MSIE 4.0

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Engineering GREATS

Pisut Koomsap, Ph.D.

MSIE 4.0 Project Coordinator

Curriculum Development
of Master's Degree Program in
Industrial Engineering for Thailand Sustainable Smart Industry

แผนยุทธศาสตร์มหาวิทยาลัยธรรมศาสตร์ ฉบับที่ 12 (พ.ศ.2560-2564)

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สร้างบัณฑิตที่มีคุณลักษณะ GREATS

เป้าประสงค์: สร้างบัณฑิตให้มี

- ❑ คุณลักษณะ GREATS
- ❑ ทักษะการเป็นผู้ประกอบการ (Entrepreneur)
- ❑ ทักษะ 3 ภาษา

วิธีการไปสู่เป้าประสงค์

- ❑ กระบวนการเรียนรู้ตามแนวทาง Active Learning
- ❑ ปลูกฝังทักษะการเรียนรู้ตลอดชีวิต

GREATS

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แนวคิด	คุณลักษณะ
G : Global Mindset ทันโลก ทันสังคม เท่าทันการเปลี่ยนแปลงของโลกในมิติต่างๆ	นักศึกษาตระหนักถึงความสำคัญและความจำเป็นที่ต้องเปิดโลกทัศน์ให้กว้างขวางยิ่งขึ้น สนใจและติดตามปรากฏการณ์ที่สำคัญทางการเมือง เศรษฐกิจ สังคม และวัฒนธรรมที่กำลังเป็นกระแสทั้งในระดับประเทศ ระดับภูมิภาคอาเซียน และระดับโลก เพื่อให้ทันโลก และสามารถใช้ประโยชน์จากความทันโลกในการพัฒนาศักยภาพของตนเอง
R : Responsibility มีสำนึกรับผิดชอบอย่างยั่งยืนต่อตนเอง บุคคลรอบข้าง สังคม และสิ่งแวดล้อม	นักศึกษาเข้าใจหลักการความยั่งยืนและตระหนักในคุณค่าของความยั่งยืน เข้าใจธรรมชาติของสรรพสิ่งที่เชื่อมโยงและเป็นพลวัตร สามารถนำความเข้าใจทั้งสองเรื่องมาประยุกต์ใช้ในชีวิตประจำวันในเรื่องการบริโภค การใช้ทรัพยากร เช่น น้ำ พลังงาน ฯลฯ อย่างมีสำนึกรับผิดชอบต่อตนเอง คนรอบข้าง สังคม และสิ่งแวดล้อม
E : Eloquence สื่อสารอย่างสร้างสรรค์และทรงพลัง มีทักษะสุนทรียะสนทนา	นักศึกษามีทักษะการคิดอย่างสร้างสรรค์ โดยมีการคิดเชิงวิพากษ์เป็นองค์ประกอบสำคัญ สามารถจัดการเนื้อหาที่ตนเองคิดอย่างเป็นระบบ เพื่อสื่อสารไปยังผู้รับในระดับต่างๆ คือ ระดับบุคคล องค์กร และสังคม ได้อย่างชัดเจน เหมาะสมกับสถานการณ์ที่มีบริบทที่ต่างกัน ในด้านสังคม วัฒนธรรม สภาพแวดล้อม และเกิดผลสัมฤทธิ์ตามที่ต้องการอย่างเป็นรูปธรรม

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แนวคิด	คุณลักษณะ
A : Aesthetic Appreciation ซาบซึ้งในความงาม คุณค่าของศิลปะ ดนตรี และสถาปัตยกรรม	นักศึกษามีความรู้ในการดูแลตนเองแบบองค์รวม (ร่างกาย อารมณ์ สังคม และจิตวิญญาณ) ในด้านการบริโภคอาหาร การออกกำลังกาย การป้องกันโรค การจัดการความเครียด การสร้างความมั่นคงทางอารมณ์เมื่อเผชิญกับปัญหา รับรู้และซาบซึ้งในความงาม คุณค่าของศิลปะในแขนงต่างๆ ทั้งทัศนศิลป์ ดนตรี ศิลปะการแสดง และสถาปัตยกรรม
T : Team Leader ทำงานร่วมกับผู้อื่นได้ทั้งบทบาทผู้นำ และบทบาททีม	นักศึกษาประพฤติปฏิบัติต่อผู้อื่นอย่างมีมารยาทพื้นฐานในการฟัง ปฏิบัติตนอย่างเคร่งครัดในเรื่องการตรงเวลา เคารพกติกา เคารพสิทธิผู้อื่น ยอมรับความคิดเห็นที่แตกต่าง มีความรับผิดชอบ มีกิริยาและวาจาที่สุภาพแสดงออกถึงมิตรไมตรี เมื่อต้องทำงานร่วมกัน สามารถปรับพฤติกรรมของตนเองได้อย่างเหมาะสม ทั้งบทบาทผู้นำ และบทบาททีมงาน เพื่อให้งานโดยรวมสำเร็จตามที่ต้องการ
S : Spirit of Thammasat จิตวิญญาณความเป็นธรรมศาสตร์ เชื่อมั่นระบอบประชาธิปไตย สิทธิเสรีภาพ ยอมรับในความเห็นที่แตกต่าง และต่อสู้เพื่อความเป็นธรรม	นักศึกษามีความรู้ ในเรื่องระบอบประชาธิปไตย สิทธิเสรีภาพบนพื้นฐานความแตกต่างแนวคิดทางการเมือง สังคม เชื้อชาติ ศาสนา และวัฒนธรรม อย่างผสมผสาน เสียสละแรงกาย และอื่นๆ เพื่อช่วยเหลือบุคคลและสังคมโดยมิต้องได้รับคำร้องขอ ประพฤติปฏิบัติในวิถีประชาธิปไตย ไม่เพิกเฉยต่อความไม่ถูกต้อง ความไม่เป็นธรรมต่อสังคม โดยเข้าไปช่วยเหลืออย่างเหมาะสม

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Active Learning

กระบวนการเรียนรู้ที่**ผู้เรียน**ต้อง**คิด วิเคราะห์ และค้นคว้า** เพื่อให้ได้มาซึ่งความรู้ความเข้าใจในเนื้อหา

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ผู้สอนมีหน้าที่หลักในการ**บริหารการเรียนรู้** การบรรยายเฉพาะ**องค์ความรู้ที่สำคัญ** การ**ออกแบบกลไก**ที่จะทำให้**ผู้เรียน**มีกระบวนการ**เรียนรู้ด้วยตนเอง** การทำหน้าที่**แนะนำ** (Guide) **ให้ข้อมูลย้อนกลับ** (Feedback) และ**ผลักดัน**ให้**ผู้เรียน**ก้าวหน้าไป**ตามศักยภาพ**ของตนเองให้ได้มากที่สุด

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BUILDING **GREATS** with ACTIVE LEARNING and LIFELONG LEARNING

?

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How about your GREATS?

Similar or Different

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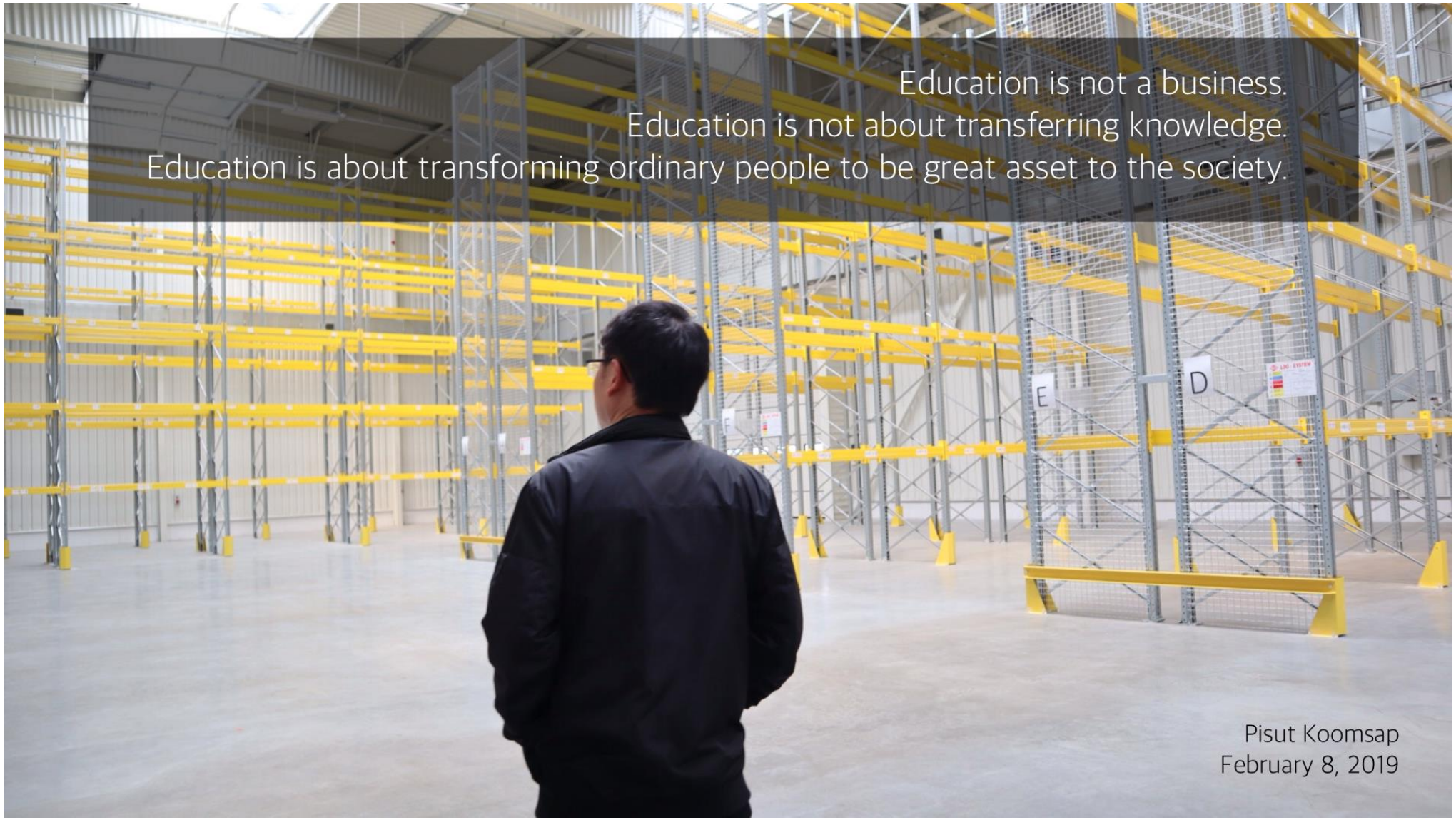

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MY

GREATS

Growth mindset

Role model

Emotional intelligence

Authentic person

Trandisciplinary

Social responsibility

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Pisut Koomsap
July 7, 2019

Growth Mindset

Mindset of a **WINNER**

CHALLENGES

…embrace challenges

OBSTACLES

…persist in the face of setbacks

EFFORT

…see effort as the path to mastery

CRITICISM

…learn from criticism

SUCCESS OF OTHERS

…find lessons and inspiration in the success of others

With growth mindset, intelligence can be developed and we will reach ever-higher levels of achievement.

Professor Carol S. Dweck
https://fs.blog/2015/03/carol-dweck-mindset/

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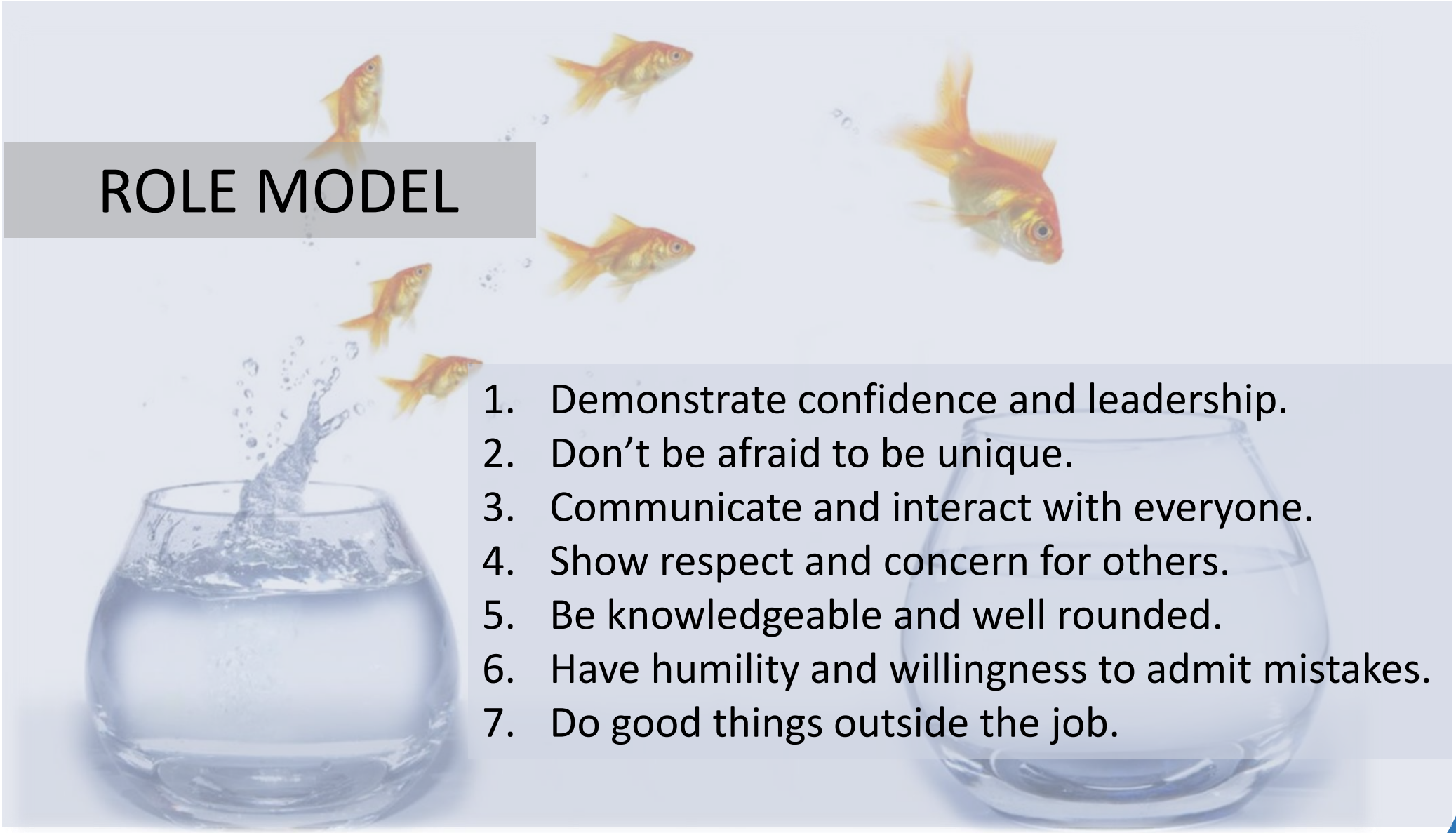
ROLE MODEL



1. Demonstrate confidence and leadership.
2. Don’t be afraid to be unique.
3. Communicate and interact with everyone.
4. Show respect and concern for others.
5. Be knowledgeable and well rounded.
6. Have humility and willingness to admit mistakes.
7. Do good things outside the job.

