

## Conference Paper

# Nurture Students Soft Skills Through Project-oriented Problem-based Learning Approach in Siswa@Fesyen

Rahimah Jamaluddin<sup>1</sup>, Anis Zakaria<sup>1</sup>, Rosnani Jusoh<sup>1</sup>, and Arasinah Kamis<sup>2</sup>

<sup>1</sup>Department of Science and Technical Education, Faculty of Educational Studies, Universiti Putra Malaysia

<sup>2</sup>Faculty of Technical & Vocational, Sultan Idris Education University, Tanjung Malim, Perak

## Abstract

The quality of graduates should be strengthened to enhance their marketability after graduation. Unemployment issues among graduates in Malaysia are still reported to be high. Several factors have contributed to the occurrence of this situation including the lack of soft skills in graduates. This article discusses the role, implementation, and outcomes of Siswa@Fesyen programs that have been implemented to nurture student's soft skills through Project-oriented Problem-based Learning (PoPBL). The Siswa@Fesyen program involves 40 final-year students from the Bachelor of Home Economics Education at Universiti Putra Malaysia. Qualitative studies involving observation and interviews were conducted to review the program's outcomes in nurturing student's soft skills and character development. Students' feedback shows that this program has successfully achieved the main objective which is to nurture student's soft skills as well as strengthening student's sewing skills in producing fashion designs. Finally, the findings show that the Siswa@Fesyen program can be a significant platform to nurture soft skills and thus provide students with the opportunity to face the working environment and life after graduation.

**Keywords:** soft skills, PoPBL, fashion entrepreneurs, entrepreneurship outcomes

## 1. Introduction

Education is the ultimate platform in creating and producing excellent human capital aiming towards Malaysia being a developed country by 2020. Students must be equipped with a variety of skills including cognitive, psychomotor and soft skills that will be added value to the students. These three aspects need to be addressed as they affect the students when they move into the realm of work environment. Unemployment issues among tertiary educated youths in Malaysia were reported high and accounted for 3.4% of the total 15.3% unemployment rate in Malaysia for the year 2018. The main cause of unemployment is due to the absence of soft skills and employability skills among graduates. Hence, the government has implemented various approaches to address

Corresponding Author:  
 Rahimah Jamaluddin  
 imah\_upm@upm.edu.my

Received: 11 January 2019  
 Accepted: 14 February 2019  
 Published: 25 March 2019

Publishing services provided by  
 Knowledge E

© Rahimah Jamaluddin  
 et al. This article is distributed  
 under the terms of the [Creative  
 Commons Attribution License](#),  
 which permits unrestricted use  
 and redistribution provided that  
 the original author and source  
 are credited.

Selection and Peer-review under  
 the responsibility of the 3rd  
 ICTVET 2018 Conference  
 Committee.

 OPEN ACCESS

this problem with the 2013-2025 Education Transformation Plan by empowering the nation's education system.

Soft skills are the skills of a person in dealing with others (interpersonal skills) and skills in organizing themselves (intrapersonal skills) which are able to develop an individual to reach maximum performance [1]. Soft skills can generally be nurtured through active involvement of learners in the learning environment [2]. Problem based learning (PBL) and Project Oriented Problem Based Learning (PoPBL) was identified as effective approaches in promoting students' soft skills [3; 4; 5]. The PoPBL is a teaching learning method that promotes deeper learning by exposing students to experiential learning [6] through three inter-related components, namely, problems, project and team work [7].

Entrepreneurship has currently become a compulsory subject in tertiary level education. Entrepreneurship education has been identified as a determinant in entrepreneurship intentions and outcomes [8; 9; 10; 11; 12]. In the context of Malaysia, several researches have been done to study the impact of entrepreneurship education, particularly related with hands-on and practical trainings in the areas of fashion. In response to the extremely high demand of fashion industry in Malaysia, this program provides a platform for students to gain experience by learning through doing and nurturing their entrepreneurship intentions through the PoPBL approach. By participating in this program, students would not only enhance their soft skills but will also have the opportunity to gain knowledge and confidence to step up to a more challenging world of business. Thus, this paper discusses the role, implementation and outcomes of the *Siswa@Fesyen* program in nurturing student's soft skills through the Project Oriented Problem Based Learning (PoPBL).

