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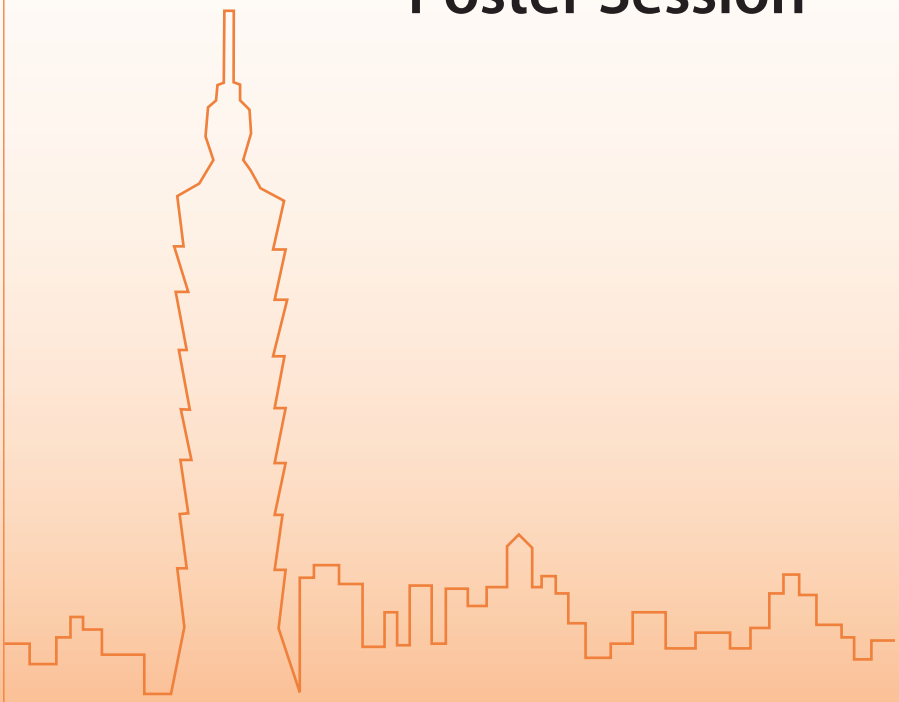

國立政治大學
創新與創造力研究中心
Center for Creativity and Innovation Studies

Contents

Entrepreneurship Education Program at the University of Tokyo

Taketo Sugawara, Katsuya Hasegawa, Shigeo Kagami
The University of Tokyo

ABSTRACT

In this paper, we analyze the entrepreneurship education program we run at the University of Tokyo. The university-wide entrepreneurship program runs for six months every year and consists of lectures, case studies and a business plan competition. The goal of the program is two-fold. One is to nurture entrepreneurial mindset of ordinary students and another is to cultivate and uncover new business ideas buried in laboratories across the campus. More than one thousand students took the program in the past six years. Although the participating students are from all faculties across the campus, 72% are with science and engineering background and 59% are graduate students. Judging from the profiles and feedback from the participants, the program can be regarded as successful in nurturing entrepreneurial mindset of the students to a certain extent, but not so effective as originally expected in discovering new business opportunities from university laboratories at this point. Since it has been only six years since the program started, long-term monitoring and follow-up studies are needed to measure and evaluate the effectiveness of the program.

1. INTRODUCTION

The entrepreneurship education program called "Entrepreneur Dojo[(1)]" started at the University of Tokyo in 2004. Creation of this new program was associated with the establishment of an organization called Division of University Corporate Relations which is intended to serve as a window between the industries and university to promote technology transfer from the university to industries. Entrepreneur Dojo program was started as part of their activities to accelerate the creation of university startups since university startups are one of the key vehicles to commercialize technologies created through the research activities at the university.

The program is open to every University of Tokyo students including undergraduate and graduate students as well as the post-doc researchers. The primary target students are the ones that are interested in creating businesses out of their own research results at their laboratories, but the program is also intended to attract students who have their own business ideas not necessarily originated from the technological research in the university.

In this paper, we analyze the activities of the Entrepreneur Dojo program in the first six years.