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Marty Zwilling
https://www.caycon.com

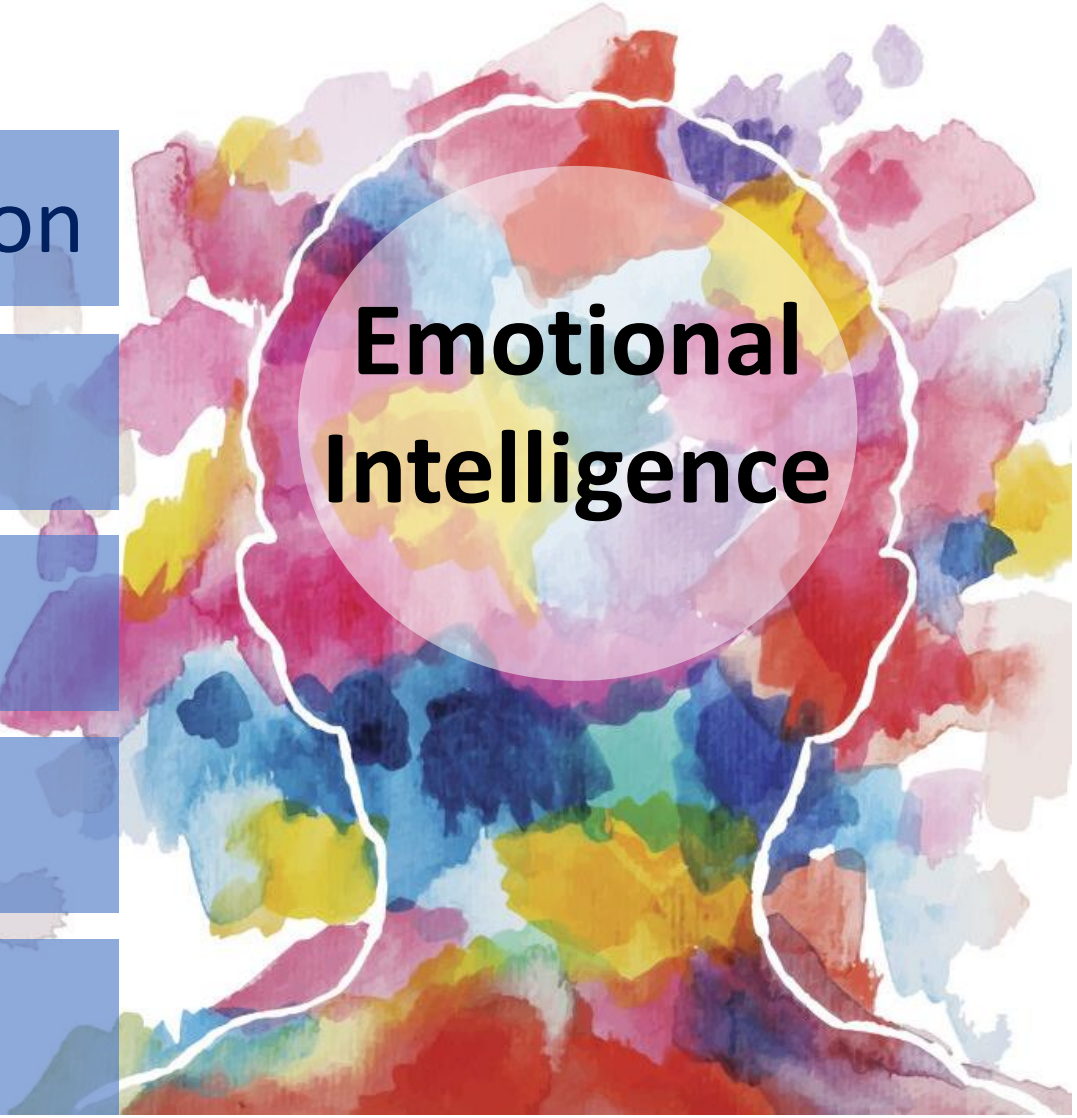
Motivation

Social Skill

Empathy

Self Regulation

Self Awareness



Goleman, D. (2017). *What Makes a Leader?(Harvard Business Review Classics)*. Harvard Business Press.

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Authentic People

1. They **help others** to be their authentic selves.
2. “You will never reach your destination if you stop and throw stones at every **dog** that **barks**.”
3. Winston Churchill
4. They are **confident**.
5. “Great minds discuss ideas; average minds discuss events; small minds discuss people.”
6. Eleanor Roosevelt
7. They **don't complain** about their problems.
8. They're **internally motivated**.
9. They **make the best** out of any situation.
10. They **don't get stressed** or upset when someone doesn't like them.

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Dr. Travis Bradberry, Contributor
https://www.huffpost.com/

Transdisciplinary

Since the industry will be much more complex, the way we learn should be adjusted

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Social Responsibility

“ฉันรักธรรมศาสตร์ เพราะธรรมศาสตร์สอนให้ฉันรักประชาชน”

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"**Success** is measured by a positive impact made on others, not one's own self"

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Pisut Koomsap
July 9, 2019

Engineering GREATS for Engineering Schools

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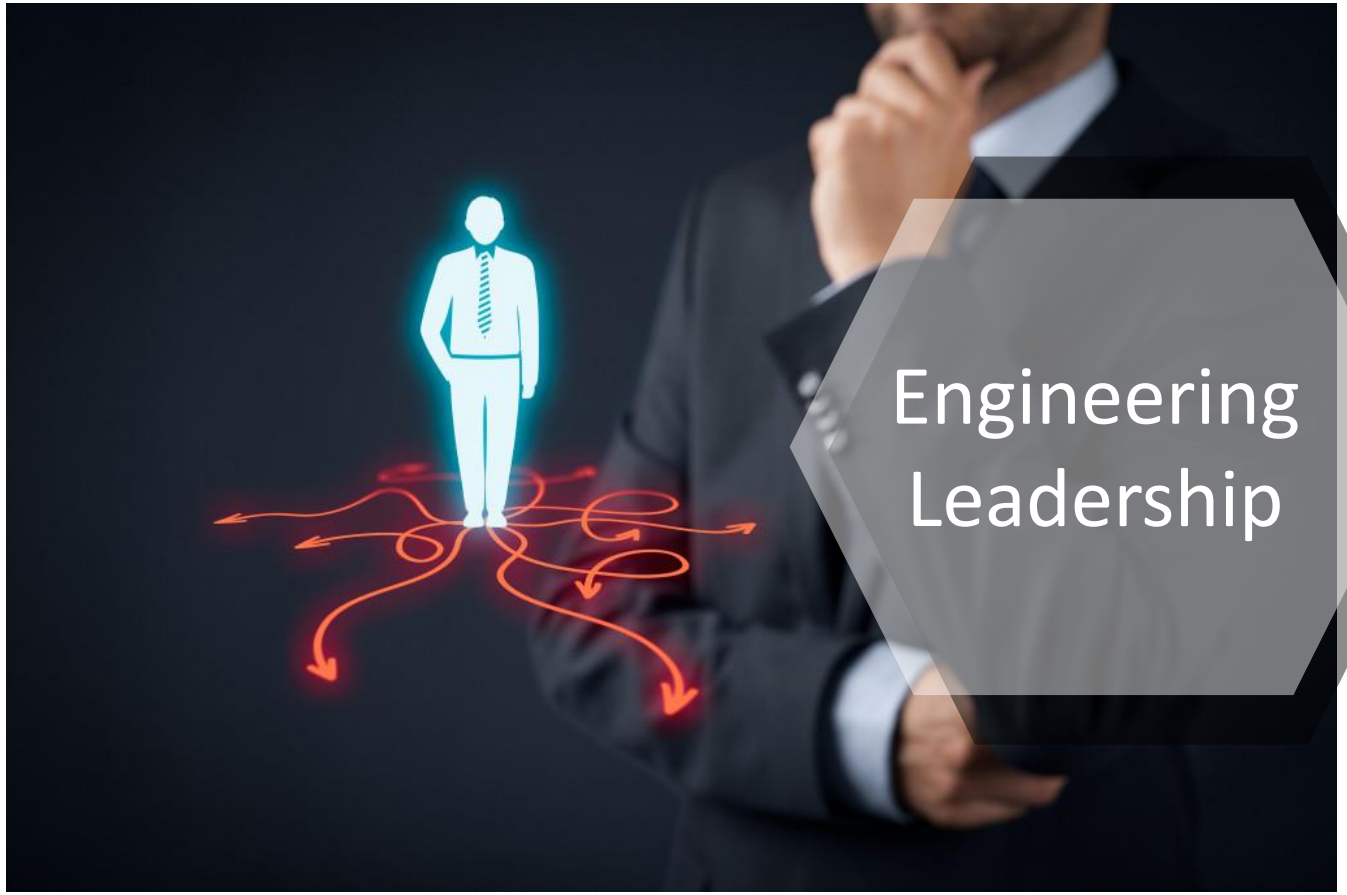
Engineering Leadership



Engineering Leadership

- Technical Mastery
  - Practical Engineer
  - Innovative Engineer
- Collaborative Optimization
- Organizational Innovation

Rottmann, C., Sacks, R., & Reeve, D. (2015). Engineering leadership: Grounding leadership theory in engineers' professional identities. *Leadership*, *11*(3), 351-373.

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Profile of Typical Engineering Students & Graduates

- excels at learning structures that explain systems and disembedding complex systems into pieces for reassembly into a different structure (problem solving);
- dislikes unpredictable situations because of a lack of structure and rules to guide response; and
- has been rewarded for being competitive at an individual level in task performance.

Seat, E., Parsons, J. R., & Poppen, W. A. (2001). Enabling engineering performance skills: A program to teach communication, leadership, and teamwork. *Journal of Engineering Education, 90*(1), 7-12.

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Top 10 Skills to be relevant in Industry 4.0

2015	2020
1. Complex problem solving	1. Complex problem solving
2. Coordinating with others	2. Critical thinking
3. People management	3. Creativity
4. Critical thinking	4. People management
5. Negotiation	5. Coordinating with others
6. Quality control	6. Emotional intelligence
7. Service orientation	7. Judgment and decision making
8. Judgment and decision making	8. Service orientation
9. Active listening	9. Negotiation
10. Creativity	10. Cognitive flexibility

Source: Future of Jobs Report, World Economic Forum

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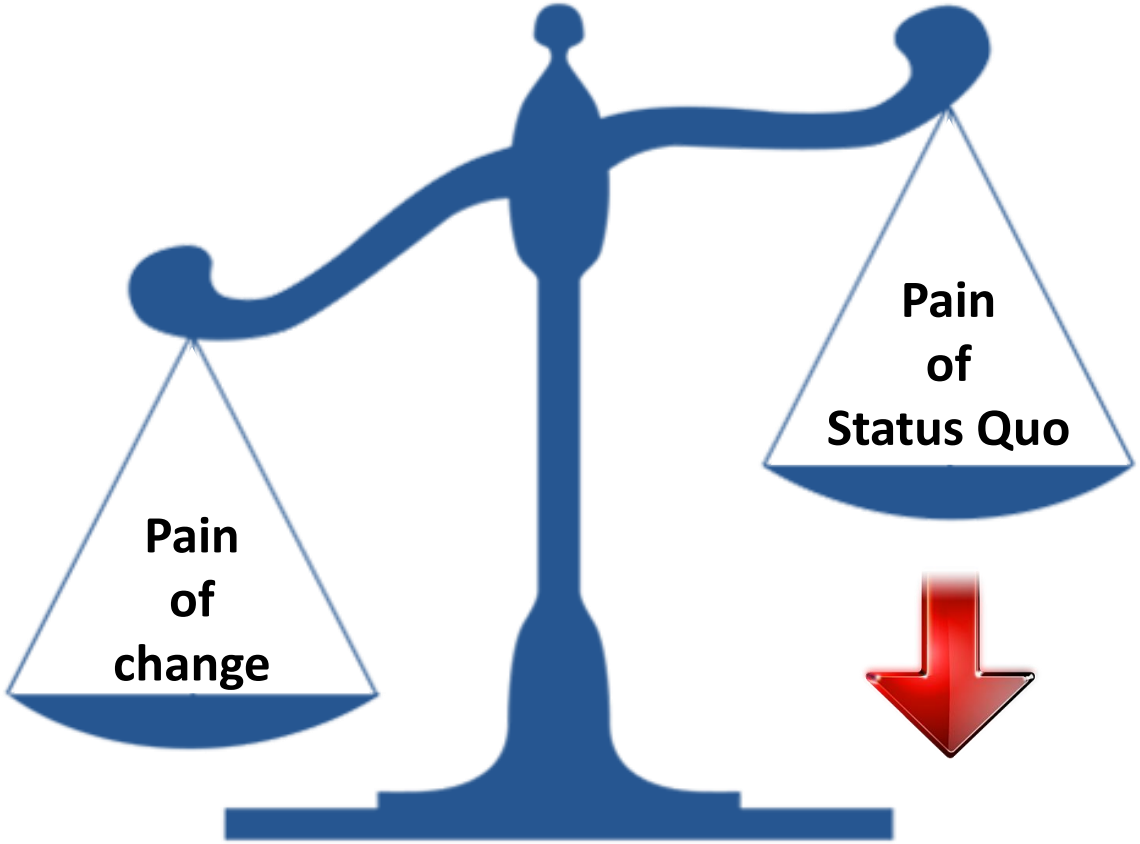
Balancing the Pain



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– C H A N G E –

Great things never came from comfort zone.

