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ORIGINAL PAPER

Developing an Entrepreneurship Model to Increase Students' Entrepreneurial Skills: an Action Research Project in a Higher Education Institution in Indonesia

Jhon U. Blesia[1] · Mesak Iek[2] · Westim Ratang[3] · Halomoan Hutajulu[2]

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Abstract
The University of Cenderawasih (Uncen) has developed a locally relevant entrepreneurship education model within its curriculum to increase students' understanding and skills in entrepreneurship. Using an action research project, the university undertook an entrepreneurship project by engaging second-year economic science students in a formal course centered on entrepreneurship activities that provided them with start-up capital, intensive training, apprenticeships and supervision from the project's team members. The findings showed a change in the students' mind-sets, where self-confidence was the most dominant-weighting factor in shaping the students' entrepreneurial spirits. The program provided a major contribution to the national accreditation requirements of the university and resulted in entrepreneurship becoming a compulsory teaching subject across the faculties. The proposed model begins with an administration phase that identifies the students' interests. An assessment is then made of the students' business proposals using in-depth interviews and observations. This is followed by an implementation phase, with the students' entrepreneurship activities as the main project, along with intensive monitoring and evaluation. Institutional commitment and support of the learning environment, finance and coordination among related parties are key contributors to sustaining the program.

Keywords Entrepreneurship education · Model development · Action research · Higher education · The University of Cenderawasih

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✉ Jhon U. Blesia
Jhoe_bless@yahoo.com

Extended author information available on the last page of the article

Introduction

Higher education is a key pillar in constructing new knowledge economies in the twenty-first century. It plays an important role in producing highly skilled entrepreneurs who, later, could take part in developing economies, creating employment and competitiveness (Galloway and Brown 2002; İlhan Ertuna and Gurel 2011). Given its crucial role in contributing to the labor force and responding to changing labor markets' demands in knowledge-based economies, higher education needs to adapt to the dynamic changing environment in which local, national and international labor markets are highly competitive (Guerrero and Urbano 2012). Most countries worldwide have put entrepreneurship in higher education as the top priority and are on the political agenda (Mitra and Matlay 2004); however, challenges are inevitable. Governments are challenged to make higher education more responsive to a competitive labor market and to produce highly educated people for social and economic development (Sam and Van Der Sijde 2014).

As in many other developing countries, the number of entrepreneurs in Indonesia has grown recently but is still relatively low. The entrepreneurship ecosystem in Indonesia is limited to only running respective programs that lack a comprehensive design (Hermanto and Suryanto 2017) and its policy has not been maximally explored (Mirzanti et al. 2015). Although laws relating to entrepreneurship exist, no government programs at the meso level have been found to support entrepreneurship (Mirzanti et al. 2015). The 2013, the Global Entrepreneurship Monitor showed only about 1.65% of Indonesian entrepreneurs from a total population of 250 million. The Global Entrepreneurship and Development Index, in 2014, ranked Indonesia at 68th out of 121 countries in the world. In 2013, it was also classified under the G20 countries in the fourth quartile as the lowest ranking in the entrepreneurship education based on the EY G20 Entrepreneurship Barometer. A low index of human resources, managerial capabilities in implementing business strategies, regulations for conducting business activities and access to capital for novice entrepreneurs and the Indonesian's mindset to still think of getting a job after the completion of study, are among the obstacles to the problems (Hermanto and Suryanto 2017).

Entrepreneurship education is expected to play an important part in changing the mindsets of graduates in higher education from job seekers to job creators. Despite this, the actual implementation of the entrepreneurship education in Indonesia has not been optimal and has not had the same standards (Wiratno 2012). Each education institution has used various practices and had different standards in its implementation. Hermanto and Suryanto (2017) and Handriani (2011) claim that most graduates are still job-oriented instead of being entrepreneurs. A recent study in Indonesia from Aldianto et al. (2018) concludes that the integration of entrepreneurship into the educational context should include integrated inputs, as well as the processes and outputs from entrepreneurship education to encourage for students to learn about value creation. The input is identified through the audience, the institutional setting and type, the process through the objectives, the contents and teaching methods, while the output is represented by entrepreneurial knowledge, spirit and behavior.

Growing support from both the government and private companies has been given to entrepreneurship education in Indonesia. For example, the Ministry of National Development Planning produced its National Long-term Development Plan (RPJPN) for the period 2005–2025 guiding the government to develop their entrepreneurship programs (Mirzanti et al. 2015). In higher education, the government has launched various entrepreneurship programs, such as Students Entrepreneurship Creativity and Cooperative Education Program with Industries (Co-op) in 1998, Co-op with Small Micro Medium Enterprises, in 2003, Students

Entrepreneur Program, in 2009 and the Indonesian Students Entrepreneurship Expo Programs. However, various economic, political and other social issues of the country have posed great challenges in the successful implementation of these programs.

