TECHNOPRENEUR TRAINING MODEL IN BUILDING AN ENTREPRENEURSHIP

Asep Yudi Permana¹, Raden Diah Srihartati², Juang Akbardin³, Agung Setiawan⁴, Dudung Jatnika⁵, Wandi Rustandi⁶
Universitas Pendidikan Indonesia, Bandung, Indonesia

Abstract - The use of cutting-edge technology is appropriate for business development based on an established entrepreneurial spirit that will optimize the process as well as the results of the developed business unit. This is what is called technopreneurship: a collaboration between the application of technology as an instrument and an independent business spirit as a necessity. In an era of intense global competition, business innovation must be accompanied by various kinds of technological engineering in order to multiply the performance of the business. Technopreneurship is an integral character between competency in applying technology and the spirit of building a business. From here, a technological business unit grows: a business unit that utilizes applied technology in the process of innovation, production, marketization, etc. Communication and information technology or telematics technology (information and communication technology (ICT) has been recognized by the world as one of the means and the main infrastructure to tackle the world’s problems.

The Community Service Program with the title Technopreneur Training in Building an Entrepreneurial Spirit for Prospective Architects in the Field of Consulting Services and Construction Services at the University of Education of Indonesia is implemented to provide entrepreneurial skills for students to have entrepreneurial mentality and skills (entrepreneurship) and form a Campus business incubator unit. This program selects and guides 21 students to become independent micro entrepreneurs. The method used in this program is practical learning based on business projects by training and assessing the ability of students to start and run a business based on 4 assessment criteria which include: personality, cooperation, leadership and online marketing skills to increase competitiveness and overcome constraints of limited production funding. The implementation of this KDP includes 4 stages consisting of recruitment, approach, implementation, and monitoring evaluation of 20 prospective tenants for 8 months. From these activities, it is expected that 10 tenants will become independent entrepreneurs and 5 people are still not successful.

Keywords – Innovation, technological engineering, technological business, business innovation, global competition,

Introduction
The problems experienced by the Indonesian people today are so complex, not only in the socio-economic sector but politics and religion that are increasingly sticking out. This unfavorable atmosphere led to a prolonged economic crisis, resulting in the complexity of the resolution of this national problem. In the economic sector, the number of unemployed people from year to year continues to increase, this is due to the lack of jobs while the number of secondary schools and
tertiary education graduates is always increasing. This condition was exacerbated by layoffs and several companies that went bankrupt. The problem of unemployment can be solved if the state can provide as many jobs as possible. However, it seems unlikely that this will be realized as soon as possible, due to the many constraints both in terms of economy and human resources. Based on this condition, a solution is needed now to make education and to create people with an entrepreneurial spirit. This can be realized with an educational model that does not only rely on knowledge but also emotions.

Students should have an understanding of entrepreneurship as a nation's successor, which is expected to be the backbone of the country in the future. So that through the education they control, they can create jobs, not increase the number of job seekers or even unemployment after graduating from a university. As much as possible, a student is required to think creatively about business opportunities that exist in society and dare to try to start a business. Do not be apathetic, because it is difficult to find a job after applying everywhere and the results are always nil. They forget that they work not only in companies or as civil servants, one of which is being an entrepreneur. Based on these conditions, the entrepreneurial development program community service proposal was made to conduct a review as an effort to create and develop a business plan in fostering entrepreneurial interest in architectural students of the Faculty of Technology and Vocational Education, University of Education Indonesia.

Universitas Pendidikan Indonesia with the Faculty of Technology and Vocational Education through the Department of Architecture Education is certainly called to actively participate in socio-economic activities through the aspect of Community Service. One form of concern is carried out through entrepreneurial activities for the younger generation to improve community welfare.

One of the construction industry is the architectural business, where the architecture business is included in the service business, to be able to find out how an architectural business is positioned in the service business classification and how it behaves.