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Learning is not an outcome. It's a process.

It does not create knowledge, skills or competence.

It creates experience.

Learning process produces experience that builds knowledge and skills.

Good learning process produces a strong experience that builds competence.

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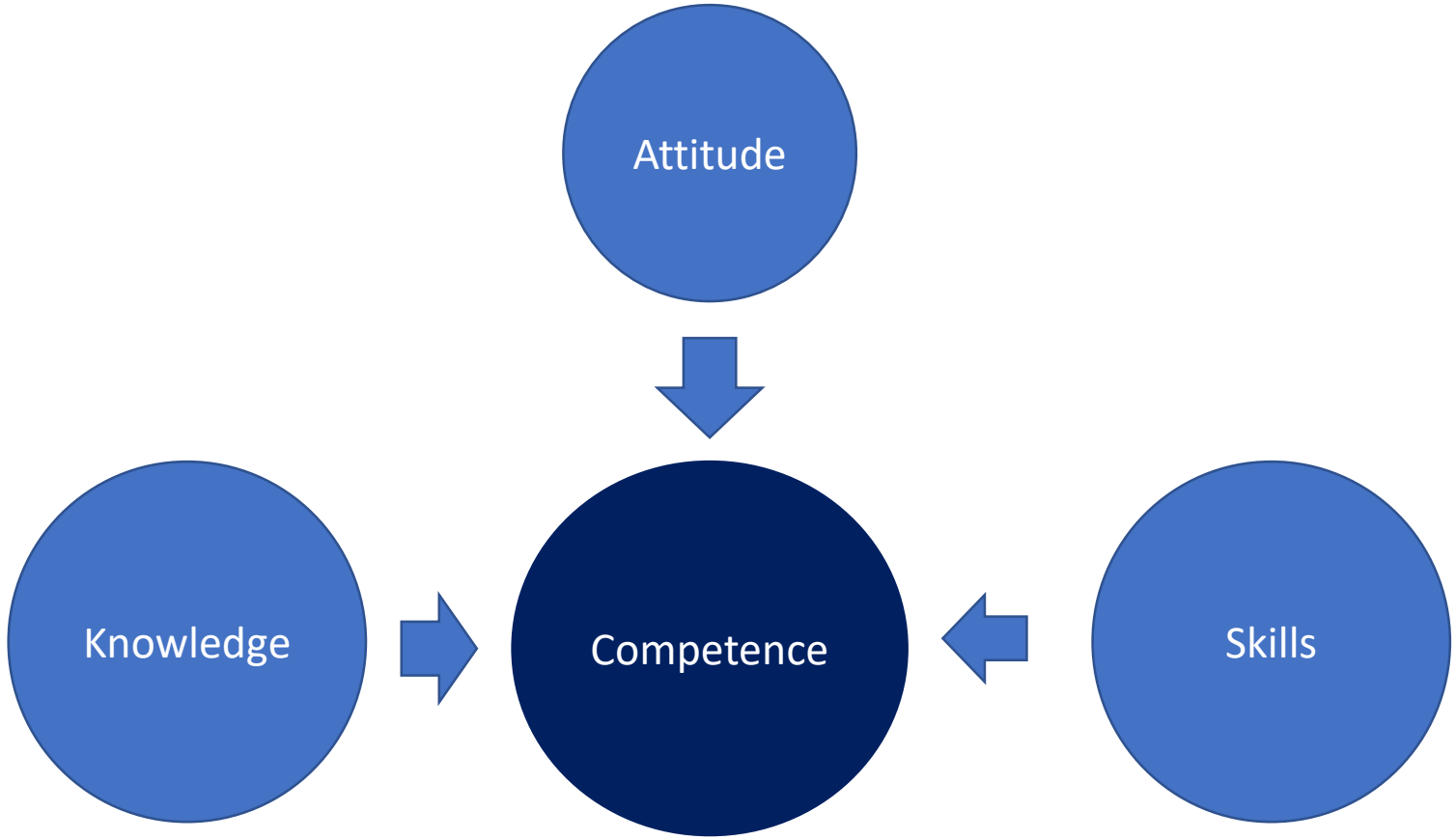
Profile of Graduates



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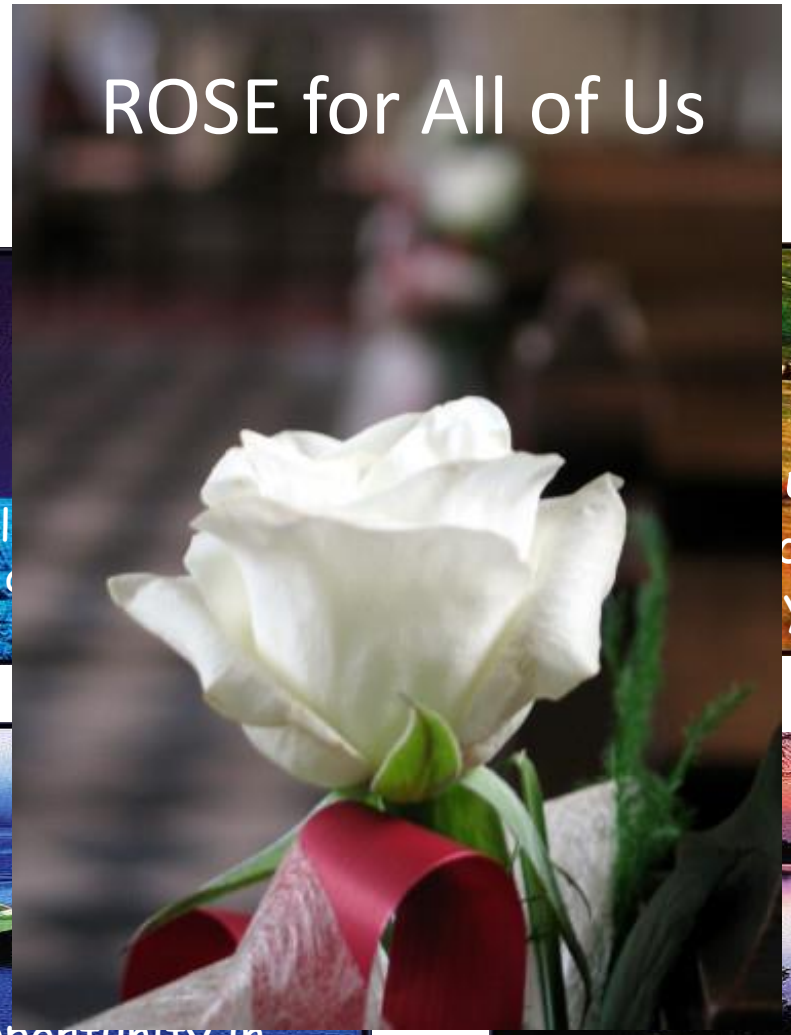
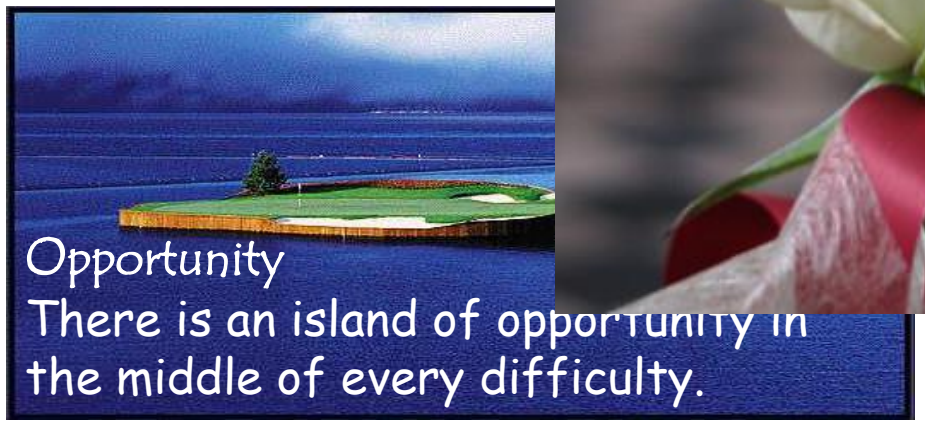
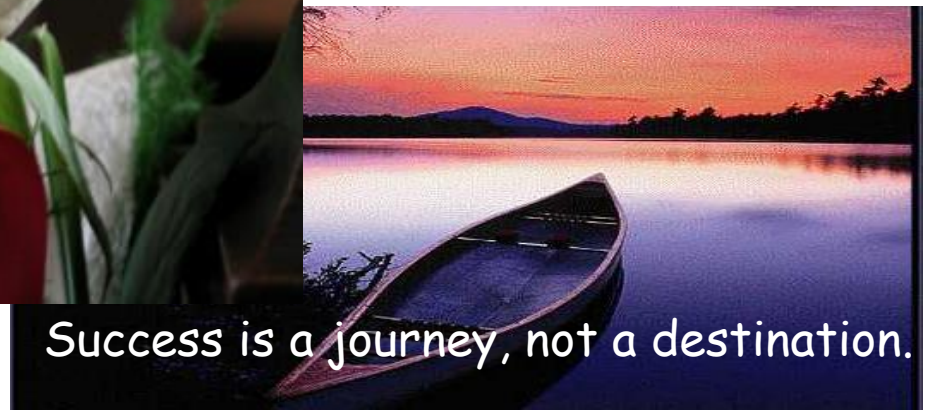
ROSE for All of Us







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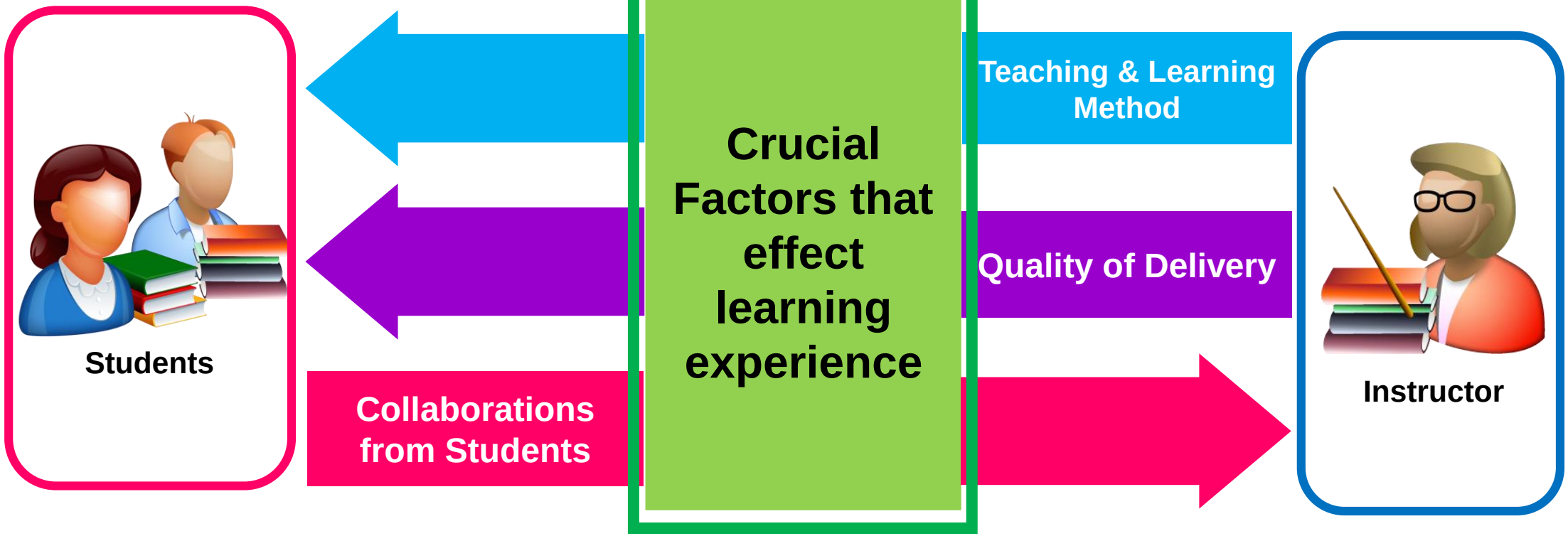
Crucial factors of learning experience



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Learning Process

Learning Journey

Semester 1	Semester 2	…	Semester x
Course 1	Course 1	Course 1	Course 1
Course 2	Course 2	Course 2	Course 2
…	…	…	…
Course x	Course x	Course x	Course x

Knowledge
Skills
Competence

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Learning Process

Courses

Functional Component

Course content

Humanic Component

Instructor

Mechanic Component

Teaching and Learning Methods

Learning Environment

Knowledge
Skills
Competence

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Conventional way of learning