## 2. Entrepreneurship and Project-oriented Problem-based Learning (PoPBL)

This project utilized the theoretical concepts of Entrepreneurship Intentions Model introduced by Ajzen [13]. [13] identified three elements responsible for encouraging entrepreneurial behavior which are entrepreneurship knowledge, personal attitudes, and entrepreneurship intentions. The model presupposes that the interaction of these three variables ultimately define an individual's proclivity towards entrepreneurship. Referring to the Model of Entrepreneurship Learning [14] and Kolb Learning Model [15], the formation of skills and behavior are influenced by how the learning process occurs. In consistent with that, [16] clarified that the pedagogy used for entrepreneurship

education should be carried out in various learning environments [17] which involves an active role of students in the learning process [18].

Project Oriented Problem Based Learning (PoPBL) refers to teaching methods that enable students to acquire and apply knowledge, skills and real experience in real situations. According to Carl Rogers, experiential learning emphasizes more on student needs and wants. Among the principles emphasized by Carl Rogers is that meaningful learning will occur when the subject of learning is relevant to the student's interests and self-initiated learning will last longer. Three key features of PoPBL are student-centered, self-directed and collaborative learning that focuses on real world issues and may involve stakeholder engagement [19].

[20] in their research towards implementing PoPBL in the introduction to programming course found that students are highly motivated and satisfied with the implementation of PoPBL. They reported that the implementation of PoPBL successfully improved their students' soft skills such as communication between teammates [1; 3], planning as well as their students' technical skills in analyzing real world problem, designing the structured solutions and developing products. In accordance with the study

[21] it is indicated that PoPBL increased students' motivation, mastery of the subject matter and enhanced critical thinking skills that will challenge students to think out of the box.

Entrepreneurship intention is defined as the growing conscious state of mind where a person desires to start a new enterprise or create a new core value in an existing organization [22]. In simple words, entrepreneurship intention means that an individual want to start some entrepreneurship activities. In a previous study by [3], they integrated PoPBL and soft skills entrepreneur oriented in their course and found that students who through the PoPBL learning model increase in problem solving, able to establish relationships and collaboration with team members to carrying out the action and work [23]. Individuals who have greater entrepreneurial characteristics tend to have higher intentions in starting their own businesses. Entrepreneurial intention is influenced by several characteristics such as education, knowledge and prior experience [24; 25; 9].

In line with this, [12] indicated that the development of entrepreneurial skills can be improved by providing a learning environment in which students interact with real business people in live projects. This will result in the development of entrepreneurship spirit, and a capital for early students in addition to hard skills so that they can plunge into the community to face global competition [3].

### 3. Implementation of Siswa@Fesyen Programs

The Siswa@Fesyen program is designed specifically for final year students who enrolled in the Clothing Management III course in the 1st semester of 2016/2017. This program was designed uniquely by considering the need to allow the students to experience running a business through Project Oriented Problem Based Learning (PoPBL). Students of this program were given intensive training to enable them to master relevant skills and knowledge to become fashion entrepreneurs as well as to nurture and develop students' soft skills through group work. In implementing this PoPBL, students were given a weighting of 30 percent for coursework marks.

Another consideration made in this program was to have the mentor-mentee system. Ten fashion entrepreneurs were invited to contribute to the success of this program. Community involvement in this program is expected to enable students to experience working in a real environment. Students were then divided into ten groups randomly with one mentor for each group. Mentors were nearby community members who participated in this program voluntarily. The mentor-mentee system was applied in this program with the intention of providing continuous support to the students with business knowledge, skills and current trends related to fashion industry. Indirectly, it was expected that through this program, entrepreneur intention and spirit can be cultivated among the students. Cultivation of soft skill elements is carried out through a variety of activities planned in the program as shown in Table 1.