2. “ENTREPRENEUR DOJO” PROGRAM

Entrepreneur Dojo program is a university-wide half year program to provide students opportunities to learn about entrepreneurship and basic skills to create business plans. Although the program is an official university program, it is an extracurricular program and the students do not get any academic credits.

2.1 Contents of the program

The program is divided into three parts; entry-level class, intermediate class and advanced class. The entry-level class consists of lectures from faculty members and from guest speakers. Although the number varies from year to year, 150 to 200 students usually enroll in the program at the entry-level class. All the faculty members who organize and run the program have extensive industry experiences such as management consulting, IT consulting, venture investment and product development. The lectures cover the basics of starting new businesses including topics such as opportunity finding, business model creation, financial modeling, venture capital operation among other things. The guest speakers are usually successful entrepreneurs, venture capitalists or management consultants. Entrepreneurs share their experiences about their startups with the students while venture capitalists and consultants talk about how they evaluate various business plans. At the end of the entry-level class, students are requested to submit a two-page business idea. Only the students who submit the two-pager and pass the screening process can proceed to the intermediate class. The screening at this point is not so strict and most of the students who submitted the two-pager can proceed to the intermediate class.

With 40 to 80 students, the intermediate class starts with lectures similar to the entry-level class, but will include more group works and case studies as the program goes on. By doing so, we encourage students to form a team for the advanced class. We believe that having people with different background in a team is an important factor for starting up a new company. Since the program is an university-wide program, students can form a team with others from different faculties. This is not easy in a traditional faculty-centric educational system. Materials for the intermediate class include the original case study materials that we wrote for the program. At the end of the intermediate class, students are asked to submit a business plan. Only the teams who pass the selection can proceed to the advanced class. The business plan has to be proposed by a team of students and the students who can not form a team at this point cannot proceed to the advanced class even if they have good business plans. Usually, six or eight teams with total of 25 to 30 students are selected to proceed to the advanced class which is typically 30 to 50% of the students admitted to the intermediate class.

The advance class is a business plan competition which runs for about two months. The unique thing about this advanced class is that we assign industry experts to each team as a mentor. Usually, two mentors are assigned to each team to coach and advise the students. Mentors are experienced professional service providers such as CPA's, business lawyers, venture capitalists, consultants and analysts. There are not much centralized activities in the advanced class except for an off-site two-day training camp. The training camp is an opportunity for students to interact with other teams and with mentors. Other than this training camp, each team work independently from each other toward the final review. Business plans are usually significantly refined by the interactive feedback from the mentors. The final review of the business plan competition is done by the presentation to the review board. The members of the review board are mixture of senior people from the university and from the industry. Since the reviewers are usually not involved in the program until at this point, they judge the business plans from each team with fresh eyes without much perceptions.

Winners of the business plan competition are invited to join the student exchange program between the University of Tokyo and Peking University. Winners visit Peking University and present their business plans to the students of Peking University who are participating in a similar business plan competition program at their university. When the competition at the Peking University ends a few months later, then the winners of Peking University visit us in Tokyo and present their business plans to the students here.

2.2 Organizer s of the program

The Division of University Corporate Relations is primary responsible for running the program, and two university-related companies, University of Tokyo Edge Capital (UTEC) and Todai TLO, are also involved in the program. UTEC is a venture capital firm who makes venture investments to the university-related startup companies and Todai TLO is a company who markets and licenses intellectual properties created at the University of Tokyo. UTEC and Todai TLO provide some financial support to the program as well as professional support to the program, such as a lecture on venture capital, input for selecting teams for the advanced class and judges for the review board for the business plan competition. If the business plan presented at the competition is good enough, UTEC is ready to provide seed funding to create a company out of the business plan presented at the competition.

2.3 Goals of the program

The goal of the program is two-fold. One is to nurture entrepreneurial mindset of ordinary students and another is to cultivate and uncover new business opportunities buried in laboratories across the campus.