This article is about the development of an entrepreneurship education model at the University of Cenderawasih (Uncen), as the oldest educational institution in Papua, the most eastern province of Indonesia. Uncen is charged with playing an important role in changing the mindsets of its students toward becoming entrepreneurs. With the financial support of the Director of Institutions of Indonesia Higher Education, over a five-year period (from 2008 to 2013), this university sought to increase the students' entrepreneurship by encouraging them to begin trialing small businesses – however, this ended with little impact. This was among several reasons why entrepreneurship at the university was not a mandatory subject in all faculties. From nine faculties and 46 study programs at Uncen, only 17 (37%) of its study programs included entrepreneurship as a subject. The practice of entrepreneurship was also not integral to the curriculum; instead, it situated entrepreneurship as extracurricular activities. The mindsets of Papuans towards entrepreneurship also exacerbated this situation. Both parents and students still consider public employees as a prestigious position in Papua. For most parents, being a public servant is used as a measure of family success and, therefore, they send their children to university with the expectation of them being public servants in the future. The lack of knowledge about entrepreneurship and its skills, start-up capital issues, low self-motivation, difficulty in preparing a business plan, competition, fear of failure and low levels of family support, are several factors behind this issue. Young people in Papua are more likely to queue for the chance to become civil servants with the job security this entails, than enter the world of entrepreneurship. This has made for slow progress in the development of their entrepreneurial spirits.

A well-structured model of experiential entrepreneurship education integrated into the curriculum is expected to encourage the growth of an entrepreneurial spirit in students, creating graduates who are able to become entrepreneurs so they can create jobs for others. This study was designed to develop an entrepreneurship education model for students at the Uncen that would be applied to study programs in all nine faculties at the university. An Action Research Project (ARP) is used to design an entrepreneurship model in which third semester economic science students apply their theoretical understanding from the entrepreneurship course by opening small business groups with start-up capital from the university. In the process of developing the model, this study examines students' mindsets towards entrepreneurship pre- and post-experiential entrepreneurship activities. The changes in students' entrepreneurial mindsets, as well as the outcome of the model, as core aspects of this article, are discussed. The contribution of this article lies in the insights obtained from how this entrepreneurship education model is developed, what impacts the proposed model creates on the students in their entrepreneurship education and for their future; and what and how future actions can be taken by the university. The article captures the dynamic process of the development of the entrepreneurship model while taking into account the students' characteristics that affect their entrepreneurial intentions as well as factors related to the university's support environment. It encapsulates the outcome of the entrepreneurship model, lessons learned by the researchers and the next steps that could be taken to sustain the model. The article is significant in making a broader contribution to inform practical and policy actions for the university in playing its part in preparing highly skilled entrepreneurs through research-based entrepreneurship education in Indonesia.

The following section deals with the literature about entrepreneurship education and then provides details of the research design and the respondents' characteristics and the student business groups. It then gives details of the findings related to changes in the students'

mindsets towards entrepreneurship activities, the entrepreneurship model design and outcomes of the model. A discussion of the findings and interpretation on what was found continues the section, and it ends with concluding comments, indicating the limitations of the model and advancing ideas for further research.

Entrepreneurship Education

Most of the literature defines entrepreneurship as a process of doing something (being creative), being different (being innovative) and daring to take risks (being risk takers). Miller (1983) argues that a creative entrepreneur has the ability and tenacity to develop new ideas, combine all available resources and observe the current situation to which he or she previously has paid little attention. An innovative entrepreneur creates creative ideas and dares to take risks in what he or she is doing in order to increase its profit and productivity by taking advantage of all possible opportunities and, potentially, all available resources (Hamel and Prahalad 1991). Most contributions in the literature recognize the key components of entrepreneurship as innovativeness, risk taking and pro-activeness (Miller 1983; Covin and Slevin 1991). González-Benito et al. (2009) explain innovativeness as an interest in new ideas, experiences and creative actions that may result in new products/services or technological development. Risk taking means a disposition to support an idea with a measured probability of failures, while pro-activeness is a behavior to face future contingencies and overcome the actions of competitors.

Entrepreneurship has the most potential economic power (Carree and Thurik 2010; Aldianto et al. 2018). Growing the number of entrepreneurs is believed to accelerate economic development in a country as, besides being the incubator of technological innovation, this provides employment opportunities and increases market competitiveness (Korsching and Allen 2004). Recent research claims the important role of entrepreneurship in stimulating economic growth and many links to this have been discussed (Carree and Thurik 2010). For example, Korsching and Allen (2004) and Aldianto et al. (2010) accentuate the role of local entrepreneurs in developing the economy, promoting innovation and creating employment in rural communities; Hartono (2011) and Widodo and Nugroho (2014) highlight the roles of entrepreneurship to solving poverty, issues in migration and unemployment; and Naudé (2010) links the roles of entrepreneurs in key areas of concern in economic growth, income, wealth inequalities, welfare, poverty traps and market failures.

Entrepreneurship education plays an important role in developing new economic opportunities and creative businesses (Gilje and Erstad 2017). In turn, it can enhance economic growth and create job opportunities (Aldianto et al. 2018). McIntyre (2000) defines entrepreneurship education as a process to provide individuals with the necessary concepts and skills to recognize opportunities others have overlooked and to have the insights and self-esteem to act while others have hesitated. It facilitates value creation for students undertaking entrepreneurial activities. Aldianto et al. (2018) claim that the notion of developing entrepreneurship in an educational context not only encourages students to start businesses but also equips them to be more creative, opportunity-based, proactive and innovative in creating value for others through entrepreneurial activities. It guides students to learn and grow in their entrepreneurship activities by developing their entrepreneurial behavior, competence and identity (Williams Middleton 2013). It also upgrades students' competencies by developing their entrepreneurial activities and self-orientation in terms of developing their self-reliance, self-efficacy, creativity, initiative, action taking and orientation (Mahieu 2006).

