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การข่มเพาะทักษะเชิงนวัตกรรมของนักศึกษาปริญญาตรีในคณะวิชาสร้างสรรค์ในประเทศไทย

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การบ่มเพาะทักษะเชิงนวัตกรรมของนักศึกษาปริญญาตรีในคณะวิชาสร้างสรรค์ในประเทศไทย

Nurturing Undergraduates' Innovation Skills in Creative Faculties in Thailand

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บทคัดย่อ

บทบาทสำคัญประการหนึ่งของการศึกษาระดับอุดมศึกษา คือ การผลิตบัณฑิตที่มีความสามารถเชิงนวัตกรรม ซึ่งบัณฑิตเหล่านี้เป็นที่ต้องการของบริษัทที่มุ่งเน้นผลิตสินค้าหรือบริการในรูปแบบใหม่และสร้างสรรค์ เพื่อหลีกเลี่ยงจากการแข่งขันในสงครามการค้า บทความวิจัยนี้จึงมุ่งนำเสนอผลการศึกษาแนวทางและกลไกที่มหาวิทยาลัยสามารถสร้างให้นักศึกษามีทักษะเชิงนวัตกรรม เพื่อจะจบไปเป็นบัณฑิตที่มีความสามารถเชิงนวัตกรรมในตลาดแรงงาน การศึกษานี้ใช้วิธีการวิจัยเชิงคุณภาพ ได้เก็บรวบรวมข้อมูลหลักโดยการสัมภาษณ์เชิงลึกคนบติ 27 ท่าน และรองคนบติ 3 ท่าน จากคณะวิชาที่มีหลักสูตรการเรียนด้านการสร้างสรรค์ จำนวนทั้งสิ้น 30 คณะ ในมหาวิทยาลัย 10 แห่ง ในจังหวัดกรุงเทพมหานคร อีกทั้งได้ศึกษาข้อมูลเอกสารจากคณะวิชาดังกล่าว ผลการศึกษาพบว่า คณะฯ ได้ใช้แนวคิดแบบพหุวิทยาการและการเรียนรู้ร่วมกันในการสร้างทักษะเชิงนวัตกรรมของนักศึกษา ผ่านกลไก 3 แบบ ได้แก่ การสร้างหลักสูตรแบบบูรณาการ การออกแบบวิธีการสอนอย่างเหมาะสม และการสนับสนุนกิจกรรมเสริมหลักสูตรของนักศึกษา ทั้งนี้ มหาวิทยาลัยควรมีบทบาทในการสนับสนุนทรัพยากรที่จำเป็นสำหรับการสร้างทักษะเชิงนวัตกรรมของนักศึกษา โดยเฉพาะอย่างยิ่ง ภาครัฐควรกำหนดนโยบายที่กระตุ้นและสนับสนุนมหาวิทยาลัยในการสร้างทักษะเชิงนวัตกรรมให้แก่นักศึกษา เพื่อจะช่วยให้นักศึกษาสามารถเข้าสู่ตลาดแรงงานและขับเคลื่อนเศรษฐกิจไทยด้วยนวัตกรรม

**คำสำคัญ:** คณะวิชาสร้างสรรค์ / การทำให้เป็นเชิงพาณิชย์ / หลักสูตร / การศึกษา / ทักษะเชิงนวัตกรรม

### Abstract

Higher education plays a crucial role in developing innovative graduates who have been increasingly sought out by firms offering new and creative products or services to escape from a price-war competition. This paper attempts to investigate how universities can equip students with innovation skills so that students can become innovative graduates. Through a qualitative approach, in-depth interviews with twenty-seven deans and three deputy deans of thirty creative faculties in ten universities in Bangkok, Thailand, and documentation were employed. The results show that creative faculties deploy a multi-disciplinary approach and collective learning to nurture students' innovation skills through three mechanisms, including developing an integrated curriculum, designing proper pedagogies, and fostering students' extra-curricular activities. Meanwhile, universities play a supportive role to provide appropriate resources. The government should draw up policies to encourage and support universities to nurture students' innovation skills to help them enter the workforce and drive the Thai economy toward innovation.