Although there are some educational programs that deal with entrepreneurship at each faculty in recent years, traditional curriculum at each faculty is based on the assumption that the students work for large organizations after graduating from the university, either in the public sector or in the private sector. The most typical career paths for the students at the University of Tokyo after graduation are management positions at established corporations, government officials and academic positions. The goal of our program is to change the mindset of the students so that they can be aware of the existence of other careers such as starting their own companies.

The second goal of the program to discover new business opportunities hidden in laboratories across the campus is related a little more directly to the goal for the Division of University Corporate Relations. Since one of the organization's goals is to create new companies out of the university technologies, the program was established to serve as a tool to find out the technologies that are not visible to the organization through the ordinary channel of gathering information from the faculty members. Since students, especially the graduate students, are usually the actual work force of each laboratories, we can find out the technologies that were not on our radar screen by soliciting business ideas from the students.

2.4 Characteristics of the participants

More than one thousand students took the program in the past six years. Table 1 shows the characteristics of participating students during the six years. Although the participating students are from all faculties across the campus, 72% are with science and engineering background. Since the students with science and engineering background account for 64% of all students in the University of Tokyo[(2)], it can be said that relatively large number of students with science and engineering background took our program. 59% of participating students are graduate students. Since graduate students account for 50% of all students in the University of Tokyo with 23% of freshman & sophomore students and 27% of junior & senior students[(2)], the number shows high rate of participating students from graduate schools and low rate of participating students from under graduate schools.

Thus, in the University of Tokyo, graduate students with science and engineering background are more interested in entrepreneurship or have business ideaes. However, as discussed in more detail below in this paper, it is not necessarily the case that all the graduate students with science and engineering background have their own business ideas originated from the technological research in the laboratories.

Table 1. Characteristics of participating students

	Freshman & Sophomore	Junior & Senior	Graduate School	TOTAL
Science & Engineering	34	193	507	734 (72.0%)
Humanities & Social Science	42	150	94	286 (28.0%)
TOTAL	76 (7.5%)	343 (33.6%)	601 (58.9%)	1020 (100.0%)

Figure 1 shows the trends of participating students each year. Every year, on average, 150 to 200 students usually enroll in the program at the entry-level class. The number of all the students in the University of Tokyo in 2010 is 28734[(2)], so less than 1% of students usually enroll in the program.

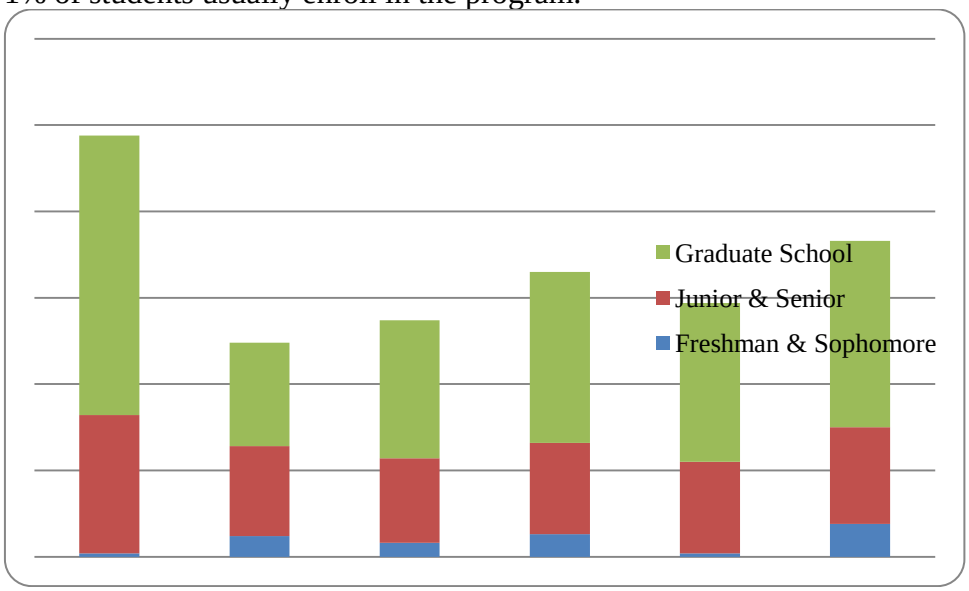

Figure 1.
Trends of participating students

Table 2 to 4 are the details of the participating students of each faculty (Table 2 is for Freshman & Sophomore course, Table 3 is for Junior & Senior course, and Table 4 is for Graduate Schools). These tables show the trends that engineering students are well-attended in the program rather than the students in agricultural course or medical course. Our program has been especially successful in nurturing entrepreneurial mindset of engineering students.