In the wider sense, entrepreneurship education is defined as any pedagogical or process of education used to develop certain personal qualities in entrepreneurial attitudes and skills (Fayolle et al. 2006). It does not exclusively focus on the creation of new businesses, rather, it covers a wide variety of situations, aims, methods and teaching approaches. Entrepreneurship education may vary widely across countries and educational institutions in terms of its audiences, objectives, formats and pedagogical aspects. In most universities in Indonesia, entrepreneurship education has been adopted and integrated into the educational curriculum (Aldianto et al. 2018). However, Wiratno (2012) claims no optimal implementation or different standards of operationalization in its implementation. Hartono (2011) argues that entrepreneurship is important in the Indonesian' educational context for four reasons. First, most of the younger generation do not grow up in an entrepreneurial culture and business training is not taught at a young age; secondly, there exists a high number of unemployed in Indonesia, mostly educated people; thirdly, high numbers of job seekers are not compatible with job opportunities; and fourthly, entrepreneurship not only provides job opportunities, but also improves the welfare of the society.

Higher educational institutions should play a role in operating more entrepreneurially, commercializing their research outputs and promoting knowledge-based enterprises (Kirby 2006). Guerrero and Urbano (2012) use the term 'entrepreneurial university' as both a knowledge producer and a disseminating institution and find that an entrepreneurial university provides invaluable strategies of bring benefit to society. It provides an umbrella for interaction, collaboration and co-operation involving partnerships, networks and other relationships with both public and private organizations. The underlying concept of an entrepreneurial university is the collaboration between the university and its external stakeholders (Sam and Van Der Sijde 2014). It is does not merely promote entrepreneurship at the university, but also incorporates it into teaching and research to maintain academic integrity. Kasih (2013) accentuates the importance of all universities in Indonesia promoting entrepreneurship through a clear and focused design of the entrepreneurship curriculum by setting appropriate goals, recruiting competent teachers and creating an entrepreneurship atmosphere. This also includes designing a gradual and sustained learning process.

Action Research Program

The study was designed through ARP for the second-year third-semester students at the Department of Economic Science, in the Faculty of Economics and Business and lasted from October 2014 to August 2015. Action research is used to engage people in a data-driven process targeted at solving local problems. It is categorized as an ongoing, systematic and empirically based attempt to improve practices (Tripp 2005). The process of action research includes consensus-building; identification of the issues and people; research to determine actions to solve issues; implementation of the actions; and, finally, the evaluation and revision of the actions (McNiff and Whitehead 2000; McNiff 2013). These underlying principles constitute ARP practices through inquiry, intervention, development and changes in the process of developing an entrepreneurship education model for the university.

The first step was to create an ARP team of four economic lecturers whose roles were to determine the issues in students' entrepreneurship at the university and to design action research programs for students. All these lecturers should have teaching experience in entrepreneurship so that they were able to apply theoretical entrepreneurship of the course to

the students' practical entrepreneurship. The team identified an entrepreneurship course in which third semester students from the economic science study program were studying and integrated it with a semester-long experiential entrepreneurship. The university management, through the director of the Institutions of Higher Education in Indonesia, had shown its commitment to supporting any effort to develop students' entrepreneurship skills; therefore, a fund had been allocated to support this research. Through continuous communication, with the support of the United States Agency for International Development (USAID) and Indonesia's Higher Education Leadership and Management (HELM), the university provided funds to finance the entrepreneurship programs as well as other logistical expenses during action research. The USAID and the HELM consistently provided all necessary technical support, including the capacity building programs needed by the team.

For the ARP process, 89 third semester students in the Department of Economic Science were grouped into nine teams of 9–11 members to create start-up companies. The selected students were then programed to visit business sites where they had entrepreneurship training and lectures under the guidance and supervision of the ARP team. Following this, the student groups designed small businesses that they themselves could initiate, using start-up funds provided by the university. Monitoring and evaluation were then performed frequently by the team. In this action research process, students had opportunities to directly apply entrepreneurship theories to the practical work of starting their own businesses. The start-ups typically focused on the short-term sale of small goods (telephone cards, snacks, drinks) and services (travel arrangements) using small loans from the university of eight million rupiahs per group. As each semester takes around 6 months, to help students focus on their business, the team encouraged short-term businesses to help the team guide, supervise and evaluate the program. Businesses with longer time frames would probably have different outcomes.

Following the loan distribution to the bank account of each group formed, students started their small businesses. The groups marketed their products to their peers and lecturers at the university or their family or neighbors at home. Intensive monitoring from the ARP team ensured an effective use of the loan and the students' ability to perform their business activities. At this stage, students frequently asked questions and sought guidance from the team to ensure their businesses were on the right track. After two to 6 months duration, each business group was evaluated by the team in terms of their ability to run their businesses as well as to pay back the loans, although continuous evaluation was undertaken throughout the one-year program. In all these processes, the action research for the students' experiential entrepreneurship program was carried out by the team.