**Literature review**

**Entrepreneurship Condition in Higher Education as a Situation Analysis**

Based on data from the Central Statistics Agency, it is stated that the open unemployment rate (TPT) in Indonesia in August 2019 reached 5.25% or 6.65 million and the number of college graduates was 579,695 people with details of 416,798 undergraduates and 162,897 diplomas (BPS Kota Bandung, 2019). Every year this unemployment remains a problem that must be resolved. This condition is also supported by the fact that most college graduates tend to be more job seekers than job creators. This is probably due to the learning system that is currently being applied in various universities which is still focused on how to prepare students who graduate quickly and get a job, not graduates who are ready to create jobs. Besides that, entrepreneurial activity (entrepreneurial activity) is still relatively low. Entrepreneurial activity is translated as an active individual in starting a new business and is expressed as a percentage of the total active population. The higher the entrepreneurial activity index, the higher the entrepreneurial level of a country (Alma, 2000). (Boulton & Turner, 2005). (Hadihardaja, 2005). (Majid & Koe, 2012). (Muhtarom Muhtarom et al., 2017). Unemployment and poverty levels are currently a major unsolved problem for the Indonesian nation. The factors that cause unemployment in Indonesia include: First, the number of job seekers is greater than the number of job opportunities available (the gap between supply and demand). Second, the gap between the competence of job seekers and the competencies needed by the job market (mismatch). Third, there are still children who drop out of school and graduate not continuing who are not absorbed by the world of work / self-employed because they do not have adequate skills (unskill labor). Fourth, layoffs due to the global crisis, and Fifth, the limited natural resources in cities that no longer allow citizens to process natural resources into livelihoods. Of the five factors, the first, second, and third factors are the dominant factors that cause unemployment in Indonesia. From the above description, it is necessary to develop entrepreneurial programs to accelerate the reduction of unemployment (Heidjarchman, 1982) (Alma, 2000).

To foster an entrepreneurial spirit and increase entrepreneurial activities so that college graduates become more job creators. The Directorate of Research and Community Service (DRPM) implements a program with the mission of producing new entrepreneurs from the campus through an integrated program with creative methods that are fully submitted to universities through the Entrepreneurship Development Program (PPK). Policies and programs and increasing roles that encourage the strengthening of entrepreneurial institutions in increasing the quality of learning and entrepreneurial activities and accelerating the growth of new entrepreneurs on a science and
technology basis is urgently needed. For entrepreneurship programs to run sustainably in tertiary institutions and to have a systematic and progressive planned management system, each university must continue to increase the role of special institutions for the development of entrepreneurial centers and national productivity. This institution is expected to systematically change and or improve the quality of the existing education or learning system so that students not only have knowledge and expertise in their knowledge but are also able to utilize and process their knowledge to increase the value of the resources available in society for their welfare and welfare society and nation. Entrepreneurship (Hadihardaja, 2005)(Majid & Koe, 2012)(Riyan S. Putra, 2016)(Muhtarom Muhtarom et al., 2017) is an activity to build individual creativity (McGrath & MacMillan, 2000)(Direktorat Kelembagaan Dikti., 2009). Also, to develop one's abilities so that they are ready to face increasingly fierce business competition. Business is a form that can generate money and can improve one's standard of living for the better. A business that we live in can generate the maximum possible profit if we are diligent in living it (Drucker, 1994)(Iwantoro, 2006)(R.S. Putra & Anshori, 2018). Entrepreneurs lately have a very strong influence on economic development in a country. Entrepreneurship has a role like a wheel, and the State is the bus. The contribution of an entrepreneur in the country, among others, can reduce unemployment, create jobs, maintain economic stability, and be able to increase foreign exchange (Nurul & Rostiani, 2008). Given that entrepreneurship contributes a lot to the nation and state (Lestari & Wijaya, 2012), we are encouraged to hold activities that can stimulate and encourage students in this direction. So that in the future students do not look for work, but rather create jobs. In this activity, it will be explained how to build student creativity in entrepreneurship so that they can compete with other entrepreneurs and can create products that have high selling value (Muhuda, 2001). Therefore, we propose Entrepreneurship PPK activities to prepare students who are currently entering the AFTA and MEA era, because the Indonesian State has agreed to the AFTA and MEA agreements to free foreign workers from entering and working in Indonesia (Priyanto, 2009)(M. Muhtarom et al., 2017). As well as the fact that currently there are many unemployed scholars, therefore we provide provisions to become entrepreneurs and Indonesia is a Developing Country. If you want to become a prosperous developed country, the number of entrepreneurs must be 2% of the population while Indonesia is less than that (Siswoyo & Suharmanto, 2004).