Implementation of this program applies all the soft skill elements that have been identified to be the attributes that IPT graduates need to master. Soft skill elements that are expected to be applied in the Siswa@Fesyen program are communication skills, critical thinking and problem-solving skills, teamwork skills, learning and information management, entrepreneurial skills, moral and professional ethics, and leadership skills. Description of these soft skills are as follows:

#### 3.1. Communication skills

These skills have been applied as students carry out activities such as group discussions, mentor- mentee discussions, individual pitching, presenting the fashion design proposal, question and answer sessions with the judges and promoting and selling at entrepreneurship carnivals.

TABLE 1: Activities in 'Siswa@Fesyen' Programs.

Activities		Duration
Activity 1: Entrepreneurship Seminar	A forum entitled "Together we build the UPM student entrepreneurs" was held for 3 hours. This forum involved three panelists who are entrepreneurs and currently practicing in the field of fashion. A slot on Business Model Canvas was given immediately after the forum.	3 hours
Activity 2: Business and Skills Training	In this activity, students were assigned to their group and an orientation session was held to meet their group members as well as their mentors. Then each group were given their PoPBL topic. A discussion was made to generate ideas and suggestions for their fashion design proposals as well as their fashion business. Students and mentors are free to meet in order for them to complete the task given in the programs.	1 day
Activity 3: E-Marketing workshop	An e-marketing workshop have been held to provide students and mentors the knowledge and skills on making online marketing using social network such as Facebook. The workshop lasted for one day. At the end of the workshop, students are required to produce an example of marketing on their own Facebook account.	1 day
Activity 4: Entrepreneurship Carnival @ 1 Malaysia	This activity required students to carry out fashion business for two days. Each group was given capital loan of RM800 for them to run a small business. Students need to generate income from this activity and the profit that they gained can be used for their group project. This capital loan was given earlier during the e-marketing workshop and this allowed them an enough time to think and organize their business successfully.	2 day
Activity 5: Fashion design proposal presentation	According to PoPBL, each group need to come out with four or five different fashion design based on the theme given earlier. Students need to prepare a story board as well as technical drawing and then deliver a short presentation within 15 minutes to the lecturer's. Critique were given by the lecturer's and students need to answer and give their justification. After the presentation, students were asked to improve their design based on comment.	1 day
Activity 6: Drafting pattern & sewing process	After getting approval on the design, students may start with the process of pattern drafting, purchasing fabrics and accessories, as well as sewing process. This activity involved teamwork among the group members and their mentor. They need to meet up with their mentor for guidance and learn sewing technique.	5 months
Activity 7: Evaluation session	Evaluation session was held to evaluate the outcomes. In this session, students were required to make an individual pitching and group presentation to describe the features of their design, fabrics and accessories that they used as well as marketing strategies that can be carried out to promote their fashion design to customers. Evaluation session was judged by three judges who were comprised of a fashion designer, a representative of fashion industry and a fashion lecturer.	1 day
Activity 8: Closing Ceremony	A gala night dinner was held with the theme of Arabic Night to celebrate the success of this program. A fashion show was held to showcase the work of the students. Selected students were given awards of entrepreneurial fashion model and received cash prizes. A total of seven prizes were given to the winners for individual categories, one prize for group category and one prize for versatile mentor category. The closing ceremony was attended by 130 guests and it was launched by the vice-chancellor of Universiti of Putra Malaysia.	5 hours

### **3.2. Critical thinking and problem-solving skills**

To simplify the implementation of the program, students need to integrate practical and theoretical knowledge learned previously to fulfil the PoPBL assigned. Examples of activities that require students to think critically is the brainstorming session where they need to come up with new ideas on styling, design, color, pattern as well as fabric selection. Before the students carry out the business at the entrepreneurship carnival @ 1 Malaysia, students should plan the type of business that they can run and also list other activities that can be done to maximize profits.

### **3.3. Teamwork skills**

Throughout the PoPBL approach in the program, most activities required students to work in teams. For example, before the proposal presentation session was made, students need to provide a story board, technical drawing and discuss with group members about the selection of colors, fabrics, style and design as well as discussion on marketing for Facebook, business entrepreneurship and others.