**KEYWORDS:** CREATIVE FACULTIES / COMMERCIALISATION / CURRICULUM / EDUCATION / INNOVATION SKILLS

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### Introduction

Innovation is a fundamental driver for the growth of the economies of competitive markets (Verspagen, 2005). The organisations that possess capabilities to induce innovation are likely to acquire competitive advantages (Cantwell, 2005). An important resource of such organisations is an innovative workforce. In particular, since 2002, the Thai government has made an effort to promote a creative economy where firms offer creative products and services to markets through formulating a policy supporting creative industries. The Thailand Creative & Design Centre (TCDC) was established to present examples. However, the insufficiency of an innovative workforce in Thailand (di Gropello, Tandon, & Yusuf, 2012) has gradually obstructed such intention

of the government. Hence, producing human resources equipped with innovation skills should be of great priority to educational institutions. Universities, as the final stage of education and the one that prepares students for their professional lives, have to nurture students' innovation skills so that students can become innovative citizens for the future. How universities in Thailand can produce innovative graduates is worth being explored. Specifically, creative faculties tend to produce creative graduates as a top priority; in fact, innovative graduates drive the creative economy as they possess abilities to commercialise creative outputs. Creative faculties have encountered a challenge to nurture innovation skills, which is beyond creativity. Therefore, this paper employed a qualitative approach to investigate how creative faculties in Thailand can produce innovative graduates.

### **Literature Review**

Not only do business organisations strive to generate innovation, but they also put efforts into acquiring an innovative workforce (McWilliam & Haukka, 2008). Companies, in changing environments, need workers who have technological skills, innovative and progressive ideas, and the abilities to respond creatively in any circumstances (Kay, Fonda, & Hayes, 1998). Despite the importance of an innovative workforce to the economy, little literature on an innovative workforce exists. On the other hand, literature on a creative workforce has dominated research. McWilliam and Haukka (2008) explain that creative capital is human ingenuity and high-level problem-solving skills that lead to fresh opportunities, ideas, products and modes of social engagement. Creative thinkers possess ideas that can be turned into valuable products and services (Florida & Goodnight, 2005). The ARC Centre of Excellence for Creative Industries and Innovation (Oakley, 2007) stated that

a creative workforce includes those who work in the cultural and creative industry sectors, and those who work in creative occupations in the wider economy. The creative sectors comprise advertising, architecture, art, crafts, design, fashion, film, music, performing arts, publishing, R&D, software, toys and games, TV and radio, and video games (Howkins, 2001).

However, creativity alone is not sufficient for fostering innovation. Professionals have to continue developing their abilities to become innovative, not only creative. Whilst creativity engenders variations, innovation brings advantages to organisations through exploitation and commercialisation of the variations. Innovation is a process of change, transformation, and commercialisation (Rogers, 2003; Tidd, Bessant, & Pavitt, 2001). It is a process of creating new ideas from opportunities and transforming those ideas into practice (Tidd et al., 2001). An innovative workforce has to employ skills needed for innovation, which is beyond creativity. Table 1 presents a summary of skills needed for innovation.

**Table 1** Skills that students need to develop to be capable of generating innovation

Skills needed for innovation	Explanation
Socialisation; teamworking	An interpersonal skill to form a network for discussions and recommendations for future work (Source: Boni, Weingart, & Evenson, 2009; Mustar, 2009).
Entrepreneurial skill	Seizing and exploiting opportunities, solving issues and problems, and generating and communicating ideas (Source: Herrmann, 2008; Mustar, 2009; Thursby, Fuller, & Thursby, 2009).
Creativity	Imagination, connecting ideas, tackling and solving problems and curiosity (Source: Baker & Baker, 2012; Chell & Athayde, 2009).