Information on the Potential and Economic Value of Student Products for Entrepreneurial Student Programs

Investing in property is still the main choice of many people. Property as a product of the construction industry cannot be separated from the role of the architect profession. The construction industry is closely related to various disciplines, including planning, regulation, design, building manufacturing, building fabrication, building maintenance, and many other fields. These fields can be divided into two sectors of activity, namely civil engineering and heavy engineering. Where the differences and boundaries of these two fields are not clear. The nature of a project is very diverse, the value range of a project can be very large, projects with a level of complexity from small to large scales. The characteristics of the construction industry have unique characteristics, such as: Products that are produced according to client wishes:

- In the traditional process, there is a separation between the design process and the development process,
- Products made are usually investment products,
- Activities are highly influenced by weather conditions,
- In the process combining various disciplines and materials (architecture, civil, electrical, law, transportation, etc.)
- The process usually consists of several large bureaus and is supported by many small bureaus.

The parties involved in the construction industry are:

1. The project owner (client), is the most important person in the development team.
2. Architect, who designs the building, must translate the client's wishes into worksheets so that in practice the architect must obtain a license and control from the parent organization (IAI).
3. Other consultants, such as - Structural engineer, is a consultant who designs building structures. - A landscaping consultant is a consultant who designs everything related to plants - Other specialist consultants, such as Interior, Acoustics, IT, etc.
4. Contractors are those who build buildings, in general, they are selected based on tenders or client appointments. Types of contractors vary widely in size and complexity.
5. Sub-contractors, as the name implies, they do work that is not the main (which is mainly carried out by the contractor). The main contractor still has responsibility for the existing subcontractors. The process of selecting subcontractors varies, for example, an appointment by an architect or an appointment from the client.

6. Quantity survey/cost manager, his job is to prepare files related to the number of materials needed by the project. They are also tasked with controlling the costs that will be incurred in the design or implementation process.

Information about Entrepreneurship Development Programs in Higher Education and Conditions, and Commodities

The Entrepreneurship Development Program managed at the University of Education of Indonesia is implemented under the coordination of the Institute for Research and Community Service. In its implementation, it adapts to the dynamic development of society and government by establishing study centers. These study centers include:

1. Community Service and Empowerment Center;
2. Center for Management and Development of Real Work Lecture;
3. Education Policy Research Center;
4. Center for the Application of Science, Technology, Arts and Culture;
5. Research Center for Women and Population Studies.

In addition, there are also several study centers that are managed at the faculty and study program levels, one of which is the Center for Study and Development of Educational Facilities and Infrastructure. This study center focuses more on developing studies of educational facilities and infrastructure with affiliations in consulting and construction services. This is the strength and excellence in building entrepreneurial incubators through community service through the Entrepreneurship Development Program.

Apprenticeship (apprenticeship) was the most common practice in ancient times and is still ongoing today. Apprenticeship is a form of education that has the principle of learning while working (learn-work). Apprenticeship is a process of learning outside school education which means learning while working. In the apprenticeship process there is an agreement relationship between an apprentice and an apprentice.

An apprentice is a person who learns while carrying out the work process with practical experience guided by an apprentice with formal instructions. In the apprenticeship process, it is agreed upon the number of hours of work or hours of study, and the length of time to complete the program. In the apprenticeship process, someone acquires and masters skills by engaging in the work process without or with the guidance of someone who is already skilled in the job.

Methods of Implementing the Entrepreneurship Development Program

Recruitment Patterns for Entrepreneurship Development Program participants

In implementing entrepreneurship programs for Architecture students at the University of Education of Indonesia to produce at least 5 new entrepreneurs in the field of consulting services and construction services, the service team implements the following participant recruitment patterns:

- Recruitment of participants through other ongoing entrepreneurship development programs. Participants in the Entrepreneurship Development Program dedication are prioritized for tenants who are currently implementing other Entrepreneurship Development Programs, as a follow-up to proposals that are approved and realized in real time through the Entrepreneurship Development Program service program. With this Entrepreneurship Development Program, tenants are expected to be able to easily optimize their business potential through the development of more professional online marketing and management.