In collecting the data needed from this ARP, the team employed a questionnaire to survey the students' mindsets towards entrepreneurship pre- and post-entrepreneurship activities. Confirmatory factor analysis was used to determine the factors that influenced the development of entrepreneurship in the students (Brown 2014). The mean pre- and post-activity scores were largely used to identify the variance in each factor in order to indicate any changes in the students' mindsets both before and after serious involvement in entrepreneurship activities. This was achieved through questionnaires designed by Sukardi (1991) (see appendix Tables 1 and 2). Focus group discussions (FGD) and interviews were used to document the experiences of the students who were engaged in the start-up enterprises. The FGDs brought together students to discuss their perceptions, opinions, beliefs and attitudes towards the entrepreneurship activities (Patton and Cochran 2002). In-depth interviews then gained deeper information from each person about their thoughts and behavior and to explore new issues in depth (Charmaz 2014). Semi-structured interviews and open-ended questions were designed to

create a comfortable environment for the students so they could elaborate their answers and describe their thoughts, feelings and opinions (Patton and Cochran 2002). Direct observations were undertaken to enrich an understanding of the study context.

The purposive sampling technique was employed when approaching each group of students (Tongco 2007). From the total pilot population of 89 students, only 43 students (48.31%) comprised the sample in this survey. These students were those who actively participated in the program, attended the interviews and focus groups and provided feedback when required while the rest of the 46 students did not demonstrate much active participation. Some of the 46 students had participated in the pre-survey but not the post-survey, so were eliminated from the sample. All 43 students completed the pre- and post-project questionnaires and participated in focus group discussions and some of them at the interviews were used to obtain data to evaluate the proposed entrepreneurship model for students at the university. Both the pre- and post-survey of students' entrepreneurial mindsets, interviews and focus group discussions gave information for the team to examine the changes in students' entrepreneurship mindsets and the outputs from the model. Of the students sampled, the majority were leaders and vice-leaders, secretaries and treasurers of the students' entrepreneurship teams.

Respondent's Characteristics

The 43 respondents were characterized based on their gender, ethnicity, parents' work, grade point average (GPA) and level of success. Recent studies claim that psychological, demographic and behavioral factors are predictors of entrepreneurial intentions (Marques et al. 2012). These characteristics were important indicators used to evaluate the changes in students' entrepreneurship mindsets in this study. The group consisted of 23 male and 20 female students and was dominated by 26 Papuans, with 17 non-Papuans (from Java, Sumatra, Sulawesi and the Moluccas). The occupations of the students' parents comprised 18 farmers, 16 civil servants and nine self-employed. From the nine groups, 16 students had GPAs of 2.51 to 3.00 and above 3.00, 10 students had GPAs of 1.51–2.50 and one student had a GPA <1.50.

Student's Business Groups

From this ARP project on students' entrepreneurship activities, three successful groups ($N = 3$) were able to return their loans and continue their businesses; four moderately successful groups ($N = 4$) were unable to return their loans at the time of this initial evaluation but had the capital flows to continue their businesses; two unsuccessful groups ($N = 2$) failed to return their loans and did not continue with their business. The researchers then identified triggering factors for these three groups in running their businesses. The eight different factors used to identify the groups included: gender; membership of the groups; tribes; GPA; parents' work; team leaders; teamwork and business location.

The successful groups generally consisted of more female students and were led by female leaders. Those groups with GPAs of more than 3.00 comprised more non-Papuan ethnicities living in the region. Their parents were mostly self-employed and there were a small number of civil servants, so these groups generally had business family backgrounds. The groups consisted of around nine members fully engaged in a team and actively performing their business in more than one location. The moderately successful groups, on the other hand, had

an equal number of male and female members and equal ethnicities of Papuans and non-Papuans. These groups had GPAs from 2.50–3.00 and most of their families worked as civil servants. With around nine members in the groups, these groups were mostly led by female leaders, who worked less actively in the team and performed their business only at the university. The groups with unsuccessful businesses were dominated by more men, led by male leaders and had around 9–11 members. These groups comprised equal numbers of Papuan and non-Papuan ethnicities and have parents working as civil servants; therefore, they did not have a business background. These groups did not demonstrate any teamwork and sold their products only at the university.

Students' Mind-Sets towards Entrepreneurship

Questionnaires were distributed during the pre- and post-business activities. Those distributed before the business activities began were designed to determine the extent of the students' understanding and interests in entrepreneurship at that time, while those distributed after the activities were used to evaluate the change in the students' mind-sets during their business activities. The questionnaires were used as primary data to assess 13 factors influencing the students' mind-sets about entrepreneurship. They consisted of eight statements for each variable (104 statements) representing: initiative; seeing opportunities; perseverance; searching for information; focusing on work performance; commitment to the job; efficiency of orientation; strategic planning; problem solving; self-confidence; persuasive ability, leadership skills; and firmness.

