Formulæ to engage students with D&I® assessment

Hongyi Sun, Paula Hodgson and Janel M. Curry

Hongyi Sun & Paula Hodgson (City University of Hong Kong)

Janel M. Curry (Gorden College, MA., U.S.A.)
Symbol of relating creativity to success

- Being creative \( \bigcirc \) Achieving good grades in academics

\[ \equiv \quad \frac{4}{\sqrt{2}} \]

- Being creative \( \bigcirc \) Performing well at work
Innovation and creativity

Innovation: ‘insertion of the effective novelty.’

Cropley and Cropley (2009)

‘Creativity: early stages of innovation processes with innovation implementation later.’

Michael West (2002)
Discovery and Innovation (D&I) @CityU

‘Discovery-enriched curriculum (DEC) may make changes in students’ attitudes toward learning and creativity, including their ability to draw ideas from different areas to generate unique knowledge; and their taking advantage of opportunities to try out their ideas.’

Prof. Arthur Ellis

The Discover&Innovate@CityU® (D&I) theme in DEC creates an educational experience to equip students with the targeted attributes through a combination of Gateway Education (GE) courses, disciplinary studies, and co-curricular activities.

‘GE2304’
Student comments about the course

‘Apart from experiencing differences in culture and the different approach that the teacher had, the topics are not just academic related.’

Non-local student

‘It is not just a course. It includes a lot of other subjects, from marketing, commercializing the product; marketing strategies; conducting survey to supporting the investment.’

‘It is an interesting course and is very creative. Not just about thinking about a product, but actually how to produce it. It really goes into depth, and each team has to come with a study, examine if it is feasible and actually create something.’

Local students
Student feedback

- Dr. Sun has given me useful information and given me a lot of new ideas about innovation. I like his teaching style and course materials. He is also well prepared for every lesson and makes us feel interested. He can make me try to think in many ways for the same thing.

- Excellent!

- It was my great experience to attend his course. I am very appreciative of his communication skills to keep audience attention.

- Vvvvvvvvvvvvvvvvvvvery Good!!!!!!!!

- Interesting course, wonderful personality and very different from other courses I had before.

- This lecture is completely different experience from others. The teacher can stimulate me to think deeply about the topic.

- The tutor is highly devoted and well prepared for each lecture. He is good at stimulating the interest of the students about each topic. He truly liberates the joy of learning for all students.

- Dr. Sun’s class is very useful and interesting, and he has incredible ability, which can attract us in the class.
Outline

- Course background: D&I® assessment
- Process
- Formulae suggestion
What is GE2304 about?

Innovation and Entrepreneurship for Young Professionals.

This course aims to help university students to understand the characteristics and work of innovator and entrepreneur. It also aims to nurture students’ innovation mindset, entrepreneurial spirit and team collaboration skills in a multi-disciplinary environment.
Course objectives

- What are the characteristics of innovators/entrepreneurs?
- How to work with innovators and entrepreneurs in a team?
- How to generate new product/service ideas and identify business opportunities from daily needs and real-life problems?
- How to assess the potential of an innovative idea from a multi-disciplinary perspective?
- How to work with people from different fields?
What will students do in GE2304?

The course will provide an opportunity for students from engineering and sciences, management fields and social sciences to work together in their own mock companies and play the roles of CEO and various other managers to simulate an innovation and entrepreneurship process.
## DCIE model

<table>
<thead>
<tr>
<th>Discovery</th>
<th>Creativity</th>
<th>Innovation</th>
<th>Entrepreneurship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Discovery</td>
<td>Idea generation</td>
<td>Product Development</td>
<td>Enterprise establishment</td>
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</tbody>
</table>

### Problem → Idea → Product → Enterprise

- **Problem →** Any problem from daily life and work by observation and curiosity
- **Idea →** Original, Influential
- **Product →** Technical feasibility, User-friendly, Environmental-friendly, IP checking
- **Enterprise** Market feasibility (market survey), Financial Feasibility (financial report), Business plan assessment template

### No. of problems
- **Competition**
- No. of problems
- No. of ideas

**Screening**
- Screening 1
- Screening 2

**Benchmarking**
- Patent
  - Product design
Creativity: Divergent thinking
Analytical and evaluative skills: Convergent thinking

Group assessment task

Rounds of group evaluation

- Discovery of problems
- Ideas generation and screening [Checking existing products]
- Product development [Conducting market survey, checking IP]

Report and assessment

- Group project report and presentation
- Peer assessment on individual participation and contribution
- Group presentation assessment by:
  - Course leader
  - Peer groups
  - Industrial experts
  - Educational experts
# Screening ideas by students

<table>
<thead>
<tr>
<th>Criteria (0-10)</th>
<th>Ideas</th>
<th>I1</th>
<th>I2</th>
<th>I3</th>
<th>I4</th>
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<td>Simple (clear, practical)</td>
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<td>Market feasibility (need)</td>
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<td>Production feasibility (produce)</td>
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Score: 61
Group process [reported in FG interview]

- How are problems discovered?
  - Talking to classmates
  - Surveying classmates
  - Searching the Internet
  - We asked questions, identified problems and tried to find the solutions. I asked myself problems that I encountered daily, and I asked friends whether they encountered similar problems and how they managed them.
Group process [reported in FG interview]

- How are ideas generated / negotiated in the team?
  - **Brainstorming** a lot of ideas to see **which are more feasible**, and we developed further along the line; then thought about alternative ideas with similar processes before we finally decided which one or two to work along; finally we decided which one to work on.
  - **Vote** on it.
  - It goes through a process of suggestion, receiving opposing ideas, **reworking** to see if it can reach **another round** of acceptance.
  - We certainly have group members with different opinions. But I think it is good because it gives the opportunity for groupmates to provide different thoughts and they can explain the issues or problems; it is okay that people assert opposite ideas. The **process of stating the pros and cons of ideas was good until they receive a consensus**; learn how to **compromise** with one another.
Group process [reported in FG interview]

- How are creative products protected?
  - At the current stage is to file a patent. As a group, if people have the interest to continue, they can continue. First is to ‘license’ the idea; ‘patent’ it, then open it up and have the idea further extended.
Formulae for engaging students with D&I® assessment

#1 Design of assignment: having students identify problems > reinforcing discovery in early stage.

#2 Assessment criteria: including creativity/innovation component > advocating the need for originality.

#3 Team combination: multidisciplinary > more quality ideas generated.

#4 Process: embedding investigation of, negotiating, testing and evaluating ideas > advocating diverging thinking, critical thinking and developing of evaluative skills.

#4 Assessment: expertise from disciplines, peer group evaluation, individual contribution to own group > pertaining to professional standards and accountability.

#5 Ownership of IP: individual/collective intellectual accomplishment > protection of IP, and potential of advancement/maturation of patent/licensed ideas.
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- Being creative ✅ Achieving good grades in academics

- Being creative □ Performing well at work
References

THANK YOU

- Hongyi Sun, City University of Hong Kong, Hong Kong.  
  Email: mehsun@cityu.edu.hk

- Paula Hodgson, City University of Hong Kong, Hong Kong.  
  Email: ed.paula@cityu.edu.hk

- Janel M. Curry, Gorden College, 255 Grapevine Road, Wenham, MA 01984.  
  Email: janel.curry@gorden.edu