**Table 1** (cont.) Skills that students need to develop to be capable of generating innovation

Skills needed for innovation	Explanation
Self-efficacy	Self-belief, self-assurance, self-awareness, feelings of empowerment and social confidence (Source: Chell & Athayde, 2009; Lemons, 2010).
Energy	Drive, enthusiasm, motivation, hard work, persistence and commitment (Source: Chell & Athayde, 2009).
Risk-propensity	Risk tolerance and the ability to take calculated risks (Source: Chell & Athayde, 2009; Mustar, 2009).
Leadership	Vision and the ability to mobilise commitment (Source: Chell & Athayde 2009; Coonan, 2008).

Source: Previous studies

Skills that need to be nurtured for the ability to enhance innovation can be learned in schools and colleges (Chell & Athayde, 2009). Universities, which are at the transition point of students' lives from adolescence to adulthood, are one of the institutions playing important roles to stimulate innovations in the National Innovation Systems of the country (Edquist, 2005). Meanwhile, universities' roles, toward innovations, have extended from teaching university (Mode 1) to include research university (Mode 2), and then knowledge hub (Mode 3) (Etzkowitz, 2002). In terms of human resource development, the teaching function of universities (Mode 1) can produce innovative graduates who will contribute to an innovative workforce in the future. An innovative workforce will utilise resources and support systems to induce innovations in the National Innovation Systems (Pianta, 2005).

Several studies indicate mechanisms that possibly foster innovation. The curriculum and the way, which are delivered, encourage skills that engender creative thinking (Johnson, 2009). An integrated approach can construct the curriculum towards innovation as integrated learning embraces

variously different fields (Thursby et al., 2009). Commercialisation tends to be integrated into the curriculum of the creative disciplines (Boni et al., 2009; Thursby et al., 2009). In addition, the role of lecturer has an impact on students' innovation skills. Lecturers are no longer the ones with solutions to the exercises but the ones who stimulate the students' projects and open-mindedness (Mustar, 2009). Moreover, student-centered learning stimulates students to make decisions and express their identities and thoughts. This concept can boost problem-solving skills and change conductive attitudes (Harkema & Schout, 2008). Problem-based learning (PBL), a pedagogical technique that situates learning in complex problem-solving contexts, provides students with opportunities to develop flexible knowledge, effective problem-solving skills, self-directed learning, effective collaboration skills and intrinsic motivation; meanwhile, an instructor plays a role to facilitate learning by supporting, guiding, and monitoring the learning process (Hmelo-Silver, 2004; Schimidt, Rotgans, & Yew, 2011). Furthermore, a group assignment or collective activity allows everyone to learn in a collective activity, which encourages communication (Oakley, 2007). Extra-curricular activities or informal activities can broaden students' views which are important elements to creativity (Oakley, 2007).

According to Amabile (1998), assessment can stifle creativity. It can be implied that classrooms, which are controlling and offering extrinsic motivation (e.g. grades or praise), can motivate students to finish their tasks, but do not necessarily enhance creativity. Students' creativity can be hindered by conventional education systems, in which a single best answer to every problem is frequently applied (Cropley, 2001). Nevertheless, assessments do not necessarily diminish student creativity, especially when teachers can convince students to view assessments as providing useful feedback on

how to improve their creative expression (Beghetto, 2005).

## Methods

The paper focuses on exploring how creative faculties in Thailand can nurture students' innovation skills. In regard to Denzin and Lincoln (2000), and Yin (2003), a qualitative approach was adopted to study and interpret this phenomenon, including processes, actions and interactions of actors. Creative faculties were chosen because their curriculums focus on creativity as a fundamental skill of their disciplines and of innovation skills. Thirty creative faculties from ten universities in Bangkok, Thailand, were selected according to their creativity-related curriculums in Engineering, Computer Sciences, Communication Arts, Architecture and Fine & Applied Arts. The ten universities include three public universities, two private universities, two Rajabhat universities<sup>1</sup> and three Rajamangala universities of Technology<sup>2</sup>. Primary data were collected from in-depth and semi-structured interviews with twenty-seven deans and three deputy deans between May and August 2011. As suggested by Manson (2002), information from the management of creative faculties is sufficient to understand mechanisms nurturing students' innovation skills since the management plays a key role in managing courses and ensure teaching and learning quality in the creative faculties in Thailand. In addition, secondary data were gathered from the booklets and websites of creative faculties and used as supplementary data. It is worth noting that data were used as complementary data to demonstrate and complete the emerging framework.

