
- [36] N. Krueger, F., The impact of prior entrepreneurship exposure on perceptions of new venture feasibility and desirability, *Entrepreneurial theory and practice*, vol. 18 (1), 1993, 5-21.
- [37] N. Krueger, F., D. Reilly, M., and L. Carsrud, A., Competing models of entrepreneurial intentions”, *Journal of Business Venturing*, Vol. 15 (3), 2000, 411-432.
- [38] R. Krueger, J., and R. Dickson, P., How believing in ourselves increases risk taking perceived self-efficacy and opportunity recognition, Vol. 5 (3), 1994, 385-400.
- [39] H. Landstrom, *Pioneers in Entrepreneurship and Small Business Research*, (New York, Springer Science+Business Media, Inc, 2005).
- [40] M. Litwin, S., *How to Measure Survey Reliability and Validity*. (Thousand Oaks: SAGE Publications, Inc, 1995).
- [41] Z. Li. and Y. Liu, Entrepreneurship education and employment performance: an empirical study in Chinese university, *Journal of Chinese Entrepreneurship*, Vol. 3 (3), 2011, 195-203.
- [42] C. Luthje, and N. Franke, The making of an entrepreneur: testing a model of entrepreneurial intention among engineering students at MIT, *Research and development Management*, Vol. 33 (2), 2003, 135-147.
- [43] G. Nabi, R. Holden, and A. Walmsley, Entrepreneurial intentions among students: towards a re-focused research agenda. *Journal of Small Business and Enterprise Development*, Vol. 17 (4), 2010, 537–551.
- [44] P. Nkirina, S., The challenges of integrating entrepreneurship education in the vocational training system: An insight from Tanzania's Vocational Education Training Authority, *Journal of European Industrial Training*, Vol. 34 No. 2, 2010, 153–166.
- [45] M. Mansor, and N. Othman, Consulting-Based Entrepreneurship Education in Malaysian Higher Education Institutions, *International Conference on Social Science and Humanity*, Vol. 5 (1), 2011, 163–167.

- [46] Malaysia, Developing Soft Skill Competency for Malaysian Institute of Higher Education, Putrajaya: Ministry of Higher Education”, (2006a), Retrieved June, 2012, from <http://www.alumi.upm.edu.my/employment>.
- [47] H. Matlay, Contemporary training initiatives in Britain: a small business perspective, *Journal of Small Business and Enterprise Development*, Vol. 11 (4), 2004, 504-513.
- [48] H. Matlay, Researching entrepreneurship and education. *Education and Training*, Vol. 48, (8&9), 2006, 704-718.
- [49] H. Matlay, and C. Carey, Entrepreneurship education in the UK: a longitudinal perspective. *Journal of small Business and Enterprise Development*, Vol. 14 (2), 2007, 252-263.
- [50] H. Matlay, The impact of entrepreneurship education on entrepreneurial outcomes. *Journal of Small Business and Enterprise Development*, Vol. 15 (2), 2008, 382-392.
- [51] MHR, Human resources ministry of Malaysia- “Malaysia and the growing unemployment issue, 2012, Retrieved Sept, 2012, from <http://edree.wordpress.com/2011/06/15/malaysia-and-the-growing-unemployment-issue>.
- [52] J. Mitra, and H. Matlay, Entrepreneurial and vocational education and training: lessons from eastern and central Europe, *Industry and Higher Education*, Vol. 18 (1), 2004, 53-69.
- [53] MOHE, The Ministry of Higher Education - Mission and Vision, 2004, Retrieved Sept, 2012, from www.mohe.gov.my.
- [54] MOHE, Implementation Plan for Development of Innovative Human Capital at Tertiary Level, 2010, Retrieved Sept, 2012, from www.mohe.gov.my/portal/images/utama/penerbitan/MOHE
- [55] S. Mwasalwiba, E. Entrepreneurship education: a review of its objectives, teaching methods, and impact indicators, *Education + Training*, Vol. 52 (1), 2010, 20–47.
- [56] T. Oladokun, T., An evaluation of the training needs of Nigerian estate surveyors for corporate real estate management practice, *Property Management*, Vol. 30, 2012, 86–100.
- [57] A. Oloyede, S., A. Ayedun, C. and O. Ajibola, M., Issues facing the Estate Surveying and Valuation Profession in Nigeria, *Society for Business and Management Dynamics*, Vol. 1 (2), 2011, 54-60.
- [58] N. Othman, N. Hashim, and H. Wahid, Readiness towards entrepreneurship education: Students and Malaysian universities, *Education + Training*, Vol. 54 (8/9), 2012, 697-708.
- [59] P. Piperopoulos, Could higher education programmes, culture and structure stifle the entrepreneurial intentions of students?, *Journal of Small Business and Enterprise Development*, Vol. 19 (3), 2012, 461–483.
- [60] E. Rasmussen, and R. Sorheim, Action-based entrepreneurship education, *Technovation*, Vol. 26, (2), 2006, 185–194.
- [61] S. Sarantakos, *Social Research* 3rd (ed.), (New York: Palgrave Macmillan, 2005).
- [62] A. Shapero, and L. Sokol, The social dimensions of entrepreneurship”, in Kent, C., Sexton, D. and Vesper, K. (Eds), *The Encyclopedia of Entrepreneurship*, (Prentice-Hall, Englewood Cliffs, NJ, 1982), 72-90.
- [63] J. Smith, A., A. Collins, L. and D. Hannon, P., Embedding new entrepreneurship programmes in UK higher education institutions: Challenges and considerations, *Education + Training*, Vol. 48 (8/9), 2006. 555–567.
- [64] V. Souitaris, S. Zerbinati, and A. Andreas, Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning inspiration and resources, *Journal of Business Venturing*, Vol. 22 (4), 2007, 566-591.
- [65] R. Suzana, and R. Kasim, Malaysian Higher Education Institutions : Shaping an Entrepreneurial Agenda”, *International Journal of Information Technology*, Vol. 1 (2), 2011, 163-170.
- [66] R. Thompson, E., Individual entrepreneurial intent: Construct clarification and development of an internationally reliable metric, *Entrepreneurship Theory and Practice*, Vol. 33 (3), 2009, 669-694.
- [67] A. Timmons, J. and S. Spinelli, Jr, *New Venture Creation: Entrepreneurship for the 21st Century*, 6th ed., (McGraw-Hill/Irwin, Boston, MA, 2004).
- [68] M. Velmurugan, J., D. Kalaisevan, D. and P. Rameswari, Innovation and Entrepreneurship in a Global Economy, *Journal of business Management & Social Sciences Research*, Vol. 2 (2), 2013, 1–9.
- [69] G. Watson, The DNA of an Entrepreneur, 2012, Retrieved June 24, 2012, from <http://www.DNAofanEntrepreneur.com>
- [70] A. Yasruddin, A. Mahmood, A. anad A. Jaafar, N., Students’ Entrepreneurial Inclination at a Malaysian Polytechnic : A Preliminary Investigation, *International Education Studies*, Vol. 4 (2), 2011, 198–207.
- [71] M. Yusof, Z. Abdul-Samad, F. Hassan, Z. Darus, M. Mohamed, and A. Zaharim, Academic entrepreneurship and innovation in higher education: An integrated framework for Malaysian universities”, *Journal of Advance Educational Technologies*, Vol. 1, 2010, 263-274.
- [72] L. Zaidatol, A., anad S. Abdullah, S. A., Exploring the entrepreneurial Mindset of Students: Implication for Improvement of Entrepreneurial Learning at University, *Journal of International Social Research*, Vol. 2 (8), 2009, 163-167.
- [73] N. Zainal, S.D., Are graduates to be blamed? Unemployment of Computer Science Graduates in Malaysia, 2009, Retrieved Sept., 2012, from aabss.org/journal2008