Currrently, we are trying to track the career paths of this program's participants, and are planning to complete a result of the survey.

Table 2. Participating students of Freshman & Sophomore school

Freshman & Sophomore	2005	2006	2007	2008	2009	2010	Total
Science Ⅰ	8	4	3	2	1	3	21
Science Ⅱ	2	2	1	2	1	3	11
Science Ⅲ	2	0	0	0	0	0	2
Subtotal	**12**	**6**	**4**	**4**	**2**	**6**	**34**
Humanities Ⅰ	1	1	1	3	0	5	11
Humanities Ⅱ	6	3	2	6	0	6	23
Humanities Ⅲ	3	2	1	0	0	2	8
Subtotal	**10**	**6**	**4**	**9**	**0**	**13**	**42**
Total	22	12	8	13	2	19	76

Table 3. Participating students of Junior & Senior school

Junior & Senior	2005	2006	2007	2008	2009	2010	Total
Medicine	10	2	1	2	4	1	20
Engineering	16	21	26	17	15	25	120
Science	4	3	4	2	4	1	18
Agriculture	8	8	6	2	1	2	27
Pharmaceutical Science	7	0	1	0	0	0	8
Subtotal	**45**	**34**	**38**	**23**	**24**	**29**	**193**
Law	12	3	2	2	7	12	38
Letters	4	4	1	15	2	5	31
Economics	15	7	3	7	15	6	53
College of Arts and Science	4	2	2	3	2	2	15
Education	0	2	3	3	3	2	13
Subtotal	**35**	**18**	**11**	**30**	**29**	**27**	**150**
Total	80	52	49	53	53	56	343

Table 4. Participating students of Graduate schools

Graduate School	2005	2006	2007	2008	2009	2010	Total
Science	13	3	9	14	4	6	49
Engineering	56	18	22	31	24	35	186
Agricultural and Life Sciences	18	13	12	2	6	8	59
Medicine	10	3	5	3	13	9	43
Pharmaceutical Sciences	3	1	1	2	3	0	10
Frontier Sciences	24	5	9	18	10	26	92
Information Science and Technology	8	1	6	10	2	3	30
Others	0	1	0	0	1	0	2
Subtotal	**132**	**45**	**64**	**80**	**63**	**87**	**471**
Humanities & Sociology	3	1	1	0	0	0	5
Education	1	0	0	0	0	1	2
Public Policy	7	4	4	2	4	4	25
Arts and Sciences	8	1	2	2	5	3	21
Economics	0	0	1	1	1	0	3
Interdisciplinary Information Studies	3	1	1	6	9	6	26
Law and Politics	1	0	0	1	2	1	5
Others	0	0	0	1	0	0	1
Subtotal	**23**	**7**	**9**	**13**	**21**	**15**	**88**
Science & Engineering post-doctor	7	5	5	6	8	5	36
Humanities & Social Science post-doctor	0	3	2	0	0	1	6
Subtotal	**7**	**8**	**7**	**6**	**8**	**6**	**42**
Total	**162**	**60**	**80**	**99**	**92**	**108**	601

2.5 Characteristics of the business plans in the program

Although the students with science and engineering background are well-attended in the program, there are not many business plans based on technologies from university laboratories. Figure2 shows the characteristics of the business plans in the advanced class.

