A Tool for Assessing Changes and Growth in Entrepreneurial Mindset and Skill Sets Gained through Higher Education Project-Based Learning

Presented by

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Purpose of this Virtual Presentation

This presentation introduces ...

an assessment tool

● Designed for higher education entrepreneurship program participants

● Participants to understand their changes and growth in developing an entrepreneurial mindset and skill sets
MEXT in Japan
(Ministry of Education, Culture, Sports, Science and Technology)

• Initiated and completed a 3-year cycle of the Enhancing Development of Global Entrepreneur (EDGE) program
• EDGE was carried out in various higher education settings, between 2014 and 2018.
• Hiroshima University (HU) was one of 13 universities to design and implement EDGE.
Goals of the EDGE Program

1) To foster an entrepreneurial mindset and skill sets in participants

2) To form and maintain an innovation ecosystem with participants and relevant internal and external human resources and organizations
A Challenge We Tackled with

- To assess the EDGE’s first goal
  - To foster an entrepreneurial mindset and skill sets in participants

Our Response to the Challenge

- Created an original tool with a 6-point Likert scaled-response format
  - Target Program in this Study
    - EDGE Programs
  - Target Users in this Study
    - EDGE Program Participants
Method
Designing an assessment tool and collecting information to verify its validity

> first step: designing an original assessment tool
- a literature review
- a key concept Discovery Skills identified in the literature review
- applying discovery skills to the EDGE’s first goal
- validating the function of the assessment tool

> second step: implementing the tool with program participants
- 3 universities from the EDGE program (Hiroshima University, Tokyo Institute of Technology, and Waseda University) used the tool between January 2015 and March 2017.

> third step: collecting and analyzing responses
- 103 responses were collected from these universities.
- conducted a calculation of the t-test with 34 usable responses

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Applying Discovery Skills (Dyer, Gregersen, and Christensen) to the first goal of EDGE program

- Discovery Skill 1, Associating
- Discovery Skill 2, Questioning
- Discovery Skill 3, Observing
- Discovery Skill 4, Experimenting
- Discovery Skill 5, Networking

EDGE 7 Capacity Areas

- Tenacity
- Decisiveness
- Problem Finding and Solving
- Risk Management
- Communication Skills
- Interdisciplinary Strengths with Networking and Collaboration Skills
- Spirit of Challenge.

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### 7 Capacity Areas / [Mindset] Courage to tackle innovation

**Tenacity: Strength within oneself to keep going towards recovery**

1. I don’t drag out my failure.
2. I think to myself, “I should be always capable.”
3. Even if work is not going well, I’m not going to stop immediately.
4. I can create a situation where I can easily come up with ideas.
5. I do not hesitate to ask questions and proactively ask the questions.
6. I’m aware of skills that I don’t have.
7. I take criticism calmly.
8. I can swallow my pride and ask for help.

**Decisiveness: Remain decisive while using different perspectives**

1. I want to change the current situation.
2. I can find people with the skills and competencies that I look for.
3. At some point, I’m not afraid if a decision is not supported.
4. When I try to solve a problem, if anything doesn’t go well no matter what I try, I let it go.
5. At some point, I’m fine if it’s not perfect.
6. I can team up with people with the skills and competencies that I look for.
7. I am skilled in my work.
8. I can propose an interesting approach that people accept without thinking.

< Most Updated Assessment Tool >

(EDGE: 7 Capacity Areas Self-Assessment Tool)

- with a 6-point Likert scaled-response format
- with 56 questions in 7 capacity areas
## Profile of Program Participants Used the Assessment Tool

- 103 program participants who used the assessment tool

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<tr>
<th>Status</th>
<th>Adult Continuing Education</th>
<th>Graduate School</th>
<th>Undergraduate</th>
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<tr>
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<td>58%</td>
<td>30%</td>
<td>12%</td>
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<table>
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<tr>
<th>Gender</th>
<th>Male</th>
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<td>76%</td>
<td>24%</td>
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| Age                     | 20-29                       | 30-39           | 40-49         | 50+ |
|-------------------------|-----------------------------|-----------------|---------------|
|                         | 43%                         | 31%             | 20%           | 6%  |
Procedures of Using the Assessment Tool

- Program participants responded to the same set of questions in the assessment tool at the start and end of the program.