Appendix 1: Questionnaire constructs sections with their alpha Cronbach’s values

Questionnaire section construct	Sources of adopted questions	No of items (questions)	Alpha Cronbach’s value	
			Time (1) value	Time (2) value
Students’ awareness and motivation (SAM)	To what extent was your awareness and agreement to business team project collaboration (BT-PPP) program:	13	0.879	0.907
	<ul style="list-style-type: none"> • Your lecturer educated you about the BT-PPP • Your lecturer explained the idea and benefits of BT-PPP to you. • Your lecturer encouragement inspired your participation in the BT-PPP. • Your head of department explained the benefits 			

	<p>of the BT-PPP to you.</p> <ul style="list-style-type: none"> Your head of department encouragement inspired your participation in the BT-PPP. The role of the guest entrepreneur in BT-PPP was valuable. The present of the guest entrepreneur in the BT-PPP was valuable. The constructive ideas from the guest entrepreneur in the BT-PPP were beneficial. Guest entrepreneur explained the important of idea development in business start-up. The constructive ideas of the guest entrepreneur were beneficial for your team business idea development. The industry representative explained ways of identify opportunities for business start-up development. The guest entrepreneur and industry representative explained challenges of idea generation. The guest entrepreneur explained challenges of idea generation. <p align="center">(Adopted from Boge, 2013).</p>			
Students' interaction and networking (SIN)	To what extent do you interact and networked in the BT-PPP program:	5	0.724	0.712
	<ul style="list-style-type: none"> How well do you interact with the guest entrepreneur during the BT-PPP program? How well do you interact with the industry representatives during the BT-PPP program? How well do you interact with the lecturers during the BT-PPP program? How well do you interact with the other students during the BT-PPP program? How well do you believe the networking collaboration between all the participants assisted your team in the idea development to the business start-up establishment? <p align="center">(Adopted from Kolvereid & Isakson, 2006; Souitaris et al., 2007).</p>			
Students' entrepreneurial learning outcome (value creation) and self-employment intention (SELOSI)	To what extent do you rate your entrepreneurial self-employment intention capacity after participation in the BT-PPP:	12	0.959	0.920
	<ul style="list-style-type: none"> How valuable was the interaction with the other students contributed to your entrepreneurial outcome knowledge gained in the BT-PPP? How valuable was the interaction with the industry representative contributed to your entrepreneurial outcome knowledge gained in the BT-PPP? How valuable was the interaction with the guest entrepreneur contributed to your entrepreneurial outcome knowledge gained in the BT-PPP? How valuable was the interaction with the 			

	<p>entrepreneurial educators contributed to your entrepreneurial outcome knowledge gained in the BT-PPP?</p> <ul style="list-style-type: none">• How valuable was your entrepreneurial outcome knowledge gained in the BT-PPP to your team business idea development?• How valuable was your entrepreneurial outcome knowledge gained in the BT-PPP to your business idea development?• How valuable was your entrepreneurial outcome knowledge gained in the BT-PPP to your business idea recognition to business start-up development?• How valuable was your training outcome knowledge gained in the BT-PPP to your analytical problem solving capacity?• How valuable was your entrepreneurial outcome knowledge gained in the BT-PPP to your risk taking proficiency?• How valuable was your entrepreneurial outcome knowledge gained in the BT-PPP to your business communication and presentation skills?• How valuable was your entrepreneurial outcome knowledge gained in the BT-PPP to your team business decision dynamic?• How valuable was your entrepreneurial outcome knowledge gained in the BT-PPP to your self-employment intention? <p>(All questions adopted from Kolvareid & Isakson, 2006; Boge, 2013; Souitaris et al., 2007).</p>			
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