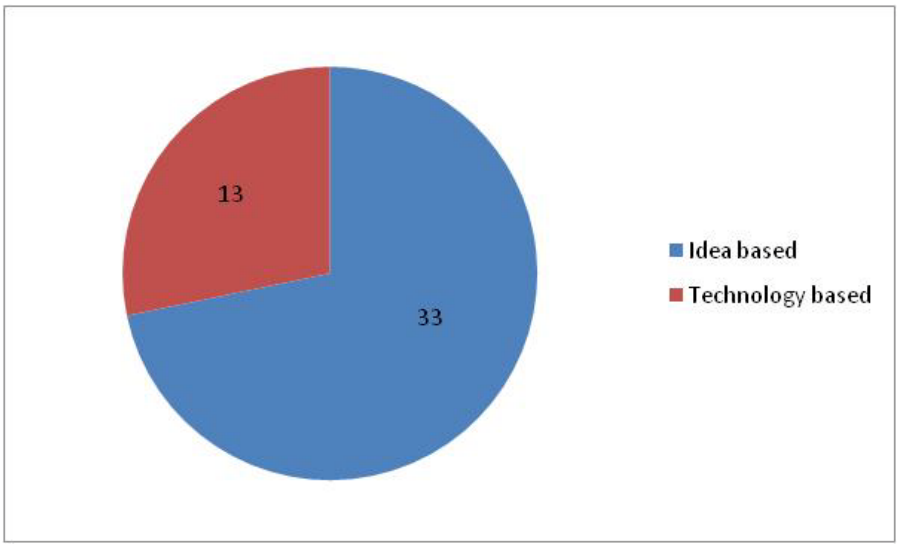

Figure 2.
Characteristics of the business plans in the program

70% of the participating students' business plans are based just on their idea without specific technologies to support the business ideas and only 30% are based on technologies they research in university laboratories. Only 6 (14%) business plans are based on technologies which are eligible for patent. Web-services and ICT-services, especially Social Networking Services (SNS) related plans, are the most popular bunisess plans in the recent years. This suggests that the program is effective in nurturing entrepreneurial mindset of the students, but not so effective enough in discovering new business opportunities from university laboratories.

2.6 Startup companies created from the program

Although the original expectation of the program was to produce many entrepreneurs who actually start companies out of the business plans generated at this program, the reality is that most of the participating students work for large organizations after graduating from the program and that there is not much case of founding a startup company and starting their own business from the program. However, there are some students started their own business after the program. Followings are such cases.

The first case is that a student founded a startup company based on his business plan which was created from the program. He had some image processing technology while he was in the PhD course in the Engineering School and created a business plan based on it. He brought his business plan to the program, but he couldn't pass the selection to the advanced class. Then he refined the technology and the business plan, and started his own business two years after dropped from the program. His business has been steadily running for three years now.

The second case is that a student took a leave of absence from the university to prepare for starting a new business after the program. His business plan in the program was based on the original software technology he developed while he was in the master course in the School of Science. His plan was awarded the Grand Prix in the business plan competition, but he didn't start a business directly based on the original plan. Although the technology was interesting enough to win the competition, the business idea that he proposed at the competition was not viable when he actually started to create a more elaborate business plan. It took almost two years for him to redefine his business idea to start a company. His original software technology is still part of the business, but it became one feature of the service rather than the core technology of the business.

The third case is that a student worked for a private company for four years after graduating the program, and started his own business. He was a undergraduate student at the Faculty of Agriculture when he joined the program. His business plan at the program was in the area of web services and was not related to his research. He joined a large investment bank after graduating from the university and move to a private equity firm one year later where he learned about the management and financing of a company. After three years at a private equity firm, he started an internet company. His business is nothing to do with the business plan he created in the program, but he fostered entrepreneurial mindset through the program.

3. DISCUSSIONS

As we mentioned in Section 2.3, the original goal of the program was two-fold. One was to nurture entrepreneurial mindset of ordinary students and another was to cultivate and uncover new business opportunities buried in laboratories across the campus.

Regarding the first goal of nurturing entrepreneurship, although we are still in the process of conducting a survey and tracking the career paths of the participants, our preliminary analysis is that the program is causing a certain positive impact on the mindset of the students.