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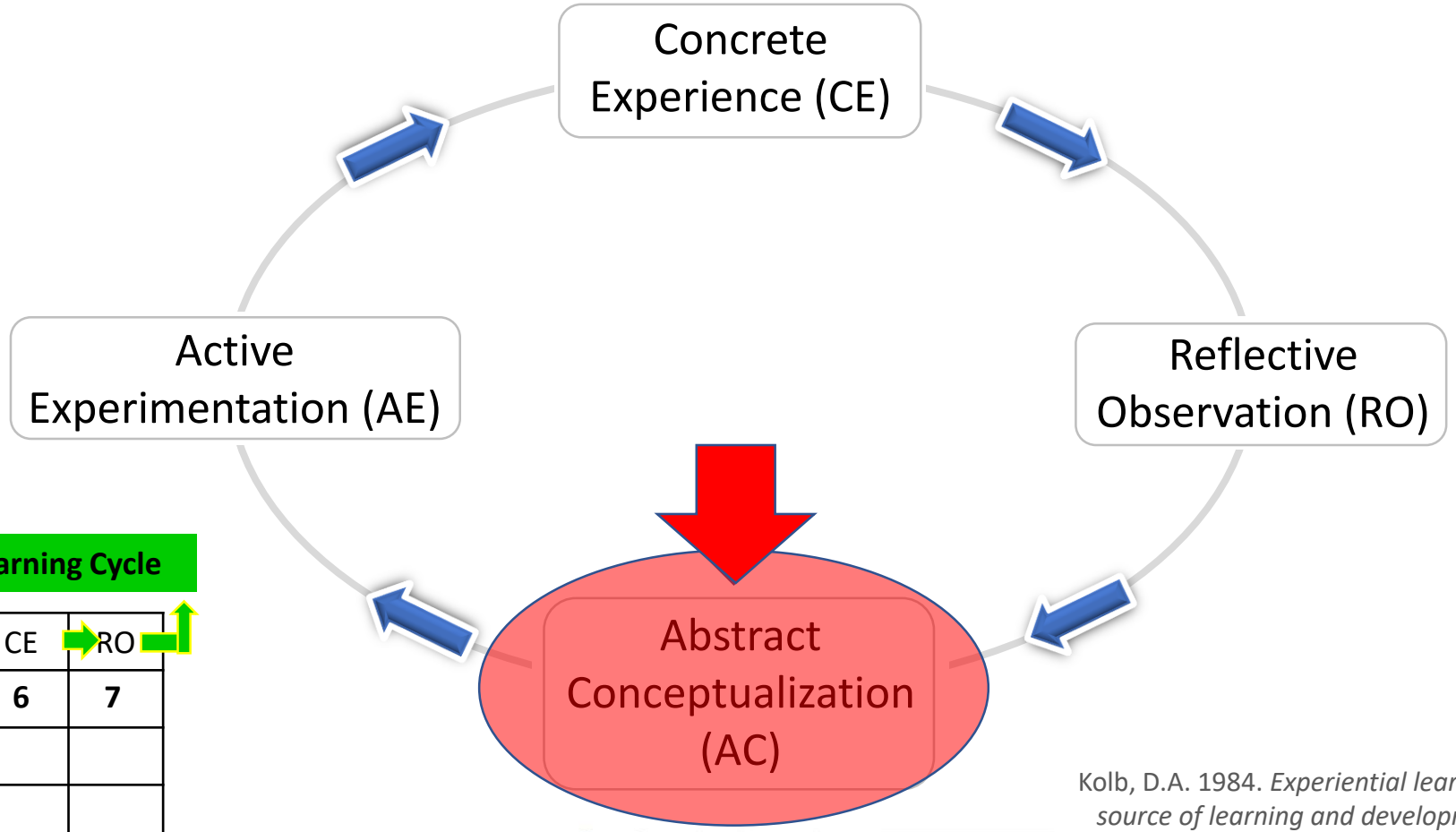
Kolb's Model: Experiential Learning Cycle



Experiential Learning Cycle

Content	AC	AE	CE	RO
T1	**1**	**5**	**6**	**7**
T2	**2**			
T3	**3**			
T4	**4**			
Tx	...			

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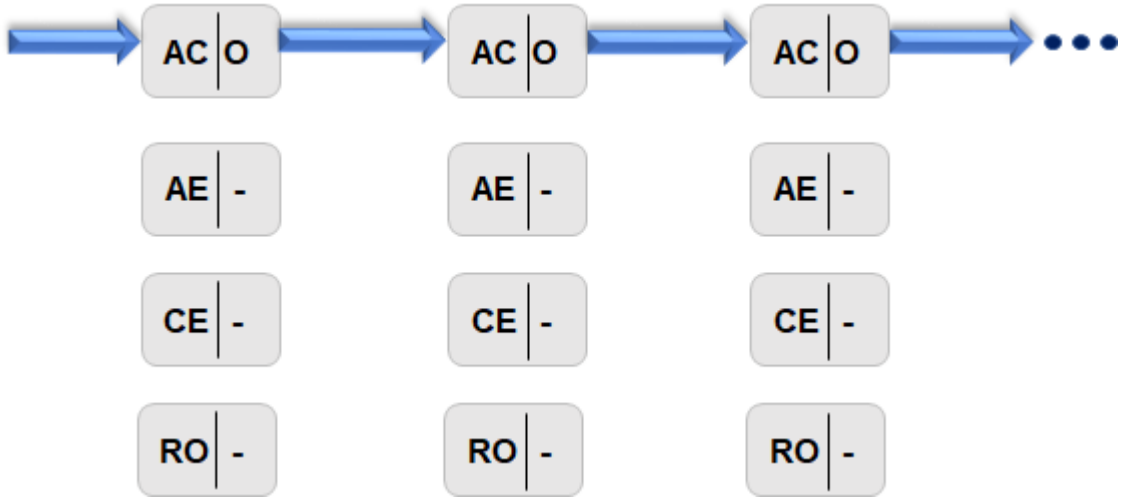
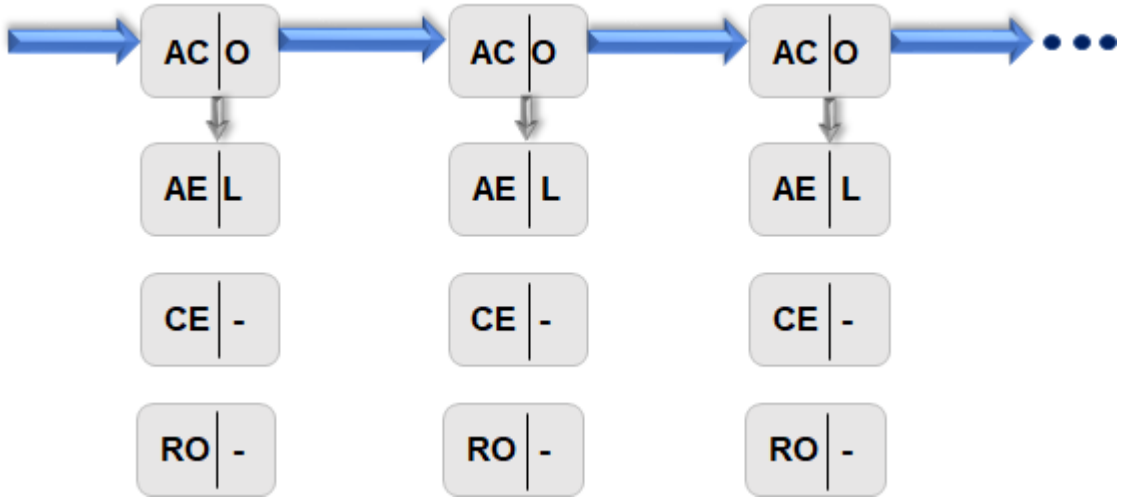
Kolb, D.A. 1984. *Experiential learning: Experience as the source of learning and development.* Englewood Cliffs, New Jersey: Prentice-Hall.

Student Journey in Traditional Learning



Intensive Lecture Type Class



Intensive Lecture and Assignment Type Cl

Koomsap, P., Hussadintorn Na Ayutthaya, D., Nitkiewicz, T., Lima, R.M. & Luong, H.T., 2019. Course Design and Development: Focus on Student Learning Experience, PAEE/ALE'2019

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Experiential Learning Cycle: Example on Architecture

CE
Build computer models based on symmetry, subject them to quake-like forces and record problems

RO
Discuss how damaged buildings could have been saved

AC
Lecture on relationships between buildings symmetry and resistance to earthquakes

AE
Analyze case studies of buildings which were destroyed versus those which survived earthquakes, applying symmetry concepts

Architecture

Experiential Learning Cycle

AC → AE → CE → RO

Content

T1	**1**	**2**	**3**	**4**
T2				
T3				
T4				
Tx	...			

Svinicki, M.D., & N.M. Dixon. 1987. *The Kolb model modified for classroom activities.* College Teaching, vol. 35, no. 4, pp. 141-146.

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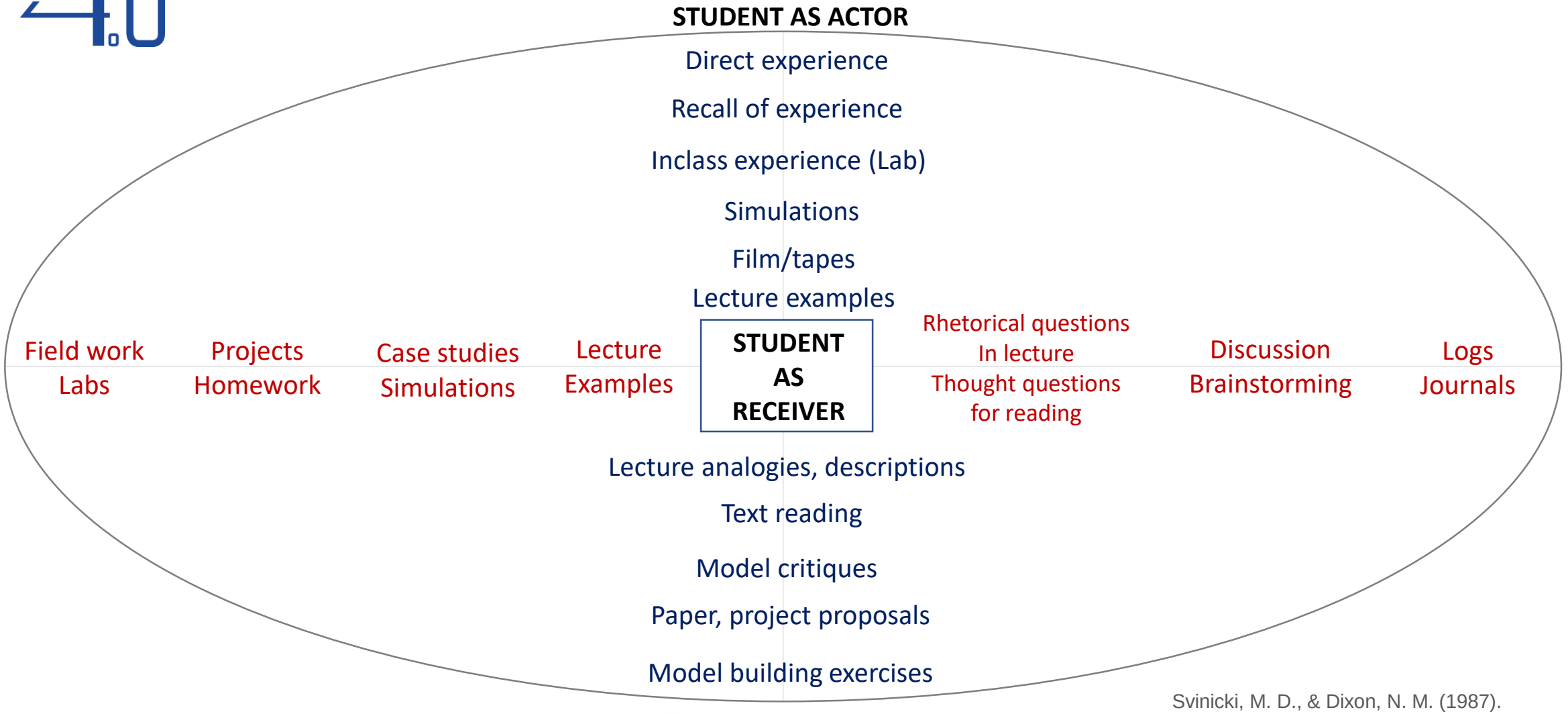
Degree of direct student involvement in various teaching methods



Svinicki, M. D., & Dixon, N. M. (1987). The Kolb model modified for classroom activities. *College Teaching*, *35*(4), 141-146.

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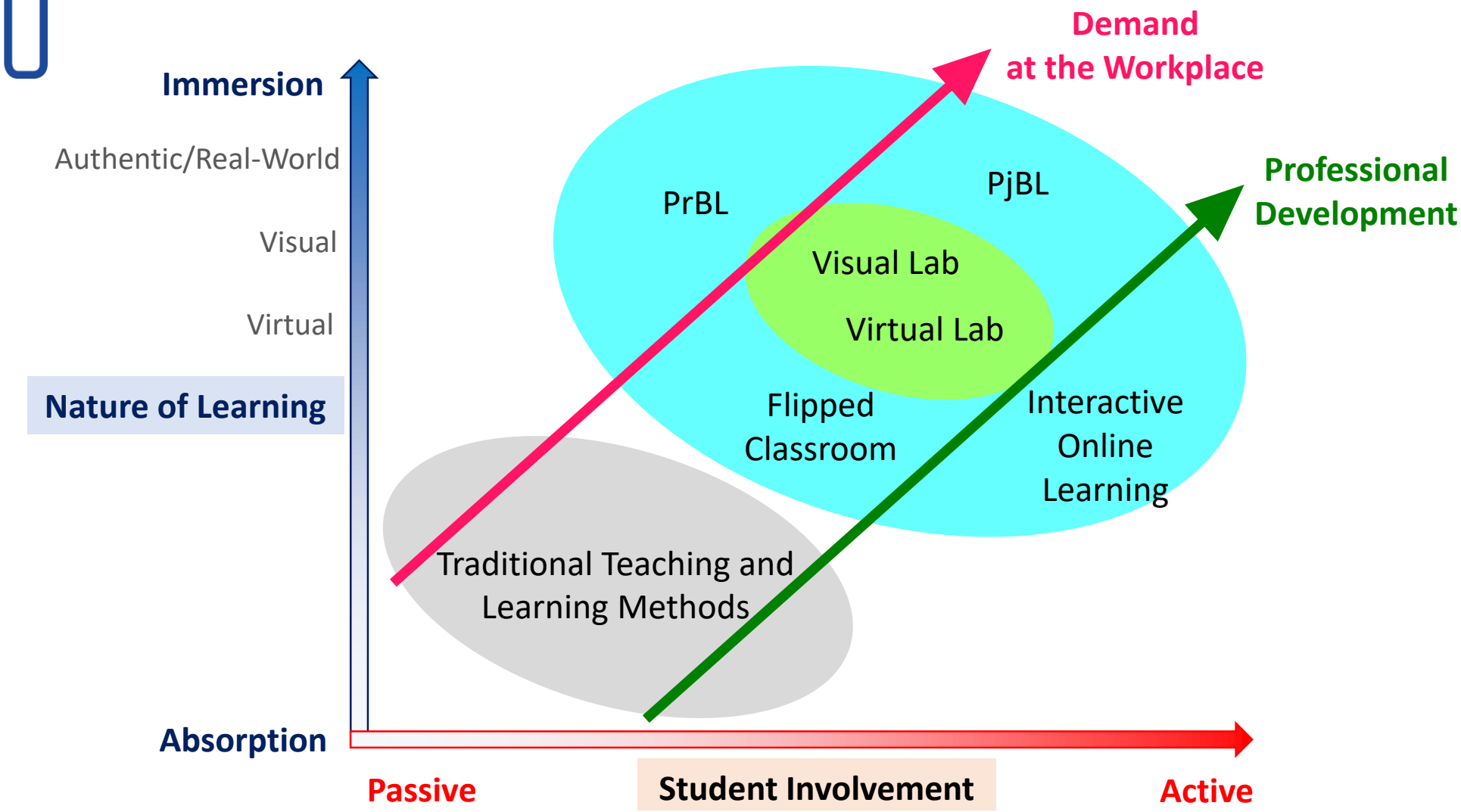
Progress of teaching and learning methods in the view of learning experience



