**ENTREPRENEURSHIP EDUCATION AT MAIZURU COLLEGE**

**-AIMING FOR REGIONAL REVITALIZATION IN THE NORTH KINKI REGION-**

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**Abstract**

**This paper describes the project to develop entrepreneurship human resource. It has goals as the below. a) Career development including after graduation (life plan, living expenses, insurance / pension system, etc.), b) Revitalization of Japan through regional revitalization (regional policy, local finance, regional economy, etc.), c) International expansion (related items such as the world economy and international law). The education system is designed to realize start-up achievements through solving regional issues. It has characteristics such as; a) Based on the established a regional platform (representative: Maizuru College), b) In collaboration with Maizuru City, two IT companies have been invited to establish a branch office and a satellite office, and they hope to accept students. c) Under the support of the Chutan Regional Promotion Bureau of Kyoto Prefecture, we established a corporate alliance called "Kyoto PMS" (Product Manufacturing Service). d) Participation in the startup research subcommittee of the Cabinet Office's regional revitalization SDGs public-private partnership platform. Concerning to the framework of school organization, in addition to setting up a startup human resource development center within the regional collaborative technology center, we build a system with industry-academia-public-finance platform in the north Kinki region as an advisory board. Also five equipment for this project are allocated to each facilities as the creative area that surrounds the centered creative studio. Specific contents have three steps. STEP 1: All technical college students learn about "entrepreneurship" for the future, STEP 2: Technical college students try to create things with free ideas (creative workshop, creative workshop area), STEP 3: Startup for technical college students. In the following themes, students will use the facilities and equipment they have applied for to create things. a) Manufacturing that connects virtual reality (VR) and reality, b) Solving regional issues using embedded/IoT technology, c) Promotion of AI and data science education using cutting-edge GPU environment and social implementation. d) Problem solving with an advanced robot arm development environment, e) Activities to improve the environment, including the living environment, through regional collaboration.**

**Keywords:** *entrepreneurship education, regional revitalization, north Kinki region, IoT*

**Introduction**

Higher education in Western countries as a whole is trying to solve the current problems by back-casting. The movements to create teams across fields and to solve social issues are appearing in the activities of companies and the founding of NPOs and NGOs. There is a method of procuring the necessary resources after clarifying the goals.

The Japanese government is promoting education about entrepreneurship from an economic perspective and the realization of a sustainable society.

A startup project has started at National Institute of Technology with the support of the Ministry of Education, Culture, Sports, Science and Technology, MEXT. Here we describe the discussion on startup and entrepreneurship, and the plan of Maizuru National College of Technology.

**Entrepreneurship and Startup**

In considering the possibility of entrepreneurship for the student in future, it is important to touch on the perspectives of entrepreneurship, startup, project management, and business administration as well as the knowledge necessary for entrepreneurship.

Entrepreneurship has a broad meaning and is used to include startup, creation of business plan, ventures, etc. According to Irie, A. (2019), entrepreneurship consists of four areas, that is;

1) International Entrepreneurship: multi national company, e.g. Uber, airbnb

2) Social Entrepreneurship: established with priority given to social and public purposes, e.g. development type of conventional NPO

3) Institutional Entrepreneurship: transcending social norms, establishing new norms, and changing the government system, e.g. NPO Florence's approved small-scale nursery school business

4) Intrapreneurship: entrepreneurship in a large company, e.g. Soup Stock Tokyo from Mitsubishi Corporation

Startup elements include founder, business opportunity, founder and team, and finance. There is a debate as to whether to start the business first and prepare the environment, or to launch the business when the opportunity is ripe.

According to Phillips, J. (2004), project management is the process of leading the work of a team to achieve all project goals within the given constraints. This information is usually described in project documentation, created at the beginning of the development process. The primary constraints are scope, time, and budget. The secondary challenge is to optimize the allocation of necessary inputs and apply them to meet pre-defined objectives.

Entrepreneurship from the perspective of business administration requires both a macroscopic perspective that deals with the entire organization and relationships between organizations, and a microscopic perspective that deals with behaviour within the organization. Figure 1 describes the framework that is translated from Irie, A. (2019).



Figure 1 Entrepreneurship from the perspective of

business administration

**Implementation at Maizuru College**

This project has the following goals.

a) Career development including after graduation: life plan, living expenses, insurance / pension system, etc.

b) Revitalization of Japan through regional revitalization: regional policy, local finance, regional economy, etc.

c) International expansion: related items such as the world economy and international law, etc.