The questionnaires were required for validity and reliability testing using confirmatory factor analysis with the method of partial least squares (variance-based) (Afthanorhan 2013). The results show that all variables have a loading factor greater than 0.50 while a composite reliability greater than 0.70, therefore they are considered to be valid and reliable (Table 1. Appendix A). Table 2 (Appendix A) indicates the mean pre-and post-activity scores, calculated to show changes in students' mind-sets towards entrepreneurship. Significant changes occurred in the variables of searching for information; focus on work performance and commitment to the job; efficiency of orientation; strategic planning; problem solving; self-confidence; leadership skills and firmness. The results indicated that after performing business activities, students had the desire to search for the necessary business information, focused on their work performance, commitment to their businesses and were oriented towards its efficiency. The results emphasized that students became motivated to use strategic planning and developed the ability to solve problems. Their leadership skills and firmness also improved, but the most significant improvement was in their self-confidence. In-depth interviews and focus group discussions complemented these findings, ensuring an increase in students' entrepreneurship characteristics. Rasli et al. (2013) explain that self-confidence is the most important factor required for entrepreneurship activities; therefore, students need to have, and further develop, self-confidence.

Among all factors examined, four did not significantly change the mindsets of the students. These were initiative, seeing opportunities, perseverance and persuasive skills. Students in the study did not experience changes in either their initiative or perseverance. Students did not see and take advantage of opportunities and their persuasive abilities had only changed a little. This needs to be followed up through education and sufficient training in entrepreneurship.

The findings also showed a change in the students' mindsets toward trying entrepreneurship as early as possible and reconsidering becoming civil servants following their graduation. The

structured questionnaire as well as the in-depth interviews asked questions relating to students' mindsets about entrepreneurship and their ambitions after graduation, such as trying entrepreneurship as early as possible, and asking them whether they still desired to apply, or work, as civil servants or in banks or companies, following their graduation. The results explained that the action research project changed the students' mindsets towards entrepreneurship, along with their entrepreneurship activities.

Proposing an Entrepreneurship Model

The one-year ARP at the university had significant learning values for the ARP team in developing the entrepreneurship model for the university. Based on the analysis of the in-depth interviews, focus group discussions and direct observations of students' business projects throughout this project, the team then proposed a locally relevant entrepreneurship model. The details, below, show the steps taken in generating the model.

Two main steps should be taken in developing a model of students' entrepreneurship. The first stage is the identification and administration of the program. This stage includes identification of the students' interests for business, development of business plans by the students, in-depth interviews and observations, and the decision to accept or reject students' business plans. In identifying the interests of students in business, each group formed should submit its business proposals and clearly state its business plans and the required budgets. The students in economic science programs, therefore, should be taught business plans in entrepreneurship classes to expedite this proposal submission. The team realized that direct distribution of eight million rupiahs from the university as a start-up loan and with no business proposal submission at the beginning did not, in fact, teach the students. The team learned that identifying the students' business interests and preparing business plans were crucial for the students' development of business skills. Students' business proposals need to be assessed while in-depth interviews to each group supplemented to ensure maximum learning outcomes by students.

In this stage, the team should also evaluate the effectiveness of the groups formed. Under consideration is whether the groups' preparing proposals need to be restricted to only two to three people, taking into account their ethnicity, language and blood relations. Harmonious teamwork within each group is necessary in order to achieve their goals. The greatest constraint faced in this entrepreneurship project was the lack of teamwork due to too many members in each group (9–11 students per group) causing a lack of communication and cooperation among the members. Direct observations during the project showed a high reliance of some members on their group leaders to execute all business processes, from planning and implementing to evaluating the business tasks.

Ethnicity is another important factor to consider in forming the groups. Both interviews and focus group discussions with the selected students showed no significant issues from ethnicity; however, direct observations identified gaps existing in aspects of communication and cooperation among the group members. Individuals in most groups showed stronger attachment to those of the same ethnicity, and this helped them to enjoy their business work and produce better results. Those who were categorized as family-related students and had blood relations showed easier cooperation when doing business. Non-Papuan students, such as those from Java and Sulawesi enjoyed running their business with their own people more compared to Papuan students. Papuan students also chose to work with their own people rather than non-Papuan students and showed better outcomes.

The work of parents also greatly affected the motivation of students about entrepreneurship. This ARP showed that students whose parents had higher incomes had relatively low motivation for entrepreneurship compared with those whose parents earned a lower income. Those whose parents were self-employed in business had a tendency to perform better than those whose parents worked as civil servants. The students with family-business backgrounds were well trained to support their parents and observe the model of their parents' initiatives.

At this stage, the team can make the decision to accept or reject the students' business proposals, following the identifications of these factors and their business prospects. The identification of students' success factors, based on gender, ethnicity, parents' work and GPA, as reported above, was important, as it aimed to give the team ideas to pay more attention to particular students who had a need for more relevant skills that could be met through entrepreneurship education and training. However, identifications based on these aspects do not mean to restrict students who are male, Papuan, with a GPA lower than 3.00, family background as civil servants, from trying an entrepreneurship project at the university. These students only need additional coaching to improve their entrepreneurship knowledge and skills.