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<sup>1</sup> Rajabhat Universities were formerly called Rajabhat Institutes and originally emerged as college of education.

<sup>2</sup> Rajamangala University of Technology was formerly polytechnic institute system.



## Results and Discussion

The emerging framework of mechanisms that can nurture students' innovation skills shows that the creative faculties can nurture students' innovation skills by employing three learning mechanisms, including 1) developing integrated curriculum, 2) designing pedagogies, and 3) fostering students' additional learning opportunities. Table 2 shows three learning mechanisms that can enhance students' innovation skills.

**Table 2** Three learning mechanisms and innovation skills

Learning mechanisms	Innovation skills that are facilitated by particular learning mechanisms						
	Socialisation	Entrepreneurial skill	Creativity	Self-efficacy	Energy	Risk propensity	Leadership skill
1. Developing an integrated curriculum							
1) Blending different areas of knowledge into a subject or a course	✓	✓	✓				✓
2) Putting a creativity subject into a course			✓				
3) Embracing a business study into a course		✓				✓	
4) Encouraging a senior project requiring several areas of knowledge	✓	✓	✓	✓		✓	✓

**Table 2** (cont.) Three learning mechanisms and innovation skills

Learning mechanisms	Innovation skills that are facilitated by particular learning mechanisms						
	Socialisation	Entrepreneurial skill	Creativity	Self-efficacy	Energy	Risk-propensity	Leadership
5) Providing an internship programme	✓	✓	✓				
2. Designing appropriate pedagogies							
1) Team teaching			✓		✓		
2) Co-operative learning	✓		✓		✓		✓
3) Experience-based learning		✓	✓			✓	
4) Problem-based learning		✓	✓				
3. Fostering students' additional learning opportunities	✓	✓	✓	✓	✓	✓	✓

Source: Themes emerging from interview data

### 1. Developing an Integrated Curriculum

In regard to the evidence, developing an integrated curriculum can enable a transfer of multi-disciplinary knowledge and socialisation among students with diverse backgrounds and interests. An integration of knowledge and expertise from different areas generates new ideas with potential for commercialisation. The findings are consistent to the notion that students

can develop innovation skills when they capitalise on diverse aspects and ideas (Boni et al., 2009). Moreover, students' socialisation is developed and enhanced because students have a chance to connect and communicate with other students from different fields of study. The results confirm that communication between people from different areas of studies through an integrated curriculum can induce innovations (Thursby et al., 2009).

The creative faculties can establish an integrated curriculum by 1) blending different areas of knowledge into a subject or a course, 2) putting a creativity subject into a course, 3) embracing a business study into a course, 4) encouraging a senior project requiring several areas of knowledge, and 5) providing an internship programme. Table 3 presents extracted examples of five mechanisms used for developing an integrated curriculum.

First, integrating different knowledge areas into a subject or a course equips students with several knowledge areas which are necessary to induce innovations. Importantly, working with students from other departments or faculties enhances socialisation and collective learning that can broaden students' perspectives and networks.

Second, creative faculties can enhance students' creativity by embedding a subject emphasising creativity into existing courses. The findings support that design and arts should be included in a curriculum to enhance students' creativity and innovation skills (Boni et al., 2009; Brown, 2008).

Third, a business study is added into a course, leading to development of the ability for commercialisation. The evidence confirms that students in scientific disciplines should learn about management as it is critical to innovation-related careers (Thursby et al., 2009). In addition, commercialisation of creative outputs is an important part of students' innovation (Boni et al., 2009; Thursby et al., 2009). Training on business and entrepreneurship is emphasised

in the arts and design courses (Oakley, 2007).