- Recruitment of participants through the alumni network. The recruitment program for prospective tenants from alumni of Architecture at the University of Education of Indonesia is carried out by establishing communication with alumni of Architecture at the University of Education of Indonesia who have pioneered business activities as independent entrepreneurs. With the entrepreneurship training in consulting and construction, it is hoped that alumni who work as entrepreneurs can further advance their business and achieve success more quickly.

- Recruitment of participants from students who have businesses outside the Entrepreneurship Development Program and alumni.
This recruitment is carried out by collecting data on Architecture students of the University of Education of Indonesia from various fields who are starting or have started a business. With the target of prospective student tenants of business actors, it is hoped that they will be more motivated to increase business results and income from the business they are engaged in. This recruitment pattern does not require that prospective tenants have special skills, because the emphasis is on business management and marketing that utilize information technology (IT).

**Approach method applied**

The approach method used in implementing the Entrepreneurship Development Program activities is:

- Inventory and analysis of potential tenants. Inventory is carried out based on the identification that has been made through the recruitment program above. The analysis and selection process is preceded by standardizing the business feasibility of prospective tenants. It is hoped that this method will find qualified and high potential tenants to become independent entrepreneurs.

- Basic entrepreneurship, business management, financial management and online marketing guidance is conducted twice a week by providing workshops to prospective tenants by a team consisting of lecturers and technicians in collaboration with organizations outside the village (Consultants, Contractors, Developers, Procurement Services) and partner company teams according to their respective competencies and expertise.

- Technical guidance and skills training provided to prospective tenants, including: management aspects, technical aspects.

- Internship at partner companies. This is done by coordinating with partner companies and associations that have collaborated with the University for one month.

- Supervision and evaluation of tenants. Monitoring and evaluation is carried out by looking at various aspects from production, marketing, financial, technical and so on. Monitoring and evaluation methods related to business activities carried out by tenants by creating a time schedule based on periodic reports which can be made based on weekly and monthly monitoring.

- Tenant business financing techniques. Each tenant is assisted to obtain facilities in the form of transportation costs, permits, technology, and capital for production development by submitting a budget plan and their needs.

- Patterns of providing technology assistance and problem solving methods.

The Entrepreneurship Development Program is planned to collaborate with organizations related to consulting services and construction services in the city of Bandung, especially West Java in general, the entrepreneurial community, and Campus partner companies. By implementing the Entrepreneurship Development Program, the campus supports government programs in fostering independent young entrepreneurs.

**Implementation of the Entrepreneurship Development Program**

The implementation of entrepreneurship development program activities includes: Preparation, Implementation, Monitoring and Evaluation of Activities.

**A. Preparation Stage**

This preparation stage includes the following activities:

- Activity planning is carried out in more detail and according to the campus academic calendar. Besides that, coordination was also carried out with related parties outside the campus for scheduling joint activities.

- Recruitment of participants is carried out directly, from data and surveys conducted on students who meet the qualifications specified requirements.

- Preparation of supporting facilities and infrastructure for activities is carried out in coordination with the Business Center to obtain adequate access rights to support entrepreneurship training activities in management and internet marketing.

- Licensing for observation and apprenticeship in partner companies. This program is designed to collaborate with employers’ organizations and related agencies, so licensing arrangements are needed in advance so that apprenticeship activities can run well.
B. Implementation Stage

This implementation stage includes the following activities:

- **Guidance:** Coaching activities are carried out by the KDP advisory team in coordination with resource persons from campus partner organizations (Partner Companies, Communities), and are carried out every week for 6 months by adjusting lecture activities on campus. Guidance is carried out by means of workshops, lectures, assignments, discussions, brainstorming and simulations.

- **Observation and Internships at Partner Companies:** Observations need to be done, to find out the business processes carried out by partner companies that are suitable for tenants. From these observations, tenants will be able to learn firsthand management practices that are suitable for their business. While internships at partner companies are carried out regularly for 2 months and are not carried out permanently every day, but only at certain times, namely at the time of observation, learning and practice of the production process, learning and management practices as well as learning and practice of conventional marketing and online marketing.

- **New Entrepreneur Business Opportunities:** If financially, managerial and human resources meet the eligibility to become a permanent legal company professional entrepreneur, then 5 tenants who have the highest achievements as prospective entrepreneurs will be promoted to new young entrepreneurs who have legal companies and 11 people will be promoted become new entrepreneurs in coaching (a total of 16 tenants or 80% of tenants become entrepreneurs).