In the second stage, socialization of the start-up capital is the first activity required. The capital provided is a loan from a revolving fund and does not equate to venture capital assistance from the university or scholarships the students receive every semester. It is important for the recipients to understand that the capital they accept needs to be returned. After all participants have correctly understood the form of business assistance they accepted, the next process is signing the contract that provided all the details of the rules and conditions of the start-up capital, its repayment and other necessary information. Training and apprenticeships relevant to the places of businesses are then undertaken and the distribution of the capital proceeds. Training can be provided in the form of workshops in which relevant entrepreneurship topics are taught to the students, such as how to plan, implement, control and evaluate their small businesses. Important aspects, such as marketing and financial management advice, are also given to students to prepare them for their business. Well-known entrepreneurs in the region can be invited as guest speakers to share with students their struggles and experiences when undertaking entrepreneurships. At this stage, the groups are then invited to a series of field-visits to selected local businessmen in the region to see how they work successfully, to receive hints about the business and to engage in informal discussions. The supervisors in this process should consistently identify students' needs and see certain skills and knowledge the students lack. The necessary support should be performed continuously in order to ensure adequate attention is given to their acceptance.

The last stage is evaluation and monitoring in accordance with the period specified in the contract. This includes evaluation and monitoring of the groups' financial statements for their businesses, their progress reports and the groups' ability to return the loans. The team should regularly perform field-visits to the groups' business locations to identify the issues they encounter and to provide support, as necessary. Students are also required to be assured of the sustainability aspects of their business. Therefore, learning and teaching processes should continually be performed even after the business contract ends.

The team learned that in order to be successful in the application of the experiential entrepreneurship, students need to be guided to design a well-planned business proposal with a potential business unit that is easily accessible by the customers. For the purpose of one full -semester ARP, a short-term business unit is important for a better and faster evaluation. When all processes of socialization of the start-up capital, signing the business contract and training, as well as the apprenticeships are executed, each group can receive the sum of money to start. Monitoring and

supervision to all groups, with particular emphasis on students with additional needs for training are continually performed to ensure students have an adequate understanding before commencing their businesses. Regular check-ups of the students' business groups and financial statement updates are crucial in ensuring students meet the criteria to be going concerns and are able to pay the loan back. Figure 1 (Appendix B) is the proposed entrepreneurship model for Uncen.

Outcome of the Development Model, Lessons Learned and Next Steps

The team regularly reviewed the proposed model in relation to the entrepreneurship curriculum. The university has benefited from this program as one of the requirements of the institution's national accreditation. The university has also successfully achieved accreditation "B" from BAN (National Accreditation Board), the Higher Education in 2015. Due to this program, the institution agreed to set an entrepreneurship course as a compulsory teaching subject at the university in 2016/2017, and entrepreneurship has now become a mandatory paper required in all Uncen study programs. Even more importantly, a full commitment from the university to provide the initial capital, and regular monitoring and evaluation, was undertaken.

The team identified possible challenges that could be faced in carrying out future entrepreneurship education and the solutions proposed. Learning from this ARP program, the team encountered various challenges, one of them was the lack of coordination and communication among top management at the university. The budget used to run the students' entrepreneurship program was processed late, especially the disbursement of the loans. This could happen in future programs if the team was not proactive in communicating the programs to top management. Despite a commitment from the university to support the program, continuous coordination from the team, particularly in reporting the actual implementation, evaluation and outcome of the program is crucial for its better future execution. Another possible challenge comes from the university's less supportive environment. The team had to face that the university was constantly tainted by political and economic pressures between its internal and external parties. It has been frequently blockaded by protestors seeking justice on economic and social issues in the region. These protests interrupted the teaching and learning processes and this situation had caused difficulties for the team trying to supervise the students and asking after the progress of their businesses. This could occur in the future if the university did not resolve these triggering issues. The university should ensure a conducive environment for both students to run their businesses and the team to supervise the students' businesses. Consistent contacts between the team and students need to be maintained both at the university and in the students' living environments.

Lessons learned in this project by the team were that it was important to make more creative efforts to obtain funds from other parties to reduce dependence on the university for funds. Although there was a loan available from the university, processing time to be finally distributed to the students can take a very long time and this could have negative impacts on the students' business activities. The team also need to have full responsibility and commitment to developing entrepreneurship even if the university's environment is not supportive. More attention needs to be paid to continuous coordination and communication between the team and the members of the student groups.

The next steps are that the team currently has been working to socialize the proposed model to leaders in all departments and faculties within the university. The team is in the process of correcting and revising a curriculum of entrepreneurship that is integrated with business practices.

Monitoring and evaluation of the students' activities are also occurring continuously. The team will also meld the students' entrepreneurship projects with the private sector and successful alumni.

Discussion and Conclusion

In sum, the entrepreneurship model developed at Uncen changed students' mind-sets towards entrepreneurship. The continuous steps performed to generate this model have built the students' self-confidence in becoming entrepreneurs in West Papua. Additionally, the model was used to provide teaching and training to students in entrepreneurship subjects in each study program of the university. Based on the three classifications of the groups, the findings provide insights that most groups with more female students, students with GPA > 3, parents who work as civil servants and are self-employed, groups showing good team work and those where trading activities are performed in more than one place, have a greater potential for success.