### **3.4. Entrepreneurship skills**

The uniqueness of this program involving the community of fashion entrepreneurs has successfully injected the interest and aspiration of students to venture into entrepreneurship. This project requires students to work with mentors to learn sewing skills and business-related lenses. Collaboration between students and fashion entrepreneurs has produced attractive fashion designs and thus opened their minds to venture into entrepreneurship as a career option. Besides that, at the end of the program students have the opportunity to register their own company.

### **3.5. Lifelong learning and information management**

To carry out the PoPBL, students need to find new information and knowledge from various sources such as library, consumer interviews, market research and others. The information and resources obtained need to be analyzed and this requires effective information management skills. This process encourages the application of lifelong learning skills among the students.

### 3.6. Leadership skills

Throughout the implementation of this PoPBL, students need to work in a team. Team work is one of the main criteria in a student’s assessment. Each member in the group has their respective roles and responsibilities. This can nurture leadership skills among students and they need to solve problems or conflicts that they face in order to complete the task in PoPBL.

### 3.7. Professional ethics and moral values

Professional ethics and moral values applied in the project through various activities such as during practical sewing, discussions with mentor and the presentation session. Students should practice professional ethics and morals throughout PoPBL’s implementation as a preparation and training for them before they go out to the real work environment.

## 4. Student Evaluation

In this program, student evaluation is measured from various aspects and does not only rely on the fashion product itself. It even includes evaluation of the process from the beginning of the program until the end of the closing ceremony. The total score for this project is 200 and this score contributes 30 percent of the course work. Proper planning has been made to ensure that the evaluation used in this PoPBL is parallel with the learning objectives. The evaluation used in PoPBL is shown in Table 2.

TABLE 2: Siswa@Fesyen program evaluation.

Evaluation	Marks
Fashion design proposal (story board & technical drawing)	30
Cooperation with mentor	25
Team work	25
Sales collection/profit from Carnival@1 Malaysia	20
Group evaluation	10
Final report	25
Individual pitching	25
Group presentation	25
Fashion show	15
Total	200/30%

#### **4.1. Rubric matric**

Matrix rubrics are used to assess subjective skills that are difficult to measure. Matrix rubrics are used in this program to measure elements of soft skills such as teamwork, information management, leadership, communication, critical thinking and problem-solving skills, creativity in presentation, reporting, and others based on a Likert scale of 1 to 5.

#### **4.2. Critique**

Critique is one of the powerful assessments that can be used in PoPBL. In this project, critique from judges, lecturer's and also peers were used to evaluate the student outcome. Students need to defend their design and in certain cases, students need to do adjustments to their design based on the critique given by the judges, lecturers or peers.

#### **4.3. Feedback form**

As this program involves a community of mentors, fashion designers and industry representatives, feedback forms on program implementation are developed. The purpose of the feedback was to obtain either a negative or positive input from the community about the programs and activities that were carried out. Received inputs can be used as a guide in planning future activities. A combination of open-ended and Likert-scale questions were used to get personal responses from the communities involved in the program. In addition to evaluating the effectiveness of the program that has been carried out, feedback forms were distributed at the end of the program.

#### **4.4. Report**

Report writing is a form of assessment that requires students to write and report the processes that occurred during the execution of the Siswa@Fesyen program in the form of documentation. This report is provided by groups and students and must show proof of activities carried out during the program.

## 4.5. Presentation

Presentation is an effective method to improve communication skills and self-confidence of students. Through presentation, it trains students to think critically in for them to answer questions and defend their work with reasonable justification. In this program, students need to go through four presentation sessions which are fashion design proposal defense, individual pitching, group presentation and fashion show.

## 5. Findings and Discussion

### 5.1. Student achievement

A majority of the students got a B + and above for this course. Among the factors that contributed to this score were the implementation of the PoPBL program which led to a 30 per cent of total coursework marks. The student scores for PoPBL were between 23 to 28.9 and the average score of PoPBL was 26.6.

