Implementing Experiential Learning (EL), Co-creation, Problem-based Learning (PBL) in Graduate Studies

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โครงการสัมมนาเชิงปฏิบัติการการพัฒนาหลักสูตรระดับบัณฑิตศึกษา

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Experiential Learning in Graduate Studies

Experiential Learning (EL)

	Experiential Learning	
WHAT	An engaged learning process whereby students "learn by doing" and by reflecting on the experience	
WHY (benefits/ELOs)	• Career opportunity • Critical thinking skills • Problem-solving skills • Research skills	• Decision making skills • Lifelong learning skills • Interpersonal skills • Leadership skills

HOW	1. Field-based EL
	  - internships
	  - practicum
	  - cooperative education
	  - service learning
	  - short-term field trips, fieldwork and observational activities
	  - consulting project
	2. Classroom-based EL
	  - case studies
	  - interactive simulations	

Paper 1

Developing an Experiential Learning Program: Milestones and Challenges

M. Jill Austin and Dianna Zeh Rust
Middle Tennessee State University

College and University faculty members have increasingly adopted experiential learning teaching methods that are designed to engage students in the learning process. Experiential learning is simply defined as "hands-on" learning and may involve any of the following activities: service learning, applied learning in the discipline, co-operative education, internships, study abroad and experimental activities. This paper includes a general discussion of the organizational and assessment activities that were required to implement the Experiential Learning Scholars Program (EXL) at a large public university. The program was developed over a three-year time period and was fully implemented in five years. After almost ten years operation, the EXL Scholars Program has become institutionalized on the campus and is a valued and high profile initiative that engages students in learning.

Table 2

Plan for Five Year Implementation of Assessment and Continuing Schedule

Learning Outcomes	Assessment Methods	Initial Timetable	Continuing Assessment Schedule
① Students will develop an experience-based knowledge of their disciplines and demonstrate the ability to apply theories and concepts to practical problems.	Rubric, end of program student survey	Assess at the end of year one	Yearly assessment
② Students will engage in systematic reflection and demonstrate the ability to critically examine their experiences and to create connections between those experiences and disciplinary knowledge.	Rubric, end of program student survey	Assess at the end of year one	Yearly assessment
③ Students will make contributions to their communities and learn the value of making these contributions (good citizenship); students will develop as individuals including understanding the needs of others, learning cultural awareness, and appreciating the differences in others.	Course survey of activities, end of program student survey	Assess at the end of year two	Yearly assessment
④ Students will develop and demonstrate managerial skills including planning, organizing, problem solving, and communicating.	Rubric, end of program student survey	Assess at the end of year four	Assess every two years
⑤ Students will develop and demonstrate leadership skills including interpersonal skills, ability to direct others, and teamwork.	Rubric, end of program student survey	Assess at the end of year four	Assess every two years
⑥ Students will develop and demonstrate research skills that will help them be successful in graduate programs.	Rubric, end of program student survey	Assess at the end of year five	Assess every two years

Applying Experiential Learning to Career Development Training for Biomedical Graduate Students and Postdocs: Perspectives on Program Development and Design

Audra Van Wart,[†‡§] Theresa C. O'Brien,[‡§∥*] Susi Varvayanis,[¶] Janet Alder,[#] Jennifer Greenier,[@] Rebekah L. Layton,[**] C. Abigail Stayart,[††] Inge Wefes,[‡‡] and Ashley E. Brady[§§]

- Nine different institutions bridged by the National Institutes of Health Broadening Experiences in Scientific Training Consortium

- Predoctoral graduate students and postdoctoral scholars in the biomedical sciences