Other research in different environments will probably have different insights pertaining to the relationships between students who have successful businesses and team characteristics. In the case of Singapore University (Wang and Wong 2004; Reyes 2016), many students were interested in running their own businesses; however, their dreams were hindered by inadequate preparation, including insufficient entrepreneurship knowledge. Female university students are less interested in entrepreneurship due to a lack of entrepreneurial knowledge and possible influence from their traditional social roles. Zhang et al. (2014) find that males and students from technical universities have a higher entrepreneurship intention than females and students from other universities. Our research is in contrast with the above findings, due to the fact that our female students had a higher rate of success in entrepreneurship compared with their counterparts. The reality of women living in Papua is different from other areas in the country or even in other countries. Papuan women normally play dual roles in their families, working as a wife/mother as well as a worker to support their husbands in order to meet the family's daily needs. Many of them even play the role of main provider of their families' economic needs (Mollet 2011). Blesia and Ratang (2016) show the importance of Papuan women's roles in the family, where women have to perform daily work to support their families' regular needs and their children's education. Our findings indicate that female students, both Papuans and non-Papuans, have followed the local patterns performed throughout the generations. As a result, their discipline and hard work have led them to be successful student entrepreneurs at Uncen. This is consistent with a study by Anggadwita et al. (2017) showing that socio-cultural environmental factors, such as tolerance, mutual cooperation and kinship contributed positively to women's entrepreneurial activities in Indonesia.

Daim et al. (2016) explain that both male and female entrepreneurs normally perform their operations in different sectors and find different methods to develop their businesses. In conducting research in 15 European Union member countries and the US, their research found that an increase in the number of female entrepreneurs will increase entrepreneurship variety in the economy. This indicates that female entrepreneurs are highly recognized as playing an important part in developing economies, creating new jobs and reducing poverty. While educators, policy makers and university management in other parts of the world and with other social status are working to encourage female students to perform better in their entrepreneurial activities, our research findings show that these women had a higher work success rate. This implies that, if given entrepreneurship teaching, training and apprenticeships, women in different social contexts can also become successful entrepreneurs.

Besides gender, other aspects, such as parents' entrepreneurship background and good teamwork performed in more than one place, are important aspects to successful student entrepreneurship. Gelaidan and Abdullateef (2017) find that relational support of family and friends has a significant effect on developing entrepreneurial intentions. Yurtkoru et al. (2014) show that students with family entrepreneurs in their background were more likely to be entrepreneurs themselves. Our findings agree with the research that students perform better when they follow their families into entrepreneurial activities and gain full support from their family. Relational support from family is a crucial factor in developing the entrepreneurial intention of the students (Turker and Sonmez Selçuk 2009; Gelaidan and Abdullateef 2017). This implies that entrepreneurial education at home is considered to be important in leading to successful outcomes among students.

In developing this model, environmental conditions in the local context need to be considered (Lumpkin and Dess 2001). Turker and Sonmez Selçuk (2009) accentuate the importance of a supportive university environment as a significant predictor of the students' entrepreneurial intentions. Internally, despite the challenges of their work, the team's full commitment to undertaking this research, and with full support from US-AID (in providing technical assistance, such as training of trainers (TOT), assistance to coordinate the university leaders with the team), are necessary elements in enabling the team to complete the work. The University's positive response also contributed to the program. Despite the difficulties in approaching top management affecting the late processing of the budget, the commitment from the university in supporting entrepreneurship education was undeniable in bringing the program to fruition. Externally, notwithstanding the economic and political challenges in the region affecting the university environment, the local town provided a conducive environment where the team and groups of students could work continually until the final stage of this action research.

To sum up, Uncen students in Papua, if given adequate entrepreneurship knowledge through teaching, training and apprenticeships, while continuously monitored and evaluated in a supportive environment, in addition to start-up capital from the university and motivation given from their lecturers, can succeed. Our study supports these findings that show that, in order to develop young entrepreneurs, the key elements are: educational support through adequate lectures, training and apprenticeships, combined with continuous evaluation and monitoring (Hytti and O'Gorman 2004; Turker and Sonmez Selçuk 2009; Zhang et al. 2014; Mustafa et al. 2016; Gelaidan and Abdullateef 2017). Given that the local environment contributes to the development of the model and curriculum, students' innovative activities performed in such an environment can result in them becoming successful entrepreneurs. This provides practical and policy implications that the university should consider. First, in order to create successful young entrepreneurs, the university needs to maintain a high quality of entrepreneurship education and support the sustainability of this program. The university also needs to create a conducive environment for students to keep studying entrepreneurship as a subject offered by the university while, at the same time, being engaged in the practical experience of running their start-up businesses.

This research has revealed some important findings, but they are still required to be studied at a greater depth. While this study is a pilot project that uses a very small sample, it is recommended that research be undertaken with a broader sample of all faculties in the university. The four factors, such as initiative, seeing opportunities, perseverance and persuasive skills, that were not significantly related to the change the mindsets of the students might then have different results and could be be topics worthy of future investigation. It is also necessary to take a more holistic approach in developing an integrated system of education

based on entrepreneurship at the university. Admittedly, the trend of changes in the students' mindsets is a very long process, and seriousness and patience will be needed to solve the all the issues. Mentoring, therefore, is a continuous requirement for students in their entrepreneurial activities. Remaining in cooperation with partners (developed industries and business) is also important so students can have access to internships and learning. This study also had external technical assistance through HELM in providing training and assistance to coordinate this with the university leaders. It is recommended future education occurs to demonstrate a more proactive coordination and communication with the top management of the university.