Three entrepreneurs we discussed in Section 2.6 who actually started their companies indicated that the experiences they had in the program were very positive. This is not just for the small number of people who became entrepreneurs. People who joined the large organizations after the graduation also express their appreciation to the experience of the program, especially to the process of creating a business plan in the advanced class. In advanced class, students can have a pseudo-experience of starting a business and they encounter various problems such as; how to cope with a conflict between team members, how to get feedback from potential customers without having products, how to convince others about

unproven market, how to prove that the technology is real, how to create consistent financial numbers. All of these issues are the issues they face in the real world. They learn the entrepreneurial thinking by going through the pseudo-experience for starting a business in the program.

Almost all students who were able to advance to the advanced class emphasize that the true value of the program is in the advanced class. Most of the participants stress that the process of refining the business plan through the interactive feedback from mentors is the most important element of the program. Having very high-skilled professional service providers as mentors is one of the key success factors of the program. Judging from these feedback from the participants, we believe that the program is successful in nurturing entrepreneurial mindset of the students.

The fact that the program participants, including the ones who joined large organizations, are connected each other even after the graduation also supports the positive impact of the program. Since the human network of the people who shares the same experience is an important source of human capital for startup companies, we are trying to keep the community of the program, including the alumni and mentors, active over the years. Although it is not easy to keep track of all alumni, we distribute information of the current year's program to the alumni and we invite the alumni to the final business plan competition. We also encourage current year's participants to organize an alumni party at the end of the school year. One of the recent new mentors is actually a participant of the program in early years and we expect to have such case more frequently.

Although we believe the program is causing a positive impact, the number of participants is still only less than 1% of the entire students. We don't expect every student to be entrepreneurs, but the percentage of the students interested in entrepreneurship should be higher than a few %. We need to increase promotion and advertisement efforts to expose the program to all students. Since the innovation through creating new companies are critical to revitalize Japanese economy, we believe that changing the culture of the students at the top university in Japan is very important although it is a long-term process for this kind of activities to have a certain effects to the society.

As for the second goal of the program to discover new business opportunities hidden in laboratories across the campus, we think we are not so much successful as we originally expected. As we pointed out in Section 2.5, 70% of the plan in the advanced class is not related to the research in the university. Although two out of three companies we talked in Section 2.6 are based on the technologies developed in the laboratories, the sample number is too small. Given the fact that we are relatively successful in attracting attentions from the graduate students with science and engineering background as we discussed in Section 2.4, it is disappointing that

they do not propose business ideas based on the technologies they work on in their laboratories, but rather come up with businesses not related to the technologies they have in their hands. Our assumption was that the students, especially the graduate students, are the actual work force of the university researches and they should be the key persons to bring the hidden technologies to our attention. We are still in the process of analyzing the reason why these graduate students with technology background do not come up with business ideas based on their own technologies, but our preliminary hypothesis is that the students lack opportunity finding skills. Traditional curriculum at the schools of engineering and science may not provide appropriate programs to acquire skill sets to find business opportunities in various technologies. If that is the case, we may have to consider including and enhancing the sessions to address opportunity finding skills in the entry-level and intermediate classes.

4. CONCLUSION

We reviewed and analyzed the entrepreneurship education program we run at the University of Tokyo for the past six years. Judging from the profiles and feedback from the participants, the program can be regarded as successful in nurturing entrepreneurial mindset of the students to a certain extent, but not so effective as originally expected in discovering new business opportunities from university laboratories at this point. Since it has been only six years since the program started, long-term monitoring and follow-up studies are needed to measure and evaluate the effectiveness of the program.

【NOTES】

1) A **dojo** (道場) is a Japanese word to describe a formal training place for martial arts, such as Judo, Kendo and Karate.

2) The University of Tokyo Databook 2010

ABOUT AUTHOR

Taketo Sugawara is an assistant professor of The University of Tokyo, Science Entrepreneurship and Enterprise Development (SEED), Division of University Corporate Relations (DUCR). Before he joined The University of Tokyo, he was a consultant at IBM business Consulting services (2004-2009). At the University of Tokyo (2009-), his responsibilities include 1) Entrepreneur education program and business plan competition for the entire University, 2) Management of incubation facilities for university start-ups, 3) Consulting for the University researchers and students for their start-up initiatives. His actual academic research themes are business venturing, business incubation and entrepreneurship.

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