Fourth, encouraging a senior project that requires the integration of several knowledge areas can generate innovations. Students can integrate all areas of knowledge learned in the previous years and internship experiences to create and complete their senior projects. Throughout a process of developing senior projects, students learn by trial-and-error since they have to try several methods to fulfill the requirement. They can eventually develop learning ability, build self-confidence and tolerate risk. The evidence confirms that cross-disciplinary projects can facilitate students to develop creativity and risk taking skills which are necessary to induce innovation (Chell & Athayde, 2009).

Finally, an internship programme provides opportunities for students to apply lessons learned in classes to work on real cases. Students experience on-the-job training to do tasks and solve problems at work. The broad views, problem-solving skills and knowledge from an internship experience are combined into existing knowledge and skills.

**Table 3** Extracted examples of five mechanisms for developing an integrated curriculum

Mechanism	Extracted example
1) Blending different areas of knowledge into a subject or a course	<ul style="list-style-type: none"> <li>- The Exploring Engineering World subject integrated 12 fields of engineering knowledge for first-year students.</li> <li>- Communication Arts Students could broaden their knowledge by enrolling in subjects (e.g. Design and Marketing) from other faculties.</li> <li>- Students from Marketing, Fine &amp; Applied Arts, Communication Arts and Laws collaborated to produce creative products for the Dummy Company subject.</li> <li>- Faculty of Industrial Textiles &amp; Fashion Design offered a course combining business (or merchandising) and textile studies.</li> </ul>

**Table 3** (cont.) Extracted examples of five mechanisms for developing an integrated curriculum

<b>Mechanism</b>	<b>Extracted example</b>
2) Putting a creativity subject into a course	<ul style="list-style-type: none"> <li>- The Creativity subject was put into existing courses to simulate students' creativity throughout Bangkok University.</li> <li>- The Creative Thinking subject was added into the Communication Arts and Fine Arts courses.</li> </ul>
3) Embracing a business study into a course	<ul style="list-style-type: none"> <li>- Fine &amp; Applied Arts students learned about business through the Presentation and Arts Management subjects.</li> <li>- Decorative Arts students must study the Management subject in the final year of study to find business opportunities for their creative theses.</li> <li>- Architecture &amp; Design students had to conduct research on customer satisfaction for their creative products.</li> <li>- Students in IT and Cosmetics had to study marketing.</li> </ul>
4) Encouraging a senior project requiring several areas of knowledge	<ul style="list-style-type: none"> <li>- A group of students in the Music Department had to compose Thai music and arrange a show to demonstrate the music to the public.</li> <li>- Decorative Arts students had to create art works as their individual thesis.</li> <li>- Fashion students had to create seven original and fashionable costumes as their senior projects.</li> </ul>
5) Providing an internship programme	<ul style="list-style-type: none"> <li>- All faculties required students to attend an internship programme so that students could apply academic knowledge to real cases in companies.</li> </ul>

Source: Themes emerging from interview data

## 2. Designing Appropriate Pedagogies

The creative faculties employ a concept of student-centered learning to engender skills that are important to creativity and innovation. The evidence shows that, to put student-centered learning into practice, lecturers play a

key role in using and designing appropriate pedagogies. Lecturers tend to help students set achievable goals, encourage them to improve their potentials and identities, help them to work collectively in groups and ensure that they know how to exploit all the available resources for learning. For example, lecturers in the Architecture Faculty at Chulalongkorn University play a role in supporting, challenging and opposing students' ideas and eventually provide valuable comments for students to improve their own work. In addition, for the Fine Arts discipline, lecturers tend to inspire and gear students to reach their own identities reflected through their works of art. The findings consistently show that lecturers are the ones who stimulate students' projects, learning process and open-mindedness to foster their ideas (Chell & Athayde, 2009; Mustar, 2009). Also, creativity, self-efficacy, energy and risk propensity can be developed as student-centered learning gives autonomy to students to discover their own learning styles, to understand their motivation and to acquire effective study skills (Estes, 2004). With respect to student-centered learning, the creative faculties employ four pedagogies, including 1) team teaching, 2) collective learning, 3) experience-based learning and 4) problem-based learning. Table 4 presents the four pedagogies designed for developing innovation skills.