A further study could investigate how the university applies the model to its entrepreneurship curiculum, as well as how the students in a larger sample experience their entrepreneurship education in participating the program. How the model holds up in a longer-term study and how it applies to other universities in different social contexts could be another interesting avenue for a future investigation.

Appendixes 1

Table 1 Summary of confirmatory factor analysis results

Variables	Loading factor	Composite reliability	t-count*
Initiative	0.793	0.928	14.284
Seeing opportunities	0.592	0.921	11.043
Perseverance	0.546	0.925	7.521
Searching for information	0.512	0.924	5.762
Focus on work performance	0.847	0.957	18.236
Commitment to the job	0.838	0.931	26.441
Efficiency orientation	0.846	0.943	24.219
Strategic planning	0.874	0.898	41.286
Problem solving	0.858	0.916	30.616
Self-confidence	0.919	0.895	61.651
Persuasive ability	0.894	0.920	47.912
Leadership skills	0.893	0.889	50.026
Firmness	0.898	0.917	40.819

Table 2 Mean score pre and post activities

Variables	Mean pre-activity	Mean post- activity	Variance
Initiative	4.19	4.18	−0.01
Seeing opportunities	4.00	4.01	0.01
Perseverance	4.00	4.02	0.02
Searching for information	4.02	4.34	0.32
Focus on work performance	3.91	4.18	0.27
Commitment to the job	3.91	4.27	0.36
Efficiency orientation	3.96	4.26	0.30
Strategic planning	3.80	4.09	0.29
Problem solving	3.92	4.13	0.21
Self-confidence	1.06	1.63	0.56
Persuasive ability	3.94	3.98	0.04
Leadership skills	3.83	4.16	0.33
Firmness	3.79	4.18	0.39

Appendix 2

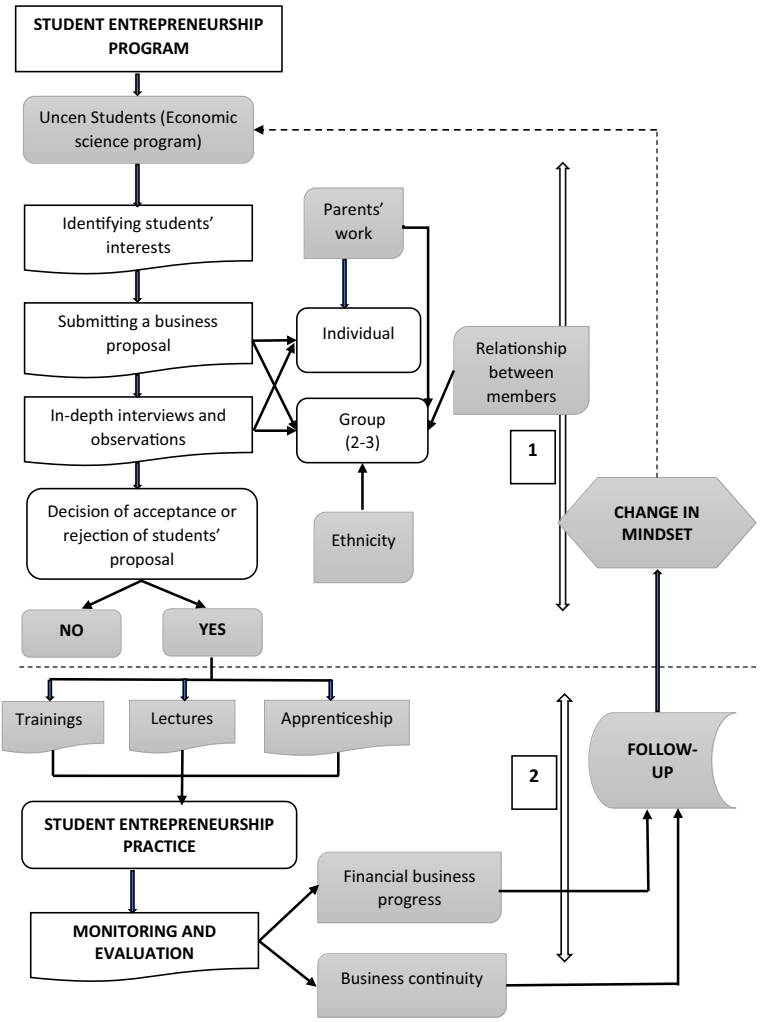

Fig. 1 Entrepreneurship model for Uncen

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Affiliations

Jhon U. Blesia[1] · Mesak Iek[2] · Westim Ratang[3] · Halomoan Hutajulu[2]

Mesak Iek
imesakick@yahoo.com

Westim Ratang
westim_ratang@yahoo.co.id

Halomoan Hutajulu
halomoan.h@gmail.com

[1] Department of Accounting, the Faculty of Economics and Business, University of Cenderawasih, Jayapura, Indonesia

[2] Department of Economic Science, the Faculty of Economics and Business, University of Cenderawasih, Jayapura, Indonesia

[3] Department of Management, the Faculty of Economics and Business, University of Cenderawasih, Jayapura, Indonesia