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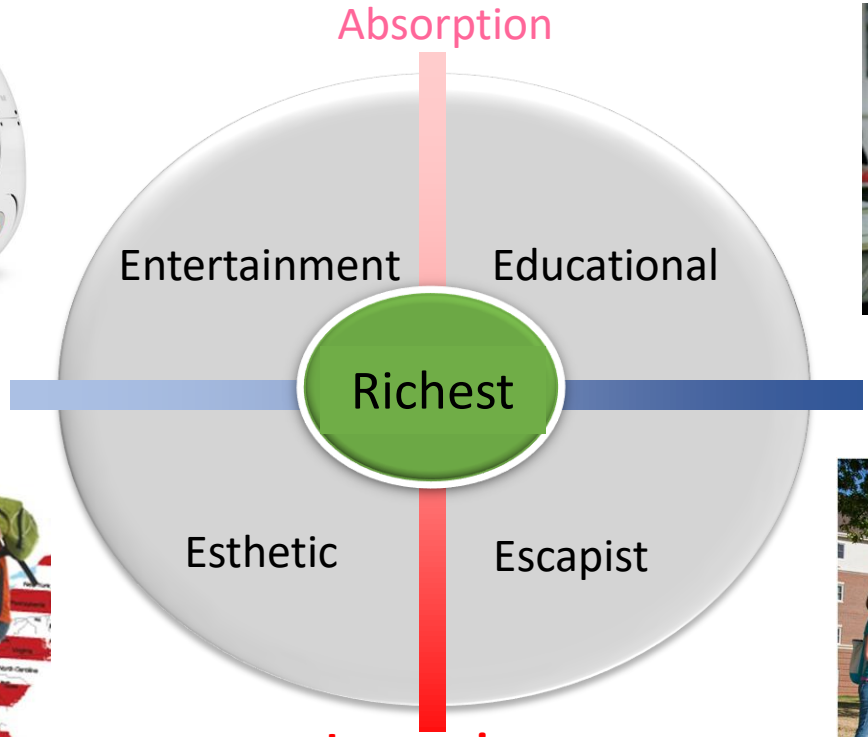
Hussadintorn Na Ayutthaya, D. & Koomsap, P. 2019

The Four Realms of an Experience

Learning English

Passive participation



Active participation

Welcome to experience economy, Pine and Gilmore, 1998

Co-funded by the Erasmus+ Programme of the European Union

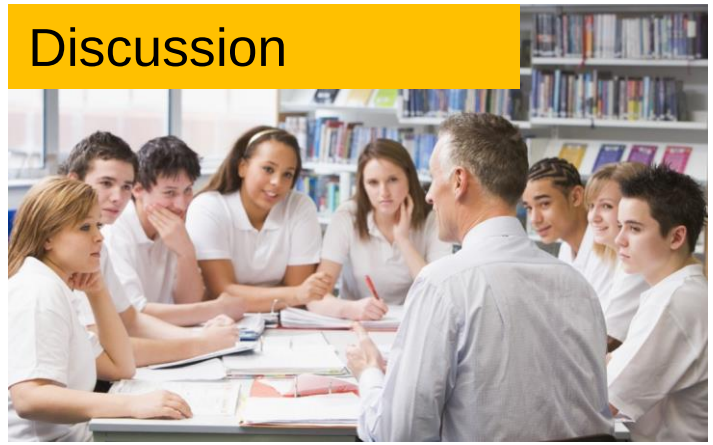
LOVE Model for Student Experience

Lab tour

Research Project

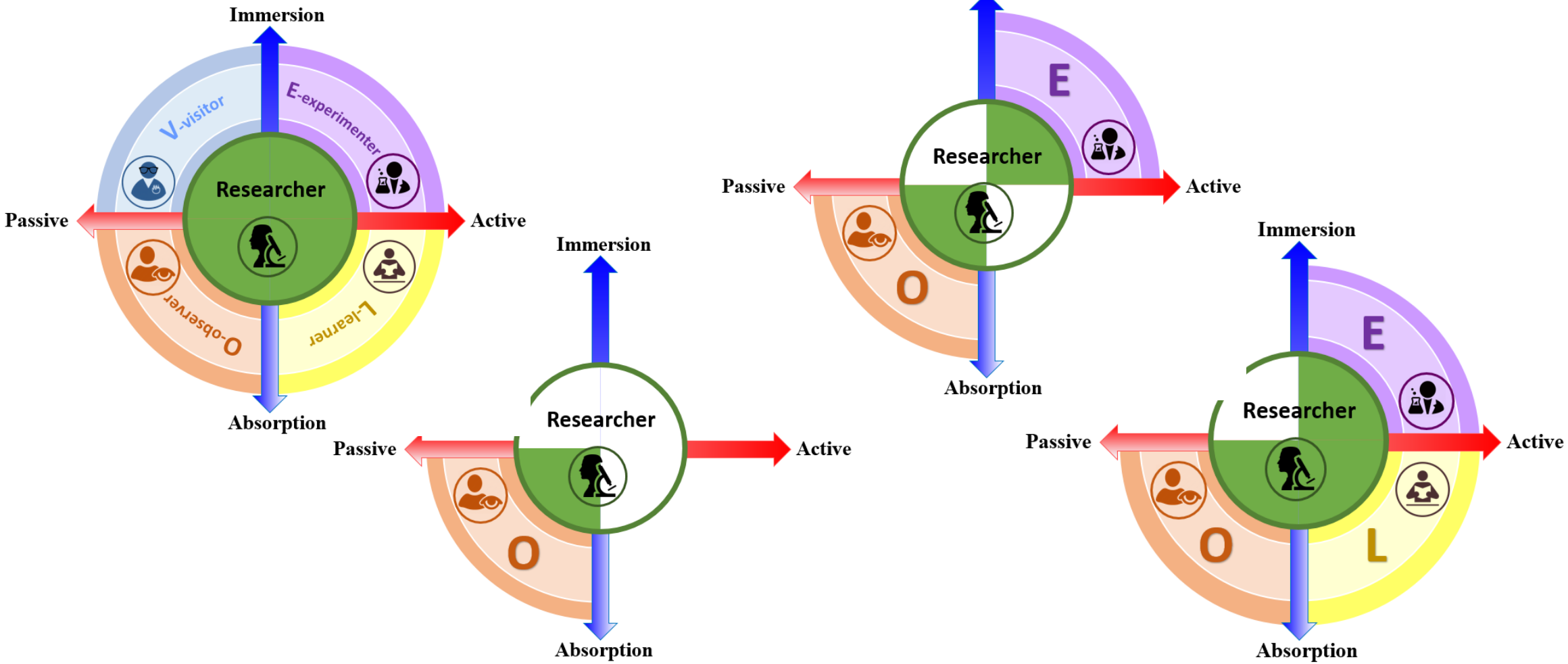
Seminar

Discussion



Co-funded by the Erasmus+ Programme of the European Union

Assessment student learning experience with ‘LOVE’



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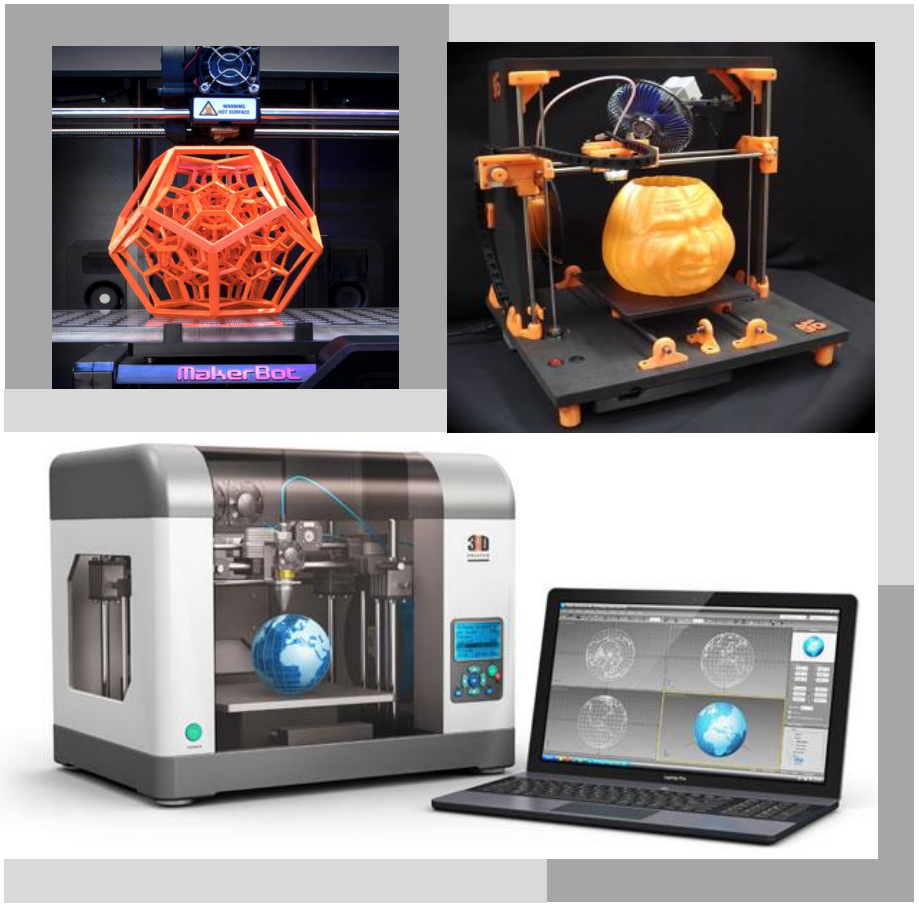
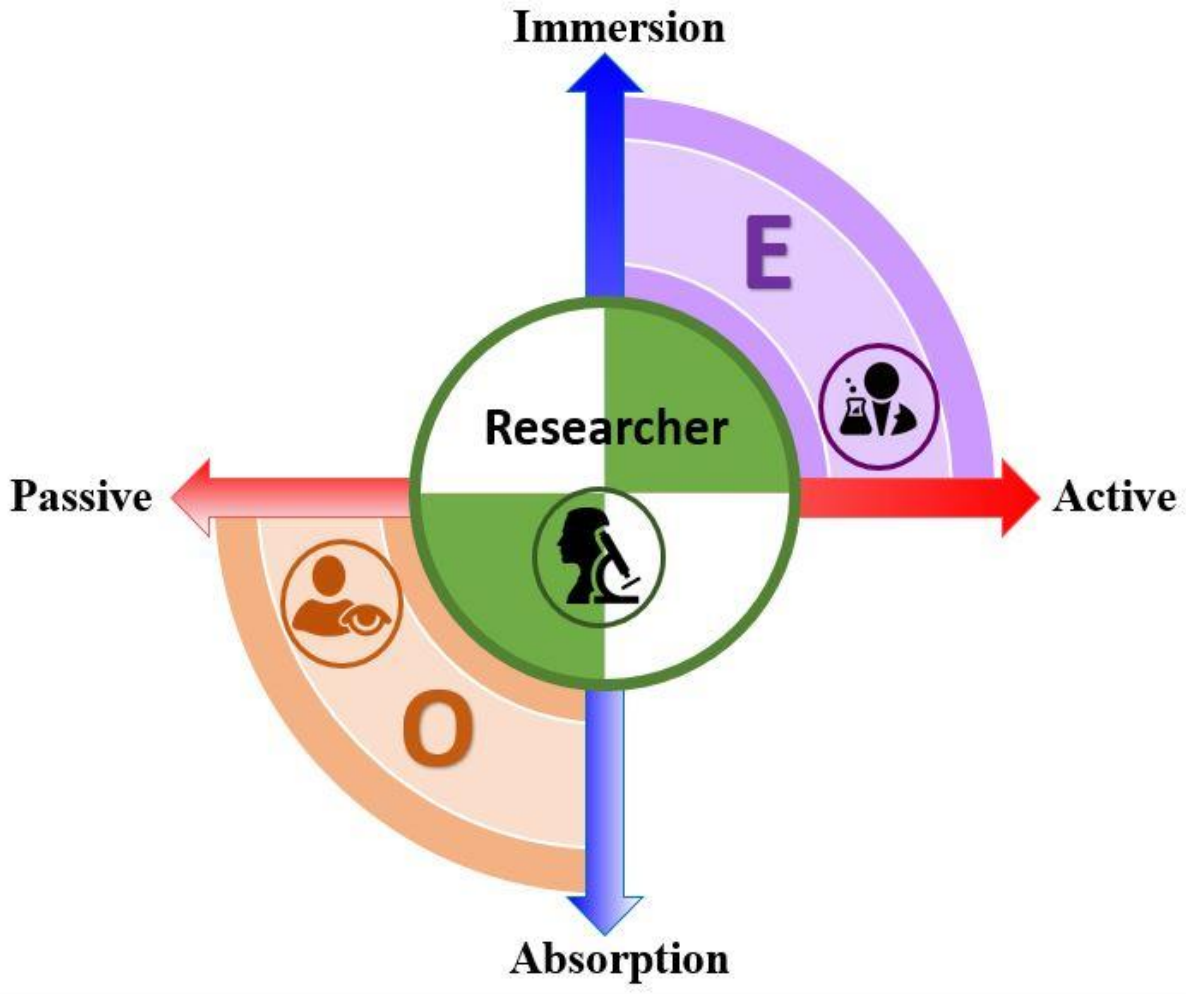
RP

Rapid Prototyping and Manufacturing





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Existing Teaching & Learning Methods

Teaching and Learning Methods			
	1. Assignments	11. Guided practical exercises	21. Role play
	2. Brainstorming	12. Individual presentation	22. Seminars conducted in class
	3. Case study	13. Integrated or interdisciplinary teaching	23. Showing video material
	4. Class debate	14. Laboratory classes	24. Simulation
	5. Conference	15. Lecture	25. Small group debate
	6. Demonstration with exercising	16. Live lecture from a remote place	26. Virtual laboratory
	7. Discussion	17. Online interactive learning	27. Virtual reality
	8. Field classes, trips and excursion	18. Problem-based learning (PrBL)	28. Workshop
	9. Game-based learning	19. Programmed teaching	
	10. Guided conversation	20. Project-based learning (PjBL)	

Sajjad, S. (2010). Effective teaching methods at higher education level. *Pakistan Journal of Special Education, 11*, 29-43.