- offer four types of experiential learning approaches

- compare the learning objectives and evaluation strategies

Paper 2
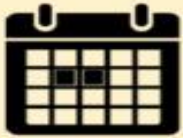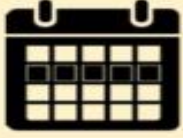
Activity	Definition	Commitment	Location	Coordination	Mentorship
Job Simulation	Individual trainees perform a real job task as a way of exploring a career field. The task can be completed by an individual or group/team and can take place over less than a day to several weeks. Exercises generally result in the production of a deliverable and may be guided by mentors or other professionals in the field.	1 day to several weeks	Home > On campus	Self-Guided > Staff Coordinated	None > Limited
Employer Site Visit	One or more trainees visit a work setting to learn more about an organization and tour the facility. The visit is an observational experience that usually takes place over the course of one day or less.	1- 2 days	Off campus	Staff Coordinated	Limited
Job Shadowing	Job shadowing a professional at work for the purpose of observing and experiencing the work environment and learning about the expectations of a profession.	3-14 days	Off campus > On campus	Staff Facilitated	1:1 Mentor(s) to shadow
Internship	Working in a professional setting for the purpose of receiving hands-on training. Assumes the trainee is able to develop some skills during the experience and results in a deliverable.	1-3 months	Off campus > On Campus	Staff Facilitated	1:1 Mentor

TABLE 2. Common learning objectives for experiential learning activities across institutions [a]

Learning objective	Job simulation or project	Employer site visit	Job shadowing	Internship
Experiential				
Describe the workplace structure and environment.		•	••	•••
Summarize key job tasks and daily workflow.	•	•	••	•••
Explain job expectations and standards for the profession.	•	•	••	•••
Develop a new vocabulary for the job.	•	•	••	•••
Demonstrate new skills for résumé building and future job prospects.	•		••	•••
Apply new knowledge or skills to produce a deliverable.	•		•	•
Execute job tasks with proficiency.				•
Explain key challenges and decision making needed for the job/industry.	•		••	•••
Compare/contrast multiple different professional environments.	•	•	•	•
Compare pathways for pursuing careers in a given area.	•	•	•	••
Reflective				
Confidently explain one's transferable skill sets.	•	•	••	•••
Relate professional responsibilities and expectations of employees in a specific industry to one's personal values.	•	•	••	•••
Rate one's interest in the problems and tools of a specific industry.	•	•	••	•••
Determine whether one's skills and interests align with the career/job.	•		••	•••
Identify one's skills gap for achieving success in a particular work sector.	•	•	•	•••
Prospective				
Assess and revise career development plan.	•	•	•	•••
Expand network with individuals in an industry sector of interest.	•	•	•	•••
Produce a deliverable that can described or shared.	•			•••
Identify most relevant professional organizations to become involved with.	•	•	••	•••
Identify most appropriate training opportunities for addressing deficiencies or expanding skill sets.	•	•	••	•••

Paper 2

TABLE 3. Evaluation methods used for assessment of experiential learning activities and programs[a]

Method	Description	Examples	Common uses and measures
Survey	A series of questions designed to gather opinions and insight about program activities and experiences (usually using an online tool)	• Skill survey pre- and postexperiential learning event • Retrospective survey on perceived value of specific activity (workshop, career trek, etc.) or entire program	• Measure self-reports on select learning objectives and satisfaction with activity • Indirectly measure longitudinal impact of an activity (pre/post)
Assignment	An assigned task designed to assess (and potentially develop) skills, such as written products, visual demonstrations, projects, or presentations	• Science policy brief (or science communication blog) • Completion of a consulting project • Construction of a museum display • Reflection essay describing an informational interview	• Directly measure whether a skill has been attained • Ensure an action item has been performed or a deliverable produced
Performance assessment	Review submitted by an expert in the field who has thorough knowledge of trainee's performance in an experiential learning activity (e.g., internship supervisor)	• Letter of reference from supervisor of internship or other experiential learning activity • Completion of an evaluation rubric	• Directly assess the extent to which an objective has been met • Define areas for individual improvement • Assess efficacy of activity in meeting standards of an expert
Interview	Structured discussion or questioning of individual trainees or a focus group to gain qualitative input at the program level	• Focus group with standardized questions about the experiential learning activities facilitated by the program • Exit interviews	• Identify unexpected benefits of activity and areas for improvement • Identify new learning objectives
Outcome tracking	First job placement in career-field of choice; subsequent career outcomes	• Matching of LinkedIn job titles of former trainees with their career interests (defined by a standard career taxonomy)	• Measure long-term impact of activity on career decisions • Relate results of other evaluation methods (e.g., surveys) to career outcomes