- The tool helps the participants assess their entrepreneurial mindset and skill sets using two approaches.
  - The first approach helps participants understand how innovators and entrepreneurs find their potential ideas and what point of view they focus on to add an innovative dimension.
  - The second approach helps participants see the change and growth in their entrepreneurial mindset and skill sets.

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Results

- Analytic results from useable responses to the assessment tool showed that the average scores for the second assessment at the end of program increased from the average scores for the first assessment at the start of program in all 7 capacity areas.
- A paired samples t-test found that differences in the average scores between the start and end of program in 7 capacity areas were statistically significant.

- The assessment tool is considered to be a valid assessment tool for two purposes.
  - The first purpose is to understand program participants’ changes and growth in entrepreneurial mindset and skill sets gained through higher education project-based learning.
  - The second purpose is for participants to self-assess their changes and growth by self-assessment in order to foster their entrepreneurial mindset and skill sets.

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A Suggestion for Usage of the Assessment Tool

- The purpose of this paper is to share an assessment tool (EDGE: 7 Capacity Areas Self-Assessment Tool) designed for higher education entrepreneurship program participants to understand their changes and growth in entrepreneurial mindset and skill sets.

- We verified the validity of the assessment tool which was designed with the 6-point Likert scaled-response format and based on previous international studies about entrepreneurial mindset and skill sets.

- The tool can be internationally used and modified by other entrepreneurship educators for program participants in entrepreneurship education in higher education settings.
Most Updated Assessment Tool - Continued
(EDGE: 7 Capacity Areas Self-Assessment Tool)

- with a 6-point Likert scaled-response format
- with 56 questions in 7 capacity areas
### Capacity Areas / [Skill Sets]

#### Capacity areas needed for innovation

**Problem Finding and Solving:** Carefully observe the real world

1. I do not get caught by common sense.
2. I observe things around me.
3. I try to gain awareness from what I observe.
4. I search consciously for what is unexpected.
5. I’m interested in what people want to get done.
6. I think about what is missing and look for a solution.
7. I look around me by changing my perspective.
8. I purposefully think about unconventional ways of doing things.

**Risk Management:** Take a “smart risk”

1. I spend time to find ideas.
2. I do not make blind assumptions about results.
3. When I come up with an idea, I “rethink” my idea repeatedly.
4. I take risks when necessary.
5. I proactively learn from failures.
6. I don’t leave my ideas unattended and put the ideas in action as soon as possible.
7. If something doesn’t work, I move on and try something else.
8. I’m not afraid of swinging and aim for a home run!

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### Communication Skills: Find a better question

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<tr>
<td>1. I listen seriously to people’s ideas.</td>
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<td>2. I recognize that “asking” holds the same value as “an excellent answer.”</td>
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<td>3. I make sure people understand correctly what I asked.</td>
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<td>4. I discuss with people different ideas.</td>
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<td>5. I always talk to various people.</td>
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<td>6. I ask about “who, what, when, where, and how.”</td>
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<td>7. I ask questions to help me to understand the current situation.</td>
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<td>8. I ask “what if…”</td>
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### Interdisciplinary Strengths with Networking and Collaboration Skills: Create and utilize a network

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<tr>
<td>1. When I come up with an idea, I find out what other cases exist.</td>
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<td>2. I share my ideas with people from different fields and industries.</td>
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<td>3. I have a wide network of people with diverse backgrounds and ideas.</td>
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<td>4. I’m learning many from people with different ways of thinking.</td>
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<td>5. I try to understand the problems newly met people have.</td>
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<td>6. I try to find solutions to problems based on solutions and ideas developed in other industries, fields, and areas.</td>
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<td>7. There are people with whom I can consult when I make decisions.</td>
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<td>8. I actively contribute.</td>
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<td>Spirit of Challenge: Be curious about new things and proactively experiment with ideas</td>
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<td>1. I like new challenges.</td>
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<td>2. I actively seek opportunities to change the status quo.</td>
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<td>3. I keep trying until the idea takes shape.</td>
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<td>4. I drive failure to drive forward.</td>
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<td>5. I help people understand their challenging attempts.</td>
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<td>6. I actively seek comments from people around me.</td>
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<td>7. I try a different way when I fail.</td>
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<td>8. I’m interested in various situations and try to find new things in my daily life.</td>
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