### 5.2. Observation

Continuous observation and video recording were made to observe students' soft skills throughout the program. Example; during the students' meeting with their mentor, group discussion, practical classes and others. The first element of soft skills that can be observed through the implementation of this PoPBL is teamwork. It was found that students gave full cooperation and commitment to their group in order to complete the task before the due date. Even though they have to meet their mentor on weekends, they showed real commitment to do so and compete positively with other groups.

In addition to teamwork, students also demonstrated high self-confidence during individual pitching sessions in front of professional judges. Students are able to defend their own designs and give reasonable justification to every critique expressed by the jury. Interestingly, the program has successfully nurtured entrepreneurship intention and interest in the students. This entrepreneurial element can be seen clearly when students carried out sales and business activities at the entrepreneurship carnival @1 Malaysia. Students are very creative in generating income through various activities which required just a small amount of capital.

We also found that students perform well at the beginning of activity 1 until activity 5. Students gave full commitment (100%) at this stage. When it came to activity 6, their

commitment dropped to 60% due to time constraint. Since the students had another assignment and task for other course works, they don't have enough time to be in group and meet their mentors. It was very challenging for them to finish their task in producing a Muslim night dress. However, there are lucky because some of the mentors are very concerned and took the initiative by taking the students to their boutique on Saturday and Sunday.

### 5.3. Interviews

Based on the interviews conducted with the students, most of them gave a positive review. They are very happy to have the opportunity to experience learning through the PoPBL approach. This program gave them lots of benefit. It did not only enhance their soft skills but the most important is that this program successfully inculcated the entrepreneurship intention and interest in their hearts.

This program trained me to work with focus, dare to share ideas with other people, speak and work in a team... and get involved in entrepreneurship.

I'm very excited when my group was announced as the winner.... and I never thought about that... I learned many things from this program...especially my soft skills.

Besides that, they really appreciate support and guidance given by the mentors. Working experience with mentors was very fun and various sewing skills and knowledge was learned from them.

A lot of skills were learned such as communication, group work, presentation, defending my ideas, learned new sewing skills with the mentor and.... Lots more. I appreciate it.

The mentor helped me a lot... especially in the process of making the night dress.

Students hope that this program would be duplicated to their juniors. The program has given them the opportunity to get know more about entrepreneurship and foster their desire to explore this field after graduation. In addition, students also point out that the involvement of professional judges in the evaluation session made them feel proud with their own work.

I like the program because... I feel more confident after doing a few tasks, especially when dealing with professional judges.

The most challenging part was when we needed to run sales activities to generate income, we need to be creative looking for ideas... before this I'm a quite afraid to get involved in entrepreneurship, but after participating in this project... I think... I am ready and interested to try entrepreneurship in the future.

However, there are also complaints about mentors who are did not give cooperation to the students. They need to work independently and seek advice from the lab assistant as well as their friends. They also expressed disappointment because they did not have enough time to complete all the tasks. They rushed in their work and were dissatisfied with their own outcome.

## 6. Discussions and Conclusion

The Siswa@Fesyen program has successfully achieved the objective of cultivating soft skills among students. The implementation of the POPBL in the Clothing Management course has opened a new chapter for students to venture into entrepreneurship. Having skills or knowledge on fashion alone is not sufficient to drive students to become a successful fashion designer or venture into entrepreneurship. But students need support in the form of practical activities or hands-on to enable them to acquire knowledge from their entrepreneurship environment [26; 27]. These findings were supported by [12] who stated that the development of entrepreneurial skills can be improved by providing a learning environment where students interact with real business people in live projects [17; 28; 11].

The main benefits gained by students from this program were they had the opportunity to work and receive extensive exposure, and support and direct guidance from the mentors. The mentoring system indirectly helped increase their interest to venture into fashion entrepreneurship. The more these future entrepreneurs know about the availability of these environmental driving forces, the higher the chances of them developing entrepreneurship intentions [10]. Other than that, respondents also gained countless benefits in regard to soft skills [2; 3; 4] from all the activities planned and they can apply this knowledge in the future. This finding is also consistent with [29] who suggested that entrepreneurship education needs to be taught at the early stages because it does not only cultivate students' entrepreneurship intentions but it can also influence students to choose entrepreneurship as their career upon the completion of their studies [9].