C. Monitoring and Evaluation Stage

The monitoring and evaluation stage is carried out for each implementation stage, namely:

- **Guidance:** To monitor the implementation process of mentoring (methods, participant activities, responses and tenant development). Each participant is evaluated on the results of assignments and case studies provided each week during the mentoring process. The evaluation results are discussed in the coordination of the guidance team so that they can be improved and resolved as soon as there are important problems. If in the first 1 month the monitoring and evaluation activities find that there are potential tenants who do not meet the requirements, then they should be replaced immediately and additional guidance is carried out for new tenant candidates.

- **Observation and Internships at Partner Companies:** Observations in partner companies need to be monitored to ensure whether the methods applied are in accordance with the standards and the selected partner companies are eligible to be used as tenant objectives in applying management theory and internet marketing techniques.

- **Meanwhile, apprenticeship activities are monitored through activity reports carried out by each tenant every week and evaluated on the progress of their performance, both from financial, management and marketing aspects every month.**

- **Business opportunities:** Monitoring of business opportunities is carried out by monitoring the development of entrepreneurship in the city of Bandung and new regulations relating to local and global entrepreneurship.

**Target tenants who become entrepreneurs per year and their strategies**

To meet the number of tenants according to the target, namely 5 professional independent entrepreneur candidates and 80% of tenants become new entrepreneurs in the first year, it is necessary to select those who really have high prospects and potential. For that, include a written test and a separate interview test. Separate interview tests are conducted 3 times, with interviewers from the Development Team, Partner Entrepreneurs and Partner Organizations. If the first year succeeds in accordance with the target of producing 80% new entrepreneurs, then the sixteen students will be included in the team as leaders for the next 20 participants, to participate in guiding and providing the experience they have, so that 5 new entrepreneurs are achieved the following year.

In year 2 and year 3, new entrepreneurs who have been produced are obliged to join the team in providing guidance to the community to become entrepreneurs. Every new entrepreneur must participate in fostering a minimum of 5 potential new tenant candidates, according to the standards of prospective entrepreneurs, so that this program can be sustainable. In the following years, the PPK program is expected to further develop into a business incubator center for
students, to develop their interests and talents to become independent and professional young entrepreneurs. Furthermore, internal and external evaluations are carried out as shown in Figure 1.

| Strength | Weakness | Recommendation |
|----------|----------|----------------|
| SDI a lot | • The monetary crisis costs for the project reduced; | Work improvement + internal management + organization |
|          | • Certification has not been recognized internationally; | The operation of a world-recognized certification body |
|          | • Indonesia’s construction industry has not been | increased efficiency _ productivity |
|          | recognized internationally; | It is necessary to cooperate / share |
|          | • The company broke up, because the advanced | domestic / foreign potential |
|          | staff set up their own small companies; | Increasing the role of LPJK _ The |
|          | • Have not utilized SIM optimally / professionally; | government facilitates JK that is |
|          | • Technology, management, finance, honesty are | professional, efficient and |
|          | still lacking | competitive in the national + |
|          | | international market |
|          | | There needs to be reconstruction and |
|          | | revitalization in the construction |
|          | | service industry + related |
|          | | institutions |

The realization of a national consultancy and construction services business that is professional, efficient and competitive in national and international markets

**Self evaluation IDUKA**

| Opportunity | Threat |
|-------------|--------|
| The need for consultancy and construction services still opens up opportunities abroad | • Labor market competition, English, domestic and foreign work computers; |
| | • Financial competition between industrial construction companies |

**INITIAL CONDITION INDICATORS**

- Classification of companies
- Mastery of technology
- Management mastery, and others

Increased efficiency + productivity

---

**Figure 1. Internal and External Evaluation (SWOT Analysis)**

**Conclusion**

The results of the Community Service that have been carried out, can be drawn a number of conclusions, namely:

1. The community service program is one of the programs that must be implemented, both students and students, based on the principles;
2. With the community service program, students are expected to be able to interact and be able to make a positive contribution to society;
3. It is also hoped that students will be able to learn to live in society to gain extensive experience, so that one day they can become humans who have personal competence and social competence; honest, visionary, competent, fair, smart, disciplined, leadership, and responsibility;
4. There is a need for deeper coaching and training for students as prospective entrepreneurs in accordance with their specializations and technical problems faced in IDUKA;
5. There is a need for training on management and planning as well as appropriate marketing strategies in accordance with entrepreneurial interests in the consulting and construction sector.
Acknowledgments
The author would like to thank LPPM Universitas Pendidikan Indonesia for providing Community Service funds through the 2020 entrepreneurship-based program scheme. The author also does not forget to thank the students of the architectural and civil engineering study programs, the faculty of technology and vocational education of Universitas Pendidikan Indonesia who have been willing to join this program.