First, team-teaching by a group of lecturers leads to a mixture of different thoughts and experiences in a class. Students can develop creativity and energy as they learn from dissimilar points of views and various role models in order to create their own identities. In addition, this method ensures that grading is fair as students' performances are evaluated by a group of lecturers. A group of commentators provide scores and comments from different perspectives to improve students' projects. The findings are consistent with the statement that team-teaching integrates the diverse

knowledge of different lecturers so that students can learn from different perspectives (Kay et al., 1998). In particular for students' project evaluation, feedback from lecturers during an evaluation process of the projects can improve students' innovation skills. The evaluation system makes students think creatively and realistically because of a certain degree of freedom for initiatives and specific requirements. The result confirms that useful feedback provided by lecturers can improve students' creative expression (Beghetto, 2005).

Second, for collective learning, students are asked to work as a team to create a group project. Students learn how to brainstorm, articulate, discuss, negotiate, argue and assess ideas with group members to complete the projects; therefore, creativity and communication skills emerge. The findings confirm that innovation needs collective learning and efforts from diverse parties (Boni et al., 2009; Oakley, 2007; Thursby et al., 2009). Effective team working is an especially important component to an innovative organisation as a team with diverse expertise can provide new solutions to problems (Tidd et al., 2001).

Third, experience-based learning is a method that lecturers give flexibility and chances for students to learn by doing from trial-and-error and in a real environment. The evidence shows that lecturers drive students to think and create their projects while lecturers tend to listen and give comments for improvement. Projects or assignments are related to situations occurring in real environments. Students have to apply theories to their research, projects or assignments. Through this learning, creativity and risk-propensity skills can basically be nurtured since students have a chance to initiate projects which may ultimately be deemed a success or failure. From practicing, students can learn what ideas and outputs can be invented and

commercialised in the real world, thereby developing an entrepreneurial skill. The findings confirm that experience-based learning enables students to experiment and discover new ways of thinking (Herrmann, 2008).

Finally, an approach of problem-based learning focuses on problem-finding and problem-solving methods. The problem-finding method requires students to identify what problems exist. The problem-solving method aims to urge students to find an appropriate solution for that particular problem; this new solution can be an innovation. Students have to conduct research for information about the problem and later provide data-based solutions. The results support the notion that problem-finding and problem-solving methods are important to stimulate innovation (Harkema & Schout, 2008).

**Table 4** Extracted examples of four pedagogies designed for developing innovation skills

Pedagogy	Extracted example
1) Team-teaching	<ul style="list-style-type: none"> <li>- A team of teachers (approximately five) taught and gave criticism to art works of fourth and fifth-year students.</li> <li>- A group of lecturers, combining lectures with imagination and practical creations, provided different views and comments on students' projects.</li> </ul>
2) Co-operative learning	<ul style="list-style-type: none"> <li>- Engineering students formed a group of eight members to work on a robot contest project. They integrated different knowledge and expertise to achieve successive improvement.</li> <li>- Fine Art students were teamed up to create massive and creative art works.</li> </ul>



**Table 4** (cont.) Extracted examples of four pedagogies designed for developing innovation skills

Pedagogy	Extracted example
3) Experience-based learning	<ul style="list-style-type: none"> <li>- Students in faculties of science studies had to experiment in laboratories.</li> <li>- Engineering and architecture students needed to create prototypes of their ideas.</li> <li>- Students had to stay with people in local communities and generate new outputs (e.g., a play, a product design and a dance) from local resources and culture.</li> <li>- Students stayed in Nan province in the North of Thailand for five days and produced new products for the local village from its local materials.</li> <li>- Students helped improve packaging of local products, and helped to increase a method of carpet knitting from only one way to 40 methods.</li> </ul>
4) Problem-based learning	<ul style="list-style-type: none"> <li>- Students were encouraged to conduct research and explore problems before framing new solutions for the problems.</li> <li>- Students were taught to set up questions by using a technique of journaling so that they could use such details to create new works.</li> </ul>