Močinić, S. N. (2012). Active teaching strategies in higher education. *Metodički obzori: časopis za odgojno-obrazovnu teoriju i praksu, 7*(15), 97-105.

Co-funded by the Erasmus+ Programme of the European Union

Teaching & Learning Methods on LOVE Grid

V-Visiting (passive immersion)

1. Field classes, trips and excursions
2. Conference
3. Virtual reality

E-Experimenting (active immersion)

1. Project-based learning (PjBL)
2. Laboratory classes
3. Virtual laboratory

O-Observing (passive absorption)

1. Lecture
2. Guided conversation
3. Integrated or interdisciplinary teaching
4. Showing video material
5. Seminars conducted in classes
6. Live lecture from a remote place

L-Learning (active absorption)

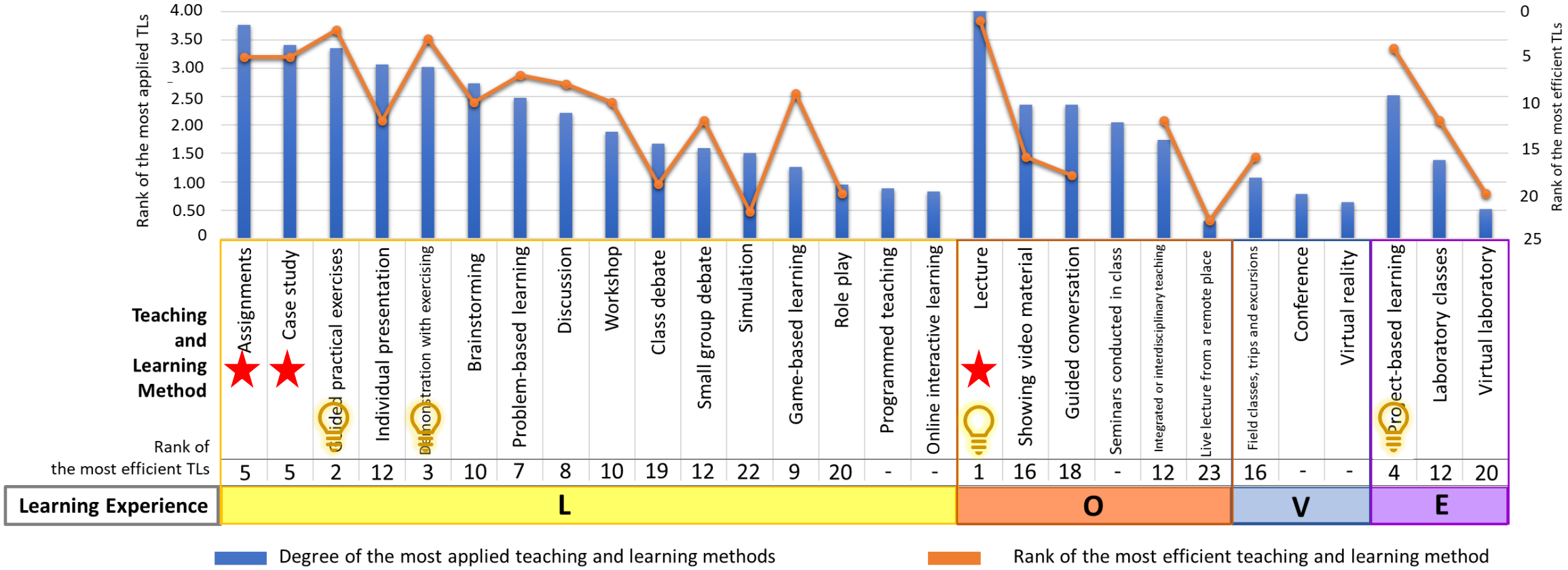
1. Discussion
2. Demonstration with exercising
3. Class debate
4. Small groups debate
5. Simulation
6. Problem-based learning (PrBL)
7. Programmed teaching
8. Workshop
9. Brainstorming
10. Case study
11. Online interactive learning
12. Game-based learning
13. Guided practical exercises
13. Role play
14. Assignments
15. Individual presentation

Hussadintorn Na Ayutthaya, D. & Koomsap, P. 2019. LOVE-Based Teaching and Learning Mehtod Classification, 13th International Technology, Education & Development Conference

Co-funded by the Erasmus+ Programme of the European Union

Learning Experience from Teaching and Learning Methods in Engineering Education: Instructors' Viewpoint

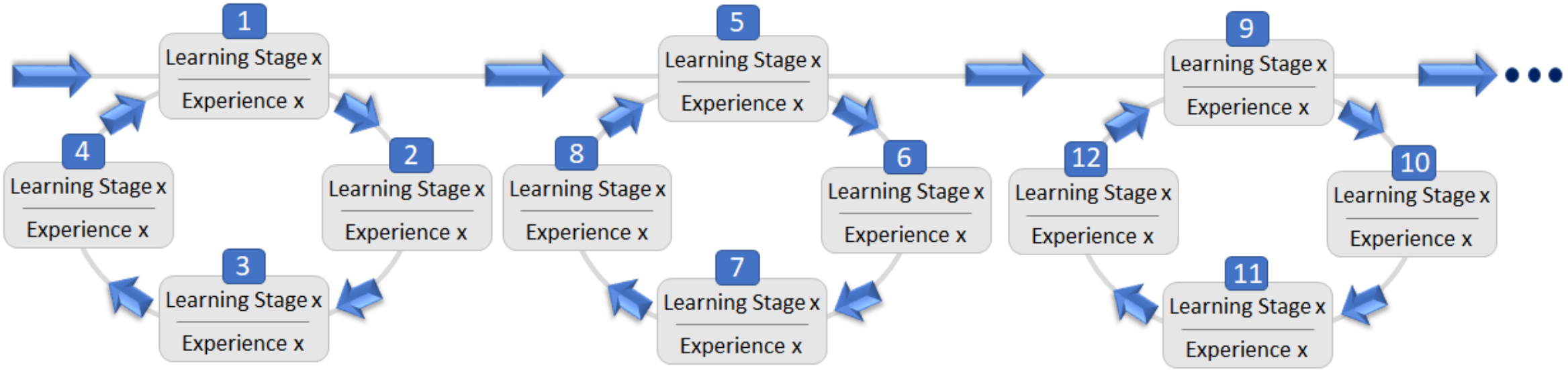
The comparison between the most applied and the most efficient teaching and learning methods (TLs) in engineering education from instructors' viewpoint



Hussadintorn Na Ayutthaya, D. & Koomsap, P. 2019. Learning Experience from Teaching and Learning Methods in Engineering Education: Instructor's Viewpoint, 13th International Technology, Education & Development Conference

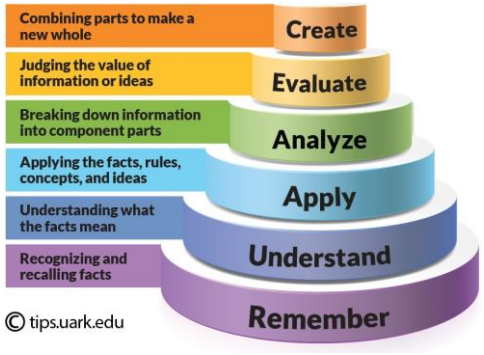
Co-funded by the Erasmus+ Programme of the European Union

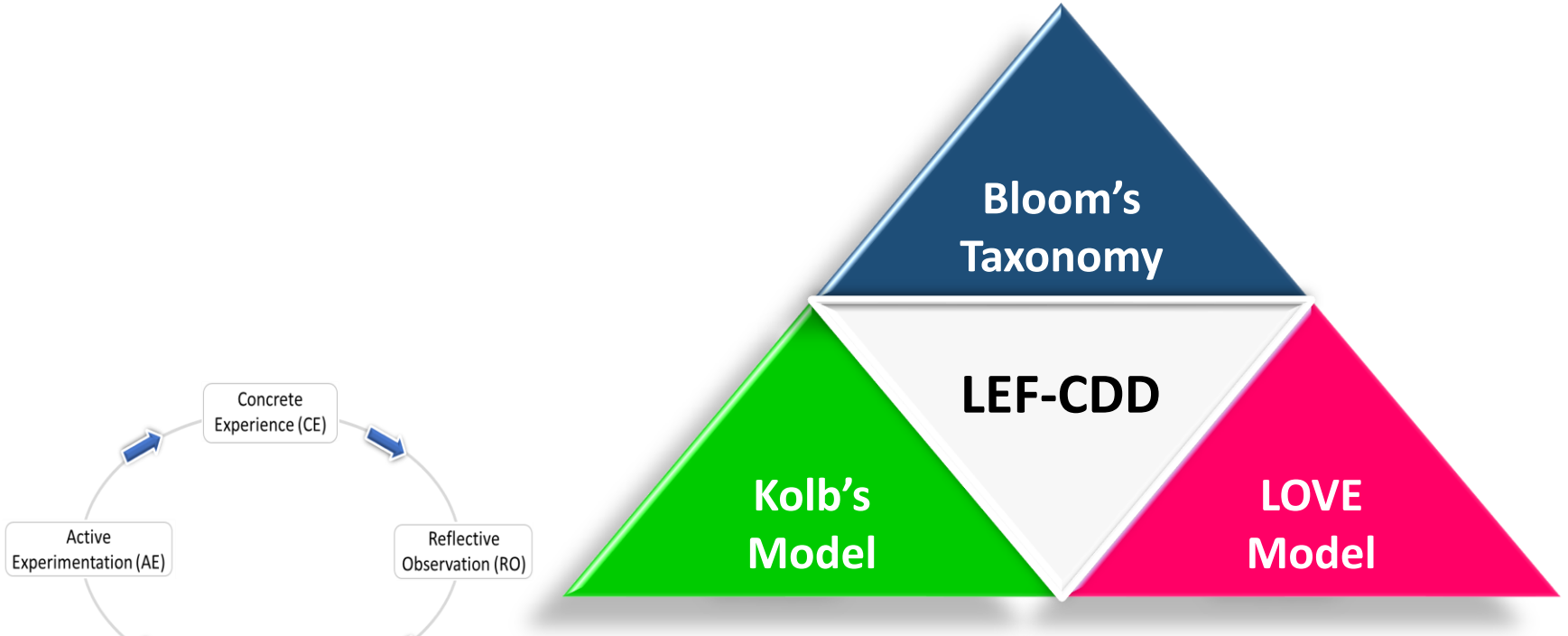
LEF-CDD Concept

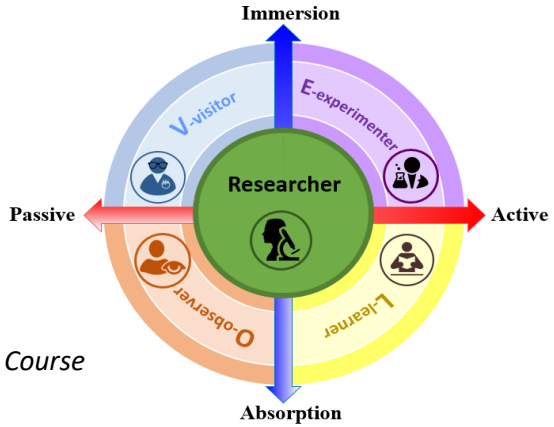


Koomsap, P., Hussadintorn Na Ayutthaya, D., Nitkiewicz, T., Lima, R.M. & Luong, H.T., 2019. ***Course Design and Development: Focus on Student Learning Experience, PAEE/ALE'2019***

Co-funded by the Erasmus+ Programme of the European Union







Koomsap, P., Hussadintorn Na Ayutthaya, D., Nitkiewicz, T., Lima, R.M. & Luong, H.T., 2019. Course Design and Development: Focus on Student Learning Experience, PAEE/ALE'2019

Co-funded by the Erasmus+ Programme of the European Union

LEF-CDD Process

Backward Design

Course Title

Course Objectives

Course Learning Outcomes

Assessment Methods

Course Outline

Experiential Learning Cycles

LOVE-Based Teaching & Learning Methods

Koomsap, P., Hussadintorn Na Ayutthaya, D., Nitkiewicz, T., Lima, R.M. & Luong, H.T., 2019. ***Course Design and Development: Focus on Student Learning Experience, PAEE/ALE'2019***

Co-funded by the Erasmus+ Programme of the European Union

Learning Experience-Focused Course Design & Development (LEF-CDD)

Experiential Learning Cycle

		AC →	AE →	CE →	RO →
Content	T1				
	T2				
	T3				
	T4				
	Tx				

LOVE-Based Teaching & Learning Methods

		AC	AE	CE	RO
Content	T1				
	T2				
	T3				
	T4				
	Tx				

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Learning Experience-Focused Course Design & Development (LEF-CDD)

Experiential Learning Cycle

		AC	AE	CE	RO
Content	T1	1	2	3	4
	T2	5	6	7	8
	T3	9	10	11	12
	T4	13	14	15	16
	Tx	...			

LOVE-Based Teaching & Learning Methods

		AC	AE	CE	RO
Content	T1	TLx [O]	TLx [L]	TLx [L]	TLx [L]
	T2	TLx [L]	TLx [L]	TLx [L]	TLx [L]
	T3	TLx [O]	TLx [E]	TLx [V]	TLx [L]
	T4	TLx [O]	TLx [E]	TLx [E]	TLx [L]
	Tx	...			

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Product Design and Development

- A participant-centered learning course
- Lecture materials include, but not limited to, slides, case study, games, interesting animations, and videos.
- Most of the lecture sessions contain discussion.
- For topics such as strategy, obtaining voices of customers, identifying customer needs, and concept generation, there will also be activities in class before students practice them in their projects.

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Product Design and Development

Course Objective:

Effective product design and development process is necessary for a company to be competitive in a market. The objective of this course is to provide students knowledge on a systematic approach for product design and development process. **In this course, the students will learn and practice how to systematically design products in a team environment.**

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Product Design and Development

Learning Outcomes:

On the completion of this course, students should be able to:

1) analyze products offered in a market for their effectiveness

2) develop a mission statement according to the identified business opportunity

3) systematically apply knowledge learned for the design and development of a product.

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Product Design and Development

Assessment Scheme:
The weight distribution for calculating the final grade is as follows: final examination 30%, group project 40%, individual assignments 10%, and class participation 20%.