	Co-creation
WHAT	'students as partners' & 'co-creation in learning and teaching'
WHY (benefits/ ELOs)	• Improved academic performance • Teamwork, critical reflection, communication skills • Increased autonomy, self-regulation, responsibility • Increased confidence, enthusiasm, engagement, motivation
HOW	• Small groups of students participating in partnership projects / Whole-class approach • Roles of students in co-creation work: A) representative B) consultant C) co-researcher D) pedagogical co-designer ❑ *student representatives collaborating with university staff on committees for quality assurance and enhancement purposes* ❑ *students as consultants providing feedback on teaching observations* ❑ *students co-researching university-wide projects and acting as change agents* ❑ *students undertaking research and scholarship projects with staff* ❑ *students designing their own essay titles* ❑ *students co-designing courses and curricula*

สอวช. แนะ Co-creation แนวทางการผลิตกำลังคนรับโลกเปลี่ยน

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"Graduate Education in the Disruptive World:
Demand-Oriented Curriculum Design and Use of Sandboxes"

สอวช. แนะแนวทางการผลิตกำลังคนระดับบัณฑิตศึกษา เน้นผลิตบัณฑิตแบบ Co-creation ร่วมกับภาคอุตสาหกรรม พร้อมรองรับสถานการณ์การเปลี่ยนแปลงของโลกในอนาคต

สอวช

สำนักงานสภานโยบายการอุดมศึกษา
วิทยาศาสตร์ วิจัย
และนวัตกรรมแห่งชาติ

ตัวอย่างกรณีศึกษาโครงการ Hi-FI หรือ Higher Education for Industry Consortium เป็นโครงการแก้ไขปัญหาการขาดแคลนกำลังคนในภาคอุตสาหกรรม

ด้วยการนำนักศึกษาระดับปริญญาโท เข้าไปเรียนรู้การทำงานร่วมกับสถานประกอบการ เน้นให้เป็นการเรียนรู้แบบ Learning by doing ในการลงมือปฏิบัติ เพื่อให้สามารถผลิตบัณฑิตตอบโจทย์ภาคอุตสาหกรรมได้จริง

อีกหนึ่งตัวอย่างคือโครงการยกระดับความสามารถในการแข่งขันของภาคอุตสาหกรรมด้วยการวิจัย และพัฒนาเชิงอุตสาหกรรม (Research Development and Industrialization Capability, RDI)

แนวคิดสำคัญคือนำเอานักศึกษาปริญญาโท ในด้านวิศวกรรมเข้าไปทำงานในโรงงาน ไปช่วยกลุ่มธุรกิจ SMEs โดยให้มี senior manager ที่เคยทำงานในด้านการวิจัยและพัฒนาในภาคอุตสาหกรรมเข้าไปเป็นพี่เลี้ยง (mentor) และให้นักศึกษาได้ทำงานร่วมกับวิศวกรของโรงงาน ก็จะสามารถช่วยพัฒนาขีดความสามารถในการแข่งขันของธุรกิจให้อยู่ในระดับที่สูงขึ้นได้

Chulalongkorn University
Graduate School
บัณฑิตวิทยาลัย จุฬาลงกรณ์มหาวิทยาลัย

	Problem-based Learning (PBL)	N.B.
WHAT	วิธีการเรียนรู้โดยใช้โจทย์ปัญหาเป็นตัวกระตุ้นการแสวงหาความรู้ใหม่ โดยผู้เรียนไม่จำเป็นต้องมีความรู้เรื่องนั้นมาก่อน	Barrows HS, 2000
WHY (ELOs)	• Self-directed learning • Critical thinking, reasoning, problem solving skills • Evidence-based decision making • Team working skills, communication skills • IT literacy, information searching	
HOW	Group discussion 6-10 คน/กลุ่ม + อาจารย์เป็น facilitator 1 คน/กลุ่ม 1. ทำความเข้าใจคำศัพท์ แนวคิดในโจทย์ปัญหา 2. จับประเด็นและระบุปัญหา 3. ระดมสมอง วิเคราะห์ปัญหา 4. อธิบาย ตั้งสมมติฐาน 5. กำหนดประเด็น/วัตถุประสงค์การเรียนรู้ ⬇ 6. ค้นคว้า เรียนรู้ด้วยตนเอง ⬇ 7. สังเคราะห์ ประยุกต์ความรู้ข้อมูลใหม่ สรุป	• ผู้เรียนต้องมีความรับผิดชอบ • โจทย์ปัญหาต้องมีโครงสร้าง<u>ไม่</u>ชัดเจนนัก • ควรบูรณาการความรู้จากสาขาหรือเนื้อหาที่หลากหลาย • ควรมี self-reflection ก่อนจบ *อ้างอิง: หนังสือ "จากวันวาร ...ถึงวันนี้" โดย รศ.นพ. อานุภาพ เลขะกุล 2564*

Article

Problem-Based Learning in Graduate and Undergraduate Chemistry Courses: Face-to-Face and Online Experiences

Published as part of the Journal of Chemical Education virtual special issue "Teaching Changes and Insights Gained in the Time after COVID-19".