The education system is designed to realize start-up achievements through solving regional issues.

It has characteristics such as;

a) Based on the established a regional platform (representative: Maizuru College),

b) In collaboration with Maizuru City, two IT companies have been invited to establish a branch office and a satellite office, and they hope to accept students.

c) Under the support of the Chutan Regional Promotion Bureau of Kyoto Prefecture, we established a corporate alliance called "North Kyoto PMS" (Product Manufacturing Service).

d) Participation in the startup research subcommittee of the Cabinet Office's regional revitalization SDGs public-private partnership platform.

In the campus, the equipment for this project are allocated to each facilities as the creative area that surrounds the centered creative studio. In the respective themes, students will use the facilities and equipment they have applied for to create things.

Concerning to the framework of school organization, in addition to setting up a startup human resource development center within the regional collaborative technology center, we build a system with industry-academia-public-finance platform in the north Kinki region as an advisory board.

**Three steps common to each technical college**

STEP1: All KOSEN students learn about "entrepreneurship" for the future.

Focusing on classroom lectures, they learn the concept and basic knowledge of startup mentioned above.

STEP2: KOSEN students try to create things with free ideas (creative workshop, creative workshop area).

STEP3: Startup trial for KOSEN students

The way to establish the company to start is shown to motivated students. In addition to current internships, participants will participate in business launches within local companies.

Three steps are undergoing in Maizuru college as following corresponding steps.

**STEP1:** **Contents to be learned as basic knowledge**

Two materials are considered to prepare the contents as below;

a) SME management consultant

Many of the local companies around us are small and medium-sized, SME, enterprises, and the knowledge necessary for SME enterprise diagnosticians who evaluate their activities and give advice is useful for startup and for career formation for working at companies. Therefore it is considered to have affinity with this project.

The brief list of contents including related area is described in Table1.

b) Learning in high school synthetic inquiry time.

Yoshida, M. (2022) has focused on the "gap" between the knowledge necessary for high school teachers to teach group work for solving local problems and the knowledge they have already acquired. It will be useful for learning up to the third year of technical college. The summarised contents are shown in Table 2. Each row indicates acquired knowledge as a teacher in high school, gap between required knowledge in terms of university and adult education, and the knowledge required for instruction respectively, from left to right.

Through the discussion among the staff at Maizuru college, in fiscal year 2023, it will be held during special activities mainly for third-year students, so the number of hours for the implementation is limited. We considered the following policy.

a) Overall view of manufacturing and its social implementation are related to various fields,　e.g. ergonomics, project management, etc.

b) Knowledge of entrepreneurship and management perspective is necessary for manufacturing

c) Knowing that there are process management, cost management, etc., students will have a vision and perspective to see the overall picture of manufacturing

With the cooperation of Honda Motor Co., Ltd. as an example of manufacturing, we will explain "from car design to manufacturing" and connect it to a wide range of related fields.

**STEP2: Technical college students try to create things with free ideas**

STEP2 is carried out with creative workshop, etc. and it is mainly in creative workshop area. In addition to being conducted in classes and practical training, it also includes practical content such as internships that destination are aware of startup project of KOSEN. The

Table 1 Brief view of the issues of SME management

consultant

|  |  |
| --- | --- |
| Item | Content |
| Economics/Economic Policy | National accounts and key economic indicators  Financial goods market analysis and IS curve,  Money market analysis and LM curve |
| Financial accounting | Financial statements, Management analysis |
| Business management theory | Management strategy, Organizational theory, Marketing,  Business plan planning/preparation/analysis |
| Operational management | Production management, Store/sales management,  Project management, Labor, Insurance |
| Management legal affairs | Civil law, corporate law, etc., Intellectual property rights, etc., Tax |
| Management information system | Basic knowledge of information technology, Cloud computing |
| SME Management/SME Policy | Management, Policy |