Source: Themes emerging from interview data

### 3. Fostering Students' Additional Learning Opportunities

Additional learning opportunities necessitate abilities of searching, creating, working in teams, solving problems and communicating. Those used by the creative faculties include an idea or innovation-related contest, an exhibition, an opportunity to work with companies, an excursion, a guest-speaking session, a student club or camp, and/or a meditation activity. Table 5 presents extracted examples of additional learning opportunities. The evidence

confirms that additional learning opportunities can broaden students' perspectives which are important elements to creativity (Oakley, 2007). A strong link between education and firm engenders open-up education system to distribute learning in societies (Chell & Athayde, 2009). Moreover, students need opportunities to learn, experiment and practice skills through activities in clubs, students' union and societies (Herrmann, 2008).

**Table 5** Extracted examples of additional learning opportunities

Activity	Extracted example
1) An idea or innovation-related contest	<ul style="list-style-type: none"> <li>- SIFE (Students in Free Enterprise) contest: a competition of Corporate Social Responsibility (CSR) projects.</li> <li>- Robot contests, e.g. TPA Robot Contest and Toyota Smart Robot Contest.</li> </ul>
2) An exhibition	<ul style="list-style-type: none"> <li>- 'Science Festival' for students to present their projects.</li> <li>- An exhibition to show students' fashionable products and new designs to the public and private companies.</li> </ul>
3) An opportunity to work with companies	<ul style="list-style-type: none"> <li>- Collaboration among lecturers, students and MK Restaurant to produce robots.</li> <li>- Collaboration between students and a supermarket to create a self-driving shopping cart that can help customers in carrying products and bags.</li> </ul>
4) An excursion	<ul style="list-style-type: none"> <li>- A visit to the University of Birmingham in England to gain experience and perspectives about creative and visual arts from abroad.</li> <li>- A visit to firms and local communities to practice solving real problems.</li> </ul>
5) A guest-speaking session	<ul style="list-style-type: none"> <li>- A session with external experts, e.g. CEO of the Bathroom Design Company who successfully operates innovative businesses.</li> </ul>
6) A student club or camp	<ul style="list-style-type: none"> <li>- An organisation of activities for a sports game, a speech club and/or a play.</li> <li>- A creative media club, where student members help each other to hold events for customers and provide a creative-media camp for other students.</li> </ul>
7) A meditation activity	<ul style="list-style-type: none"> <li>- A room for students to practice meditation as students' consciousness enables intelligence, resulting in innovation to a certain degree.</li> </ul>

Source: Themes emerging from interview data

## Conclusion and Recommendation

The creative faculties have gradually moved toward building innovative graduates, which can possibly enhance an innovative workforce to help boost the Thai economy. They enable students to develop creativity together with skills needed for innovation so that students can build and commercialise creative outputs. Through three learning mechanisms, students will be able to develop their innovation skills. Top management of the creative faculties has to commit to and understand the nature of innovation that creativity is not enough to make new products to be sold. They have to fully put forth efforts to communicate that business and entrepreneurship are important to the creative faculties' curriculums. Moreover, collective learning is an important approach to encourage students to work and share with other students across knowledge disciplines because combining knowledge from diverse disciplines can stimulate new ideas and innovation. In addition, experience-based learning and problem-based learning give opportunities for students to create their own educational experiences by integrating academic knowledge, practical implications and activities. Lecturers' assessment and constructive feedback are necessary for students to improve their potential towards innovation. Importantly, universities must acquire competent lecturers who possess capabilities towards innovation; as well as, provide appropriate resources and environments to facilitate students' innovation skills. Furthermore, the government's policies should encourage and support universities to nurture students' innovation skills. Specifically, building innovative graduates requires investment that will bring back returns in the long run. This paper examined selected faculties at universities. However, it might be inspirational for other education agencies to capitalise on the use of the mechanisms to nurture the skills needed for innovation.

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