Anna Maria Costa, Núria Escaja, Carles Fité, Miguel González, Sergio Madurga, and Elisabet Fuguet*

Read Online

Original Articles

Using Problem-Based Learning to Develop Graduate Skills

Jennifer Blumhof ✉, Marianne Hall & Andrew Honeybone

University of Hertfordshire

The Broadland Case Study was developed in collaboration with officers from the Broads Authority in East Anglia and offered a real-life, real-time case study.

Used by four disciplinary areas : Environmental Sciences, Music, Law and Business Studies

Supplement

Examples of the Universities Offering EL Opportunities for Graduate Students

1. **University of North Alabama**

2. **Stanford Graduate Studies of Business**

3. **LeBow College of Business – Drexel University**

4. **Northeastern University**

5. **University of Calgary**

- **University of North Alabama**

Experiential Learning
'Learning through reflection on doing'

Experiential Learning is the process of learning through experience. It is a hands-on approach to education that moves beyond the classroom and provides a more involved way of learning. Below are some examples of the Experiential Learning opportunities available to UNA students:

Clinical Experience
Co-Op
Internships
Practicums
Professional Practice
Service Learning

Shadowing
Simulations
Student Teaching
Study Abroad
Research
Volunteering

https://una.edu/career/experiential-learning/index.html

• **Stanford Graduate Studies of Business**

1. The Action Learning Program

Students collaborate in teams to address an immediate business need for a partner organization, developing domain knowledge and skill sets essential for their careers.

2. Real-Time Analysis and Investment Lab

The lab provides students with a comprehensive set of industry-standard applications that are used by investment banks, money managers, and hedge funds.

Students use these real-world applications in conjunction with case studies and hands-on exercises to help them learn about finance, accounting, and investment management through experience.

https://www.gsb.stanford.edu/experience/learning/experiential-learning

- # LeBow College of Business - Drexel University

1. Graduate Business Consulting

enable students to work in teams with faculty and peers to develop business recommendations for organizations.

2. Graduate Fellowships

allow students to complete business consulting projects for organizations – roles that are conducted outside of the classroom for practical experience.

3. Graduate Competitions

3.1 Marketing Crisis Challenge

3.2 Disruptor Games

4. Residencies

4.1 Graduate On-Campus Residencies

On-campus 3- or 4-day residencies add hands-on activities and networking opportunities.

4.2 Graduate International Residencies

Combining international business coursework with a week-long residency abroad.

https://www.lebow.drexel.edu/academics/graduate/graduate-experiential-learning

- ## Northeastern University

1. Full-Time Co-op Opportunities

Students pursue paid positions in the field of study for 3 -6 months.

2. Experiential Network

Students work virtually with a supervisor at a sponsoring business or nonprofit, completing a challenging assignment over a six-week period

3. Experiential Learning at Work

Working professionals collaborate with their employer to identify a project addressing a key business need.

4. Experiential PhD

- expands lab and classroom learning with paid fellowships and internships at companies, research institutes, and nonprofits.

- one faculty mentor, students have a second in industry.

5. Research— Lab-based courses provide students with hands-on experience

6. In-Class Case Studies

https://www.northeastern.edu/graduate/why-northeastern/about-our-academics/experiential-learning/

- ## **University of Calgary**

1. **Research-based EL** supports students in developing skills and capacities for creativity, innovation, and discovery by leading or contributing to a research project.

2. **Work-integrated learning** as part of an academic program in a work-like setting, such as cooperative education, internships, and practica.

Internship

1. Program-required internship

2. Skills internship (Transformative Talent Internship)

3. Research internship

https://grad.ucalgary.ca/my-gradskills/experiential-learning

THANK YOU