Since the program was carried out simultaneously during the first semester of the 2016/2017 academic calendar and students' schedules were very tight, it is difficult for them to complete the sewing task within the given time period. These circumstances have manifested as constraints for the students to find a suitable time to meet their group members and mentors as they needed guidance and help. Therefore, time consideration plays an important role. Entrepreneurship education programs need to be scheduled in a more structured and timely manner [12] to ensure that the program can be carried out properly.

Very limited studies have been conducted to analyze the impact of the PoPBL approach on entrepreneurship intentions. Hence, this study has been conducted to see the impact of learning by doing activities through a fashion entrepreneurship project known as *Siswa@Fesyen* on students' entrepreneurship outcomes. The results of this study were validated by the Model of Entrepreneurship Learning and Entrepreneurship Intentions Model. The results of this study support the Educational Transformation Plan [30] which aims to create more job creators rather than job seekers among university graduates. The results of this study also demonstrated that prior entrepreneurship experiences considered more significant and more positive impact compared to other main factors on modeling students' future profession. This program can also be a precursor to other universities to multiply such programs in order to nurture students' soft skills as well as entrepreneurship interest among university students.

## Funding

This program was granted by the Entrepreneurship Division and Public-Private Research Network (PPRN), Ministry of Higher Education Malaysia through the Centre of Entrepreneurial Development and Graduate Marketability (CEM), University Putra Malaysia.

## Acknowledgement

The authors acknowledge the support of the Entrepreneurship Division and Public-Private Research Network (PPRN), Ministry of Higher Education Malaysia through Centre of Entrepreneurial Development and Graduate Marketability (CEM), University of Putra Malaysia as well as the mentors, fashion experts and staff for helping us execute the program successfully.

## References

- [1] Pazhani, S. S., & Shanmuga T. (2012). Need for soft skills development towards managerial efficiency. *2(11)*, 1895-1901.
- [2] Blaszczyński, C. & Green, D. J. (2012). Effective strategies and activities for developing soft skills, part 1. *Journal of Applied Research for Business Instruction, A Refereed Publication of Delta Pi Epsilon, Inc*, 1091), 2012, 1-7.
- [3] Sumarti, S. S., & Sudarmin, W. (2015). Project based learning model development on buffer solution materials with soft skills entrepreneur oriented. *The International Journal of Engineering and Science (IJES)*, 4(3), 5-10.
- [4] Fatmawati Latada & Hafizoah Kassim. (2017). Problem-oriented project based learning (PoPBL): An initiative to encourage soft skills expansion among students at a public university, *Journal of Global Business and Social Entrepreneurship (GBSE)*, 1(3), 75-83.
- [5] Noraini Ibrahim & Shahliza Abd. Halim (2013). Implementation of Project-oriented problem-based learning (PoPBL) in introduction to programming course. *The 4<sup>th</sup> International Research Symposium on Problem-Based Learning 2013*, 279-288.
- [6] Moesby, E. (2005). Curriculum development for project-oriented and problem-based learning (PoPBL) as an personal skills and abilities. *Global Journal of Engineering Education*, 9(2), 121-128.
- [7] Du, X., & Jensen, L. P. (2010). *Project-organised and problem-based learning [Electronical Version]*. Retrieved Oktober 2018 from <http://www.control.aau.dk/~lpj/POL/Kursusnavn.html>.
- [8] Hussain, A., & Norashidah. (2015). Impact of Entrepreneurial Education on Entrepreneurial Intentions of Pakistani Students. *Journal of Entrepreneurship and Business Innovation*, 2(1), 2332-8851.
- [9] Matlay, H. (2008). The impact of entrepreneurship education on entrepreneurial outcomes. *Journal of Small Business and Enterprise Development*, 15(2), 382-396.
- [10] Khuong, M. N., & An, N. H. (2016). The factors affecting entrepreneurship intention of the students of Vietnam National University - A mediation analysis of perception toward entrepreneurship. *Journal of Economics, Business and Management*, 4(2), 104-111.
- [11] Doğan\*, E. (2015). The effect of entrepreneurship education on entrepreneurial intentions of university students in Turkey. *Ekonometri ve İstatistik Sayı*, 23, 79-93.