An “A” would be awarded if a student can demonstrate a clear understanding of the knowledge learned in class as well as from literature reviews, can apply the knowledge appropriately in the project, and involve actively in class discussion.

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Main Topic	Subtopic	Sequence of Learning Stages (Learning Experience)			
		AC	AE	CE	RO
I. Importance of Product Development	1. Introduction			1 (O)	2 (L)
	2. Product Development Strategies	3 (LO)	4 (LE)	5 (LO)	6 (L)
	3. Development Processes and Organizations	7 (LO)			
II. Product Concept Development	1. Mission Statement	8 (LO)	9 (E)	14 (LO)	15 (L)
	2. Customer Need Assessment				
	2.1 Obtaining Voice of Customers	10 (LO)	11 (LE)	12 (LO)	13 (L)
	2.2 Identifying customer needs	16 (LO)	17 (LE)	18(LO)	19 (L)
	2.3 Kano Model	23 (LO)	20 (LE)	21 (LO)	22(L)
	3. Product Specifications	24 (LO)	30 (E)	31 (LO)	32 (L)
	4. Quality Function Deployment (QFD)	25 (O)	34 (E)	35 (LO)	36 (L)
	5. Concept Generation	29 (O)	26 (LE)	27 (E)	28 (L)
	6. Concept Selection	33 (O)	40(E)	46 (LO)	47 (L)
III. System Level Design for Product Development	1. Process Driven Design	37 (LO)	41 (E)	46 (LO)	47 (L)
	2. Product Architecture	38 (LO)	42 (E)	46 (LO)	47 (L)
	3. Industrial Design	39 (O)			
	4. Design for manufacturing	43 (O)			
	5. Prototyping	44 (O)			
	6. Economics of Product Development Projects	45 (O)			

Erasmus+ Programme of the European Union

Implementation of Blue Ocean Strategy Session on LEF-CDD

AC | **O**

The instructor delivers lecture on blue ocean strategy at the beginning of the session.

AE | **L**

A case study is given to the class. The students work in a group to identify strategy for a company to be competitive and illustrate their strategies on a wall by using post-it notes.

CE | **O**

Gallery walk is conducted after all groups come up with their strategies.

RO | **L**

The groups are asked to discuss among the members and compare their strategies with other groups.

Blue Ocean Strategy Session of
Product Design & Development Course

Koomsap, P., Hussadintorn Na Ayutthaya, D., Nitkiewicz, T., Lima, R.M. & Luong, H.T., 2019. ***Course Design and Development: Focus on Student Learning Experience, PAEE/ALE'2019***

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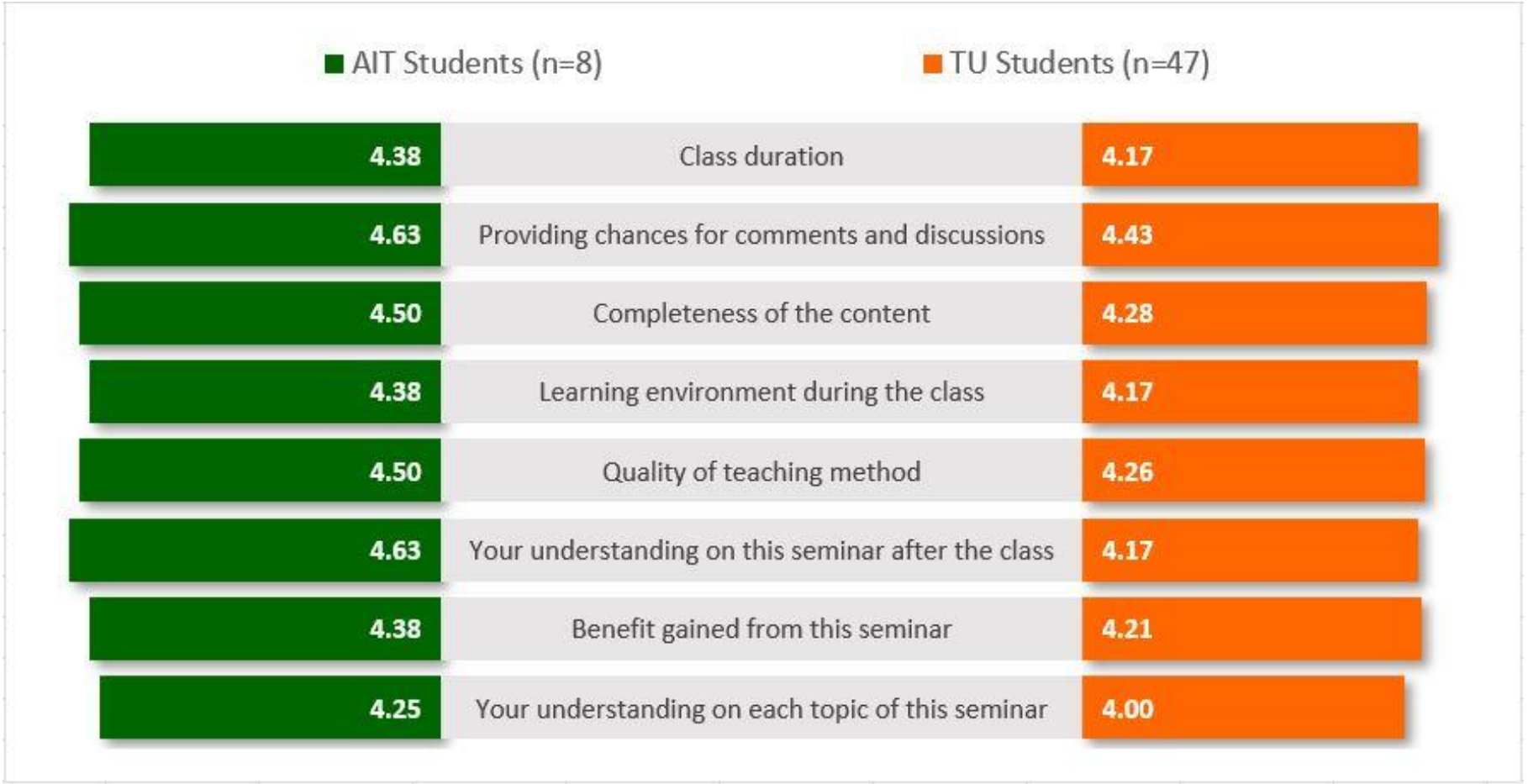
Student Satisfaction on Blue Ocean Strategy Session



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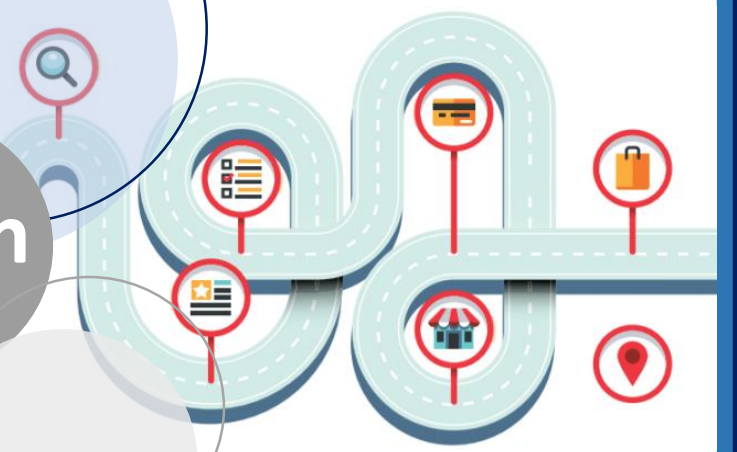
Course No. 15

Customer Experience-Driven Design



Pisut Koomsap (AIT),
Duangthida Hussadintorn Na Ayutthaya (AIT),
Tomasz Nitkiewicz (CUT),
Apiwat Muttamara (TU),
Agnieszka Ociepa-Kubicka (CUT)

Co-funded by the
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of the European Union

Course Objective

Economic offerings have progressed to the fourth evolution when products and services are used as props and stages for creating memorable experiences to customers. It is important for students to be able to support an industry with this change.

This course aims to build student competence in design customer experience with knowledge on a concept of customer experience management (CEM) and on a systematic approach for an experience design process.

In this course, the students will learn customer perception, customer involvement, and customer experience. Besides, they will learn and practice how to design customer journey and to prevent failure of offering in a team environment.

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of the European Union

Learning Outcomes

The students on the completion of this course would be able to:

CLO1 Present entrepreneurial and creative attitude towards seeking various problem solutions *(Apply)*,
CLO2 Identify customer needs *(Analyze)*,
CLO3 Identify potential failure of offerings *(Analyze)*,
CLO4 Manage customer experience journey *(Create)*,
CLO5 Communicate effectively and work in an interdisciplinary team environment *(Apply)*,
CLO6 Design a pain point-free, memorable customer experience journey *(Create)*,
CLO7 Utilize Industry 4.0 technologies/applications to support the creation of a memorable customer experience journey *(Apply)*

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Assessment

	CLO1	CLO2	CLO3	CLO4	CLO5	CLO6	CLO 7
Formative assessment methos							
Class discussions (10%)	3	3	3	3	9	3	3
Class participation (10%)	3	3	3	3	9	3	3
Peer assessment in class activities (10%)					9		
Individual assignments and presentations (10%)	1	1		1	9		3
Progress presentation (15%)	3	9	9	9	9	9	9
Summative assessment method							
Executive summary for group project (5%)	3	3	3	3	9	3	3
Project outcome (10%)	9	9	9	9		9	9
Final group project presentation (10%)	3	3	3	3	9	3	3
Final Examination (20%)	3	3	3	3		3	3

Assessment Model:
9: Strong; 3: Moderate, 1: weak

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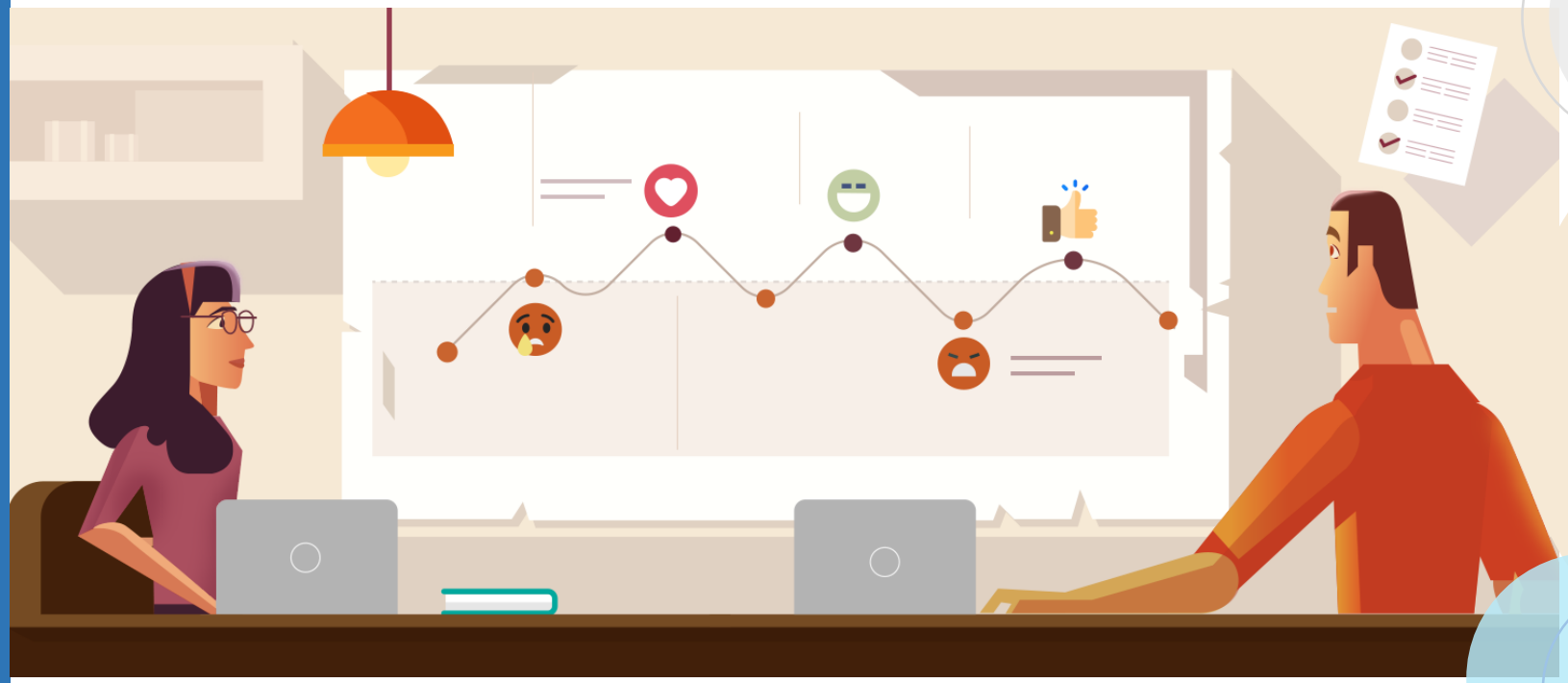
Module I

Pain Point-Free Customer Experience Journey



- Introduction to Experience Economy
- Customer Journey
- Experience Clues
- Customer Oriented-Failure Prevention

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Module II

Customer Experience Value Creation

- Understanding Customers
- Customer Perceived Value Model
- Product-Service Systems
- Co-Creation