References
Alma, B. (2000). Kewirausahaan: Panduan Perkuliahan untuk Perguruan Tinggi. Alfabet, CV.
Boulton, C., & Turner, P. (2005). Mastering Business in Asia: Entrepreneurship. John Wiley and Sons.
BPS Kota Bandung. (2019). Data Statistik Kota Bandung tahun 2019. Badan Pusat Statistik Kota Bandung.
Direktorat Kelembagaan Dikti. (2009). Pedoman Program Mahasiswa Wirausaha Bagi Kopertis dan PTS. Direktorat Kelembagaan Dikti.
Drucker, P. (1994). Innovation and Entrepreneurship. Harpecollins Publisher.
Hadihardaja, J. (2005). Membangun Industri Konstruksi Indonesia. 1(2), 11–19.
Heidijrachman, R. P. (1982). Wiraswasta Indonesia. BPFE.
Iwantoro. (2006). Kiat Sukses Berwirausaha. PT. Gramedia.
Lestari, R. B., & Wijaya, T. (2012). Pengaruh Pendidikan Kewirausahaan terhadap Minat berwirausahaan mahasiswa di STIE MDP, STMIK MDP dan STIE MUSI. Forum Bisnis dan Kewirausahaan. Jurnal Ilmiah STIE MDP, 1(2), 112–119.
Majid, I. A., & Koe, W.-L. (2012). Sustainable Entrepreneurship (SE): A Revised Model Based on Triple Bottom Line (TBL). International Journal of Academic Research in Business and Social Sciences, 2(6), 293–310.
McGrath, R. G., & MacMillan, I. (2000). The entrepreneurial mindset: strategies for count in uoslycreating opportunity in an age of uncertainty. Harvard Business School Press.
Muhtarom, M., Nizaruddin, N., & Zuhri, M. S. (2017). Pelatihan Kewirausahaan Di Universitas PGRi Semarang. E-Dimas. E-Dimas, 8(1), 104. https://doi.org/10.26877/e-dimas.v8i1.1379
Muhtarom, Muhtarom, Nizaruddin, N., & Zuhri, M. S. (2017). Pelatihan Kewirausahaan Di Universitas Pgri Semarang. E-Dimas, 8(1), 104. https://doi.org/10.26877/e-dimas.v8i1.1379
Muhuda, D. (2001). Peran pelatihan kewirausahaan dalam meningkatkan produktivitas pengusaha kecil di Yayasan Mahendra Adji Saroyo (MAS) Pontianak. FISIP UNTAN Pontianak.
Nurul, I., & Rostiani, R. (2008). Intensi Kewirausahaan Mahasiswa: Studi Perbandingan antara Indonesia, Jepang, dan Norwegia. Jurnal Ekonomika Dan Bisnis Indonesia, 23(4), 1–27.
Priyanto, S. H. (2009). Mengembangkan pendidikan kewirausahaan di masyarakat. Andragogio-Jurnal PNFI, 1(1), 57–82.
Putra, R.S., & Anshori, M. (2018). Pemberdayaan Usaha Ekonomi Produktif dan Kewirausahaan kepada Pemuda dan Remaja di Pondok Pesantren-Jihad Surabaya. Universitas Nahdlatul Ulama Surabaya, 2(1), 21–25.
Putra, Riyon S. (2016). Kewirausahaan: Mengubah Pola Pikir Karyawan Menjadi Pola Pikir Pengusaha. Surabaya:PPM.
Siswoyo, B. B., & Suhandarto. (2004). Motivasi Bisnis, Membaca Peluang, Merintis dan Mengembangkan Usaha. Universitas Negeri Malang.