- [12] Chang, J., & Rieple, A. (2013). Assessing students' entrepreneurial skills development in live projects. *Journal of Small Business and Enterprise Development*, 30(1), 225-241.
- [13] Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes*, 50(2), 179-211.
- [14] Hynes, B. (1996). Entrepreneurship education and training - introducing entrepreneurship into non-business disciplines. *Journal of European Industrial Training*, 20(8), 10-17.
- [15] Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. New Jersey: Prentice Hall.
- [16] Gibb, A. (2011). Concepts into practice: Meeting the challenge of development of entrepreneurship educators around an innovative paradigm. *International Journal of Entrepreneurial Behaviour & Research*, 17(2), 146-165.
- [17] Syed Zamberi, A. (2012). The need for inclusion of entrepreneurship education in Malaysia lower and higher learning institutions. *Education and Training*, 55(2), 191-203.
- [18] Cedefop (2009). European guidelines for validating non-formal and informal learning. Luxembourg: Publications Office. Available from Internet [http://www.cedefop.europa.eu/etv/Upload/Information\\_resources/Bookshop/553/4054\\_en.pdf](http://www.cedefop.europa.eu/etv/Upload/Information_resources/Bookshop/553/4054_en.pdf) implementation. *Innovative Higher Education*, 36(2), 107-124.
- [19] Brundiers, K., & Wiek, A. (2011). Educating students in real-world sustainability research: Vision and implementation. *Innovative Higher Education*, 36(2), 107-124.
- [20] Noraini Ibrahim & Shahliza Abd. Halim (2013). Implementation of Project-oriented problem-based learning (PoPBL) in introduction to programming course. *The 4<sup>th</sup> International Research Symposium on Problem-Based Learning 2013*, 279-288.
- [21] Colakoglu, S. N., & Sally, A. S. (2013). The development of critical thinking skills through a service-learning oriented entrepreneurship course. *Journal of Entrepreneurship Education*, 16(special issue), 115-124.
- [22] Bygrave, W. D. (1989). The entrepreneurship paradigm: a philosophical look at research methodologies. *Entrepreneurship Theory and Practice*, 14(1), 7-26.
- [23] Robinson, J. K. (2013). Project-based learning: Improving student engagement and performance in the laboratory. *Anal Bioanal Chem, Springer*, 2013 (405), 7-13.
- [24] Noorkartina, M., Hock-Eam, L., Norhafezah, Y., & Jan-Jan, S. (2015). Estimating the effect of entrepreneur education on graduates' intention to be entrepreneurs. *Education and Training*, 57(8/9), 874-890.

- [25] Krueger, N. F., & Carsrud, A. L. (1993). Entrepreneurial intentions: applying the Theory of Planned Behavior. *Entrepreneurship & Regional Development*, 5(4), 315-330.
- [26] Siok., S. T. & K. Frank Ng, C. (2006). A problem-based learning approach to entrepreneurship education. *Education + Training*. 48. 416-428. 10.1108/00400910610692606.
- [27] Botha, M. (2010). A project-based learning approach as a method of teaching entrepreneurship to a large group of undergraduate students in South Africa. *Education as Change*. 14. 213-232. 10.1080/16823206.2010.522059.
- [28] Norashidah Hashim, Norasmah Othman, & Noraishah Buang. (2009). Konsep kesediaan keusahawanan berdasarkan kajian kes usahawan Industri Kecil dan Sederhana (IKS) di Malaysia. *Jurnal Pendidikan Malaysia*, 34(1), 187-203.
- [29] Kourilsky, M. L., & Walstad, W. B. (1998). Entrepreneurship and female youth: Knowledge, attitudes, gender differences, and educational practices. *Journal of Business Venturing*, 13(1), 77-88.
- [30] Ministry of Education Malaysia. (2012). *Malaysia Education Blueprint (2013-2025)*. Putrajaya: Ministry of Education Malaysia.