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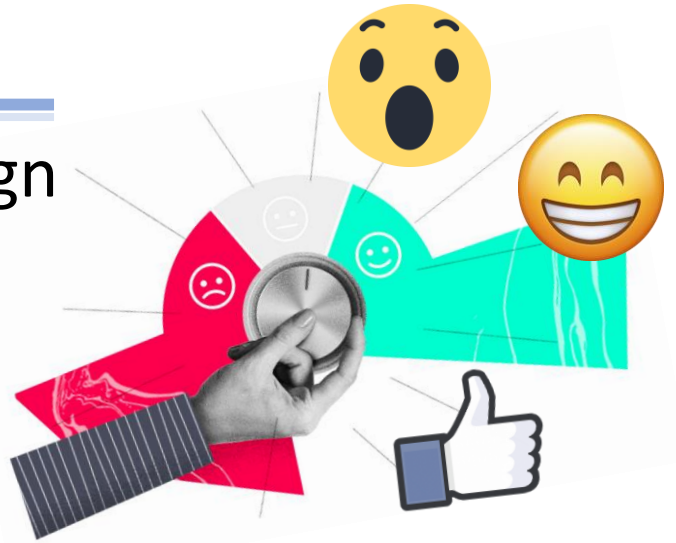
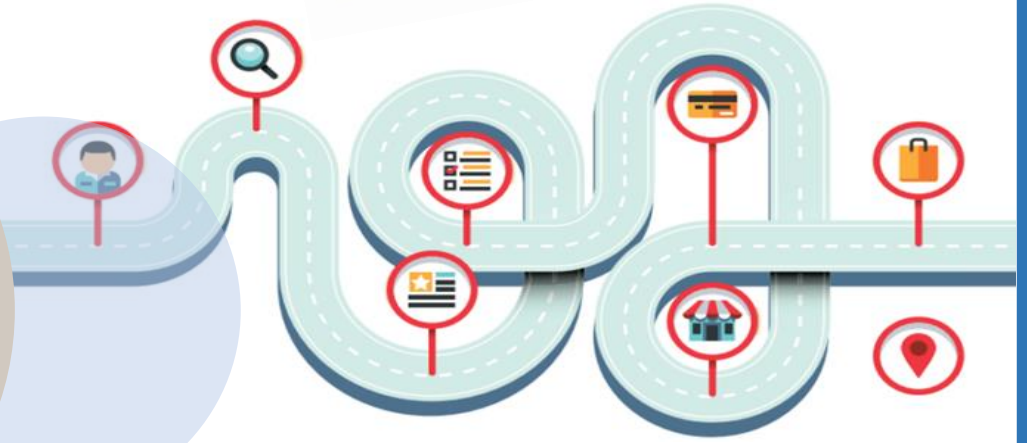
Module III

Memorable Customer Experience Design



- Customer Experience Journey Design
- Embedding Memorable Experience into Customer Experience Journey
- Customer Experience Co-Creation
- Industry 4.0 Technologies/Applications for the Creation of Customer Experience



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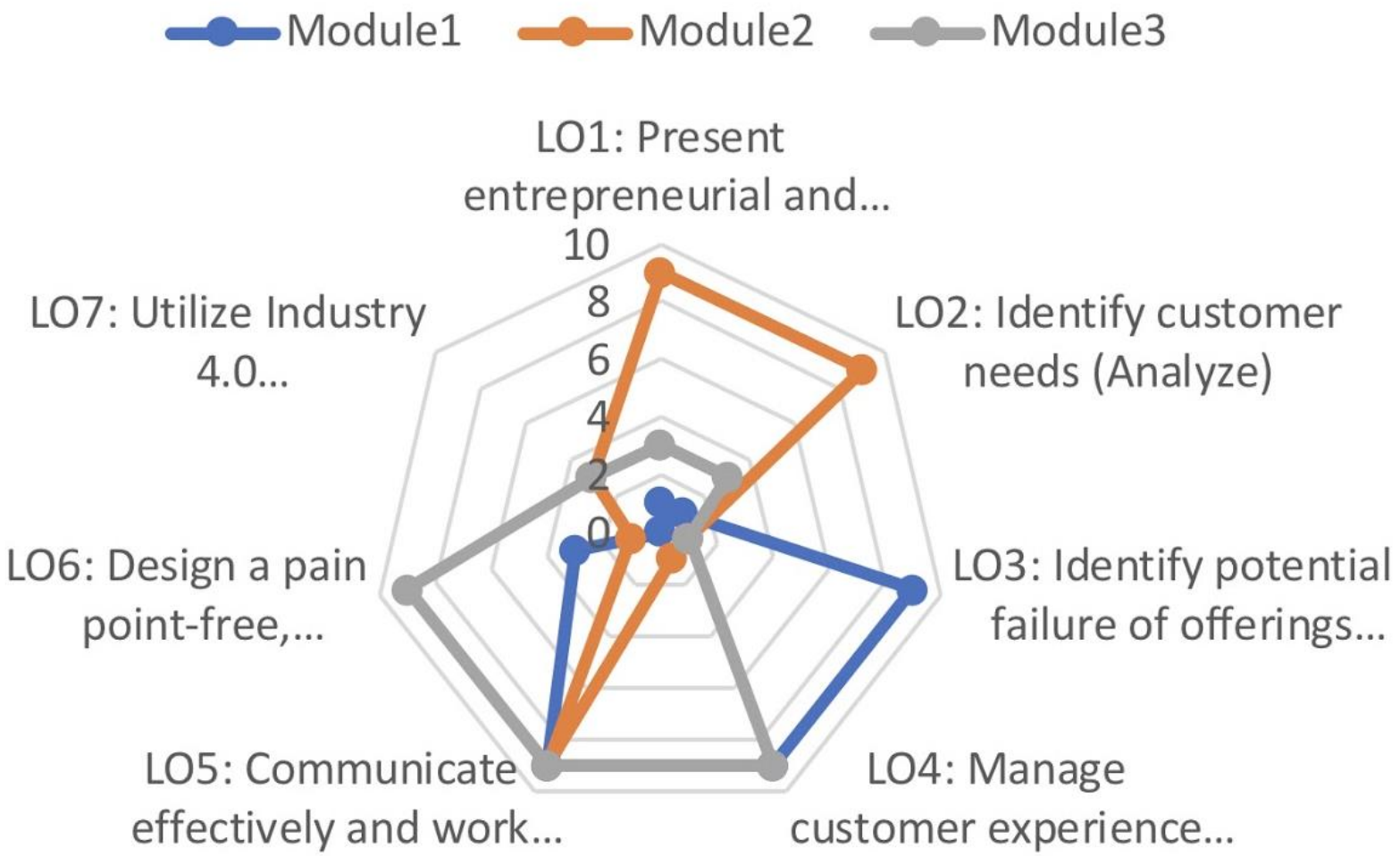
Modules' Contribution to Course Learning Outcomes



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Course No. 16

Communications and People Skills Development for Engineering Leaders

Diana Mesquita (UMinho),
Pisut Koomsap (AIT),
Athakorn Kengpol (KMUTNB),
Duangthida Hussadintorn Na Ayutthaya (AIT)

Co-funded by the Erasmus+ Programme of the European Union

Course Objective

Technical excellence is always a trademark for engineering graduates, but their lack of collaborative communication skills, people skills and understanding holistic picture, which are essential characteristics of a leader, often hinder their career success. This course aims to build engineering student competence in leadership communication skills and people skills. This course will train the engineering students on how to be a leader who can communicate effectively to facilitate the achievement of organizational goals and to motivate other members along the way.

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of the European Union

Learning Outcomes

The students on the completion of this course would be able to:

CLO1 Explain their works, thoughts, and ideas effectively *(Create)*,
CLO2 Do both technical and non-technical written communication that ease understanding of audiences *(Create)*,
CLO3 Make presentation professionally *(Create)*,
CLO4 Develop emotional intelligence domains and competencies in different professional situations *(Create)*,
CLO5 Work in a team environment in a complex workplace *(Apply)*,
CLO6 Apply people skills to support, lead, persuade, motivate and inspire others to achieve goals *(Apply)*.

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Assessment

	CLO1	CLO2	CLO3	CLO4	CLO5	CLO6
Formative Assessment Methods						
Class discussions and participation (15%)	9	1	3	3	9	9
Oral communication (15%)	9		9	3	9	9
Written communication (10%)		9	3	1		3
Presentation (10%)	9	9	9	3	3	1
Simulation/Scenario (10%)	9	3		9	9	9
Peer Assessment (10%)	9	3	3	3	9	3
Summative Assessment Methods						
Powerful Public Speaking (10%)	9	3	3	9	1	9
Personal Development (20%)	9	9	9	9	9	9

Assessment Model:
9: Strong; 3: Moderate, 1: weak

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Module I

Essential Communication Skills Development for Self Expression

Effective oral communications

- Knowing your intention and audience
- Get your audience attention
- Deliver your presentation professionall

Effective written communications

- Plotting your idea
- Filling up your story
- Polishing your story

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Module II

Collaborative Communication Skills Development

- Personality, character, and Cultural barrier in communication
- Emotional intelligence
- Strategic persuasive communication
- Conflict management strategies
- Effective managerial communication in a meeting

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Module III

Leadership Communication Skills Development

- Knowing your leadership style
- Cultivating your leadership and communication style
- Nonverbal communication
- Adapting your communication to different situations and audiences
- Making your message powerful, motivating and inspiring

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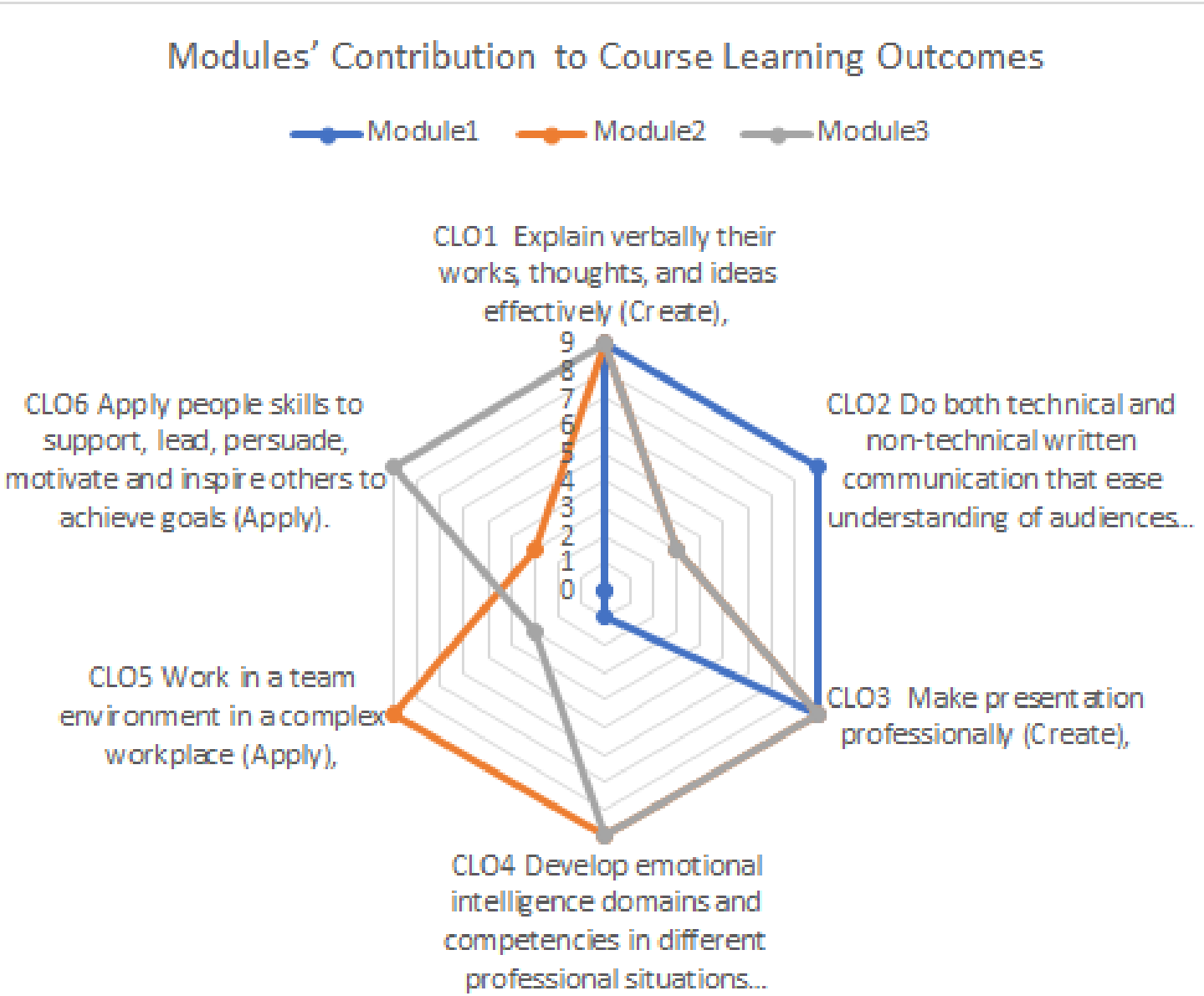

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Modernized MSIE Curriculum with 16 Courses

16 Courses

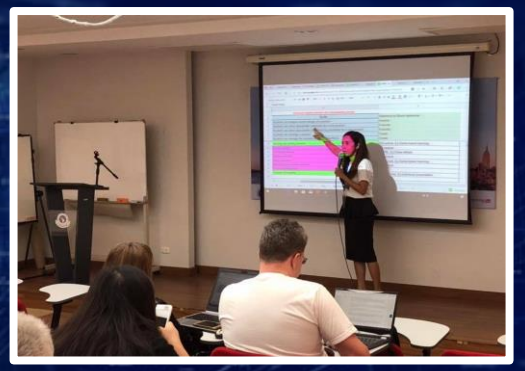
1. Enterprise Management in Digital Economy
2. Project Management for Industry 4.0
3. Smart Operations Management
4. Quality Management for Extended Enterprise
5. Sustainable Supply Chain Management
6. Digital Factory
7. Advanced Optimization: Techniques and Industrial Applications
8. Intelligent Decision Support Systems
9. Applied Data Analytics
10. Cyber-Physical Industrial Systems
11. Collaborative Manufacturing Systems
12. Additive Manufacturing for Industry 4.0
13. Innovative Product Design and Development
14. Human-Centric Design for Operator 4.0
15. Customer Experience-Driven Design
16. Communications and People Skills Development for Engineering Leaders

Co-funded by the Erasmus+ Programme of the European Union

Workshops on Learning Experience-Focused Course Design and Development (LEF-CDD)

The workshops will be organized at different regions of the country.

Workshops



LEF-CDD Workshop
at CMU
January 2019

Co-funded by the
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of the European Union

PAEE/ALE' 2020

International Conference on Active Learning in Engineering Education

"Striving Engineering Education Towards Student Competence Development"

26th - 28th of August, 2020 in Pattaya, Thailand

International Conference

www.paeeale.ait.ac.th

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ImpOSSible

A big word thrown around by small men who find it easier to live in the world they've been given than to explore the power they have to change it.

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of the European Union

Impossible is not a fact. It's an opinion

It's not a declaration. It's a dare.

Impossible is nothingy.

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Thank You

Together We Will Make Our Education Stronger

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Curriculum Development
of Master's Degree Program in
Industrial Engineering for Thailand Sustainable Smart Industry