Table 2 Contents of learning in high school integrated

inquiry period

|  |  |  |  |
| --- | --- | --- | --- |
| Acquired knowledge as a teacher in high school | The “gap” between the knowledge required for teaching and the knowledge high school teachers already acquired | |  |
| Knowledge High School Teachers Already Acquire | Contents at university | Contents of adult education | Knowledge required for instruction |
| N/A | N/A | Municipal business | 1. What kind of issues are there in the region? |
| Undergra-  duate specialized subjects | Business Administration | In-house training/  self-improvement |
| Undergra-duate specialized subjects | urban engineering | (Recruitment of experts) |
| Undergra-duate specialized subjects | history, etc. | (Recruitment of experts) |
| Guidance for students such as liberal arts subjects\*1  Special Activity Theory\*2 | N/A | coaching theory | 2. How to lead group work outside one’s area of expertise |
| communication theory | On-boarding training, etc. |
| leadership theory | Management training, etc. |
| Others (human resource management theory,  critical path theory, etc.) | Management methods, process charts, and critical path theory to increase organizational efficiency |
| Graduation thesis guidance on how to write papers and reports | no gap  (Professing reports, graduation thesis, etc. at the university) | no gap  (on-the-job training for in-house document creation, etc.) |  |
| Social awareness education theory such as teacher training courses, modern society and social education, social education management theory (\*2) | Business Administration  career design theory  corporate research | on-the-job training | 3. Career Formation theory necessary for advising students to design their own life |
| Career Education Theory (\*2) | career design theory | Personnel evaluation, etc. |

\*1:Elementary and Secondary Education Bureau Student Affairs Division (2010) "Student Guidance Guidelines" Ministry of Education, Culture, Sports, Science and Technology

\*2: Examples of subjects and syllabuses of the College of Human Studies, University of Tsukuba (2021)

five themes to be implemented are as follows covering most departments of Maizuru college.

a) Manufacturing that connects virtual reality (VR) and reality,

b) Solving regional issues using embedded/IoT technology,

c) Promotion of AI and data science education using cutting-edge GPU environment and social implementation.

d) Problem solving with an advanced robot arm development environment,

e) Activities to improve the environment, including the living environment, through regional collaboration.

**STEP3: Startup trial for technical college students**

Maizuru City, Maizuru National College of Technology (including students), and KDDI have developed a small-scale river water level monitoring system. It has been socially implemented as Maizuru City comprehensive monitoring information distribution system, Maizuru city (2023).

In the process of social implementation, a startup procedure has been derived by PMI Japan chapter and Maizuru college. It is a methodology that combines regional problem solving and SDGs, Takahashi M., Toshihiro K., Utsumi Y., (2022).

The procedure is as followings.

a) early plan

Creating an initial lean canvas and it is commonly used.

b) Initial goal mapping

Initial target setting

Create an initial logic model

c) Exchange of opinions with external experts, etc.

Lean canvas and logic model modifications

d) On-site trial

Consideration with early adopters

Create a benefit list

It is based on actual activity including the students in Maizuru city, and it can be a motivation for current students.

**Conclusions**

A project at Maizuru college to cultivate the human resouerce in terms of stratup and entreprenorship is introduced.

Considering the required three steps, the current status of coresponding education in high school and companies, and limited period undergoing education, the followings is being carried out in 2023.

a) The relation between entrepreneurship and startup

The lectures by 2023 July indicate most of students are not familiar with entrepreneurship and startup, but the view point of the realization of their dream in future by startup seems helpful to understand.

b) STEP1: Contents to be learned as basic knowledge

First thing is to broaden student's horizon. The starup has no established formula for success, that is the subsequence of selection of possible solutions in changind surroundings. Students sometimes hesitate to choose one decision at own risk where conventional education in engineering and science often provides one best solution for one problem.

c) STEP2: Technical college students try to create things with free ideas

Miazuru college provides five themes that students can evolve their own ideas. Students have opportunities to undestand each theme relates to various fields and also it has been establised by activities of predecessors in society.

d) STEP3: Startup trial for technical college students

As introduction of a startup methodology, examples by successful businessman are introduced with discussion at present.

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**References**

Irie, A. (2019), *Global standard management theory*, Diamond Press.

Maizuru city (2023), *Maizuru City comprehensive monitoring information distribution system*, Retrieved from https://www.city.maizuru.kyoto.jp/kurashi/0000011117.html

Phillips, J. (2004). *PMP Project Management Professional Study Guide*, 354.

Takahashi M., Toshihiro K., Utsumi Y., (2022), *Construction of Flood Prediction System for Small Rivers in Maizuru City – SDGs Startup Methodology Application Model (1)*, Retrieved from https://doi.org/10.57323/pmijapan.2.1\_94

Yoshida, M. (2022), *Comprehensive Inquiry Time Handbook - Local Problem Solving Edition*, Komyakusha, 4