

WP4: Quality Control and Monitoring

Impact Evaluation Report vol. 1

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Revision Sheet

Version	Date	Author (Partner/Person)	The revision reason
V1	May 29, 2024	Danaipong Chetchotsak	First draft
V2	Jun 11, 2024	Danaipong Chetchotsak	Complete the whole paragraph.
V3	Oct 22, 2024	Danaipong Chetchotsak	Verify number of participant2
V4	Oct 25, 2024	Danaipong Chetchotsak	Add IM4 at LPRU
V5	Oct 29, 2024	Danaipong Chetchotsak	Add all comments
V6	Nov 1, 2024	Danaipong Chetchotsak	Finalized
V7	Nov 21, 2024	Danaipong Chetchotsak	Revision per QCMB's comments
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1 Executive Summary

Project Impact evaluation was presented in this report. Recall that the objective of this project was to enhance the capacity and ability of the non-university sector at the tertiary level in Thailand for the effective delivery of engineering and technology knowledge and skills related to Industry 4.0 to support Thailand Sustainable Smart Industry. To achieve this objective, training for the teaching staff of the non-university sector was held and there were totally 62 training sessions with 443 trainees. Since each of the trainees can attend more than one training module, this contributed to 804 participants for all training sessions.

Data from the questionnaires mentioned in Training Evaluation Report vol. 1-9 were taken into consideration to evaluate the project impact. Here, the questionnaire parts h) and i) and comments on “Section 3 Impact of the Training” were used in this study. The questionnaire parts h) and i) were taken to compute the satisfaction scores, where the scores range from 1 to 5. Their meanings were as follows. A score of 1 was for “Totally disagree;” 2: “Disagree;” 3: “I am not sure;” 4: “Agree;” and 5: “Totally agree.” The average satisfaction scores for each training were then computed and demonstrated in the form of bar charts along with the corresponding 95% confidence intervals. In this study, the focus was on whether the trainees think that the training was valuable for their professional growth and after the training the trainees’ knowledge and experience have been improved. These measures were used to verify the project impact.

The results disclosed that all the training sessions had a satisfaction score of 4 or above with some small variations in both Parts h) and i). This confirmed the perception of the trainees that the training was valuable experience for their professional growth and after the training the trainees’ knowledge and experience have been improved. In terms of comments regarding the impact of the training, all the comments in general were positive and some trainees expressed that they would apply what they have learned from the training into their teaching practices.

2 Introduction

This report presented project impact evaluation. The objective of this project is to enhance the capacity of the non-university sector at the tertiary level in Thailand for the effective delivery of engineering and technology knowledge and skills related to Industry 4.0 to support Thailand Sustainable Smart Industry. In order to achieve this objective, training for the teaching staff of such a non-university sector has been conducted during the period of Dec 2021-Nov 2024. In total, there were 62 training sessions with 443 trainees. In this case, a particular individual may attend more than one training module. Hence the number participants attending the training of this project according to WP.3 was 804. Tables 1-10 tabulated brief information of all the training sessions.

It should be noted that from the report of WP.3, there were 60 training sessions held by this project. In this case, two training sessions had many participants and hence each of them was split into two sessions. Those training sessions were ITM (held at PSU on May 27-29, 2023) and PBL (held at RMUTSV on May 8-10, 2023).

Here, data from Training Evaluation Report vol. 1-9 were used to analyze and evaluate the impact of this project. The focus of the analysis was on whether the trainees think that the training was valuable for their professional growth and after the training the trainees’ knowledge and experience have been improved. Such measures were used to assess the project impact. Details in methodology and results were shown in the following results.

Table 1 Training events: Learning Experience-Focused Course Design and Development (CDD)

Training session	Date	Venue	Number of Participants
CDD1	May 27-29, 2024	RBRU	11
CDD2	Jun 5-7, 2024	PSU	14
CDD3	Jul 17-19, 2024	RMUTL	17
CDD4	Jul 25-26, 2024	MU	10
CDD5	Aug 3-4, 2024	CRRU	12
CDD6	Aug 16-18, 2024	LPRU	9
CDD7	Sep 6-8, 2024	SU	10
CDD8	Sep 12-13, 2024	CPRU	13
Total			96

Table 2 Training events: Communication and People Skills Development (CPD)

Training session	Date	Venue	Number of Participants
CPD1	Dec 13-15, 2021	RBRU	7
CPD2	Mar 11-13, 2022	MU	11
CPD3	Mar 18-20, 2022	PSU	4
CPD4	Jun 17-19, 2022	LPRU	10
CPD5	Dec 12-14, 2022	CPRU	13
CPD6	Jan 19-21, 2023	SU, Sanam Chandra Palace	10
CPD7	Feb 23-25, 2023	KSU	15
CPD8	Nov 22-24, 2023	WD	17
CPD9	Jan 26-28, 2023	SU	13
Total			100

Table 3 Training events: Innovative Teaching and Learning Methods (ITM)

Training session	Date	Venue	Number of Participants
ITM1	Mar 27-29, 2023	PSU	15
ITM2	Mar 27-29, 2023	PSU	19
ITM3	May 29-31, 2023	KKU	10
ITM4	May 31-Jun 2, 2023	RMUTL	20
ITM5	Jun 9-11, 2023	MU	10
ITM6	Jun 16-18, 2023	LRU	15
Total			89


Table 4 Training events: Project-Based and Problem-Based Learning (PBL)

Training session	Date	Venue	Number of Participants
PBL1	May 8-10, 2023	RMUTSV	16
PBL2	May 8-10, 2023	RMUTSV	12
PBL3	May 19-21, 2023	LPRU	19
PBL4	Jun 23-25, 2023	MU	14
PBL5	Jun 29- Jul 1, 2023	CPRU	16
PBL6	Jul 17-18, 2023	KSU	14
Total			91

Table 5 Training events: Coaching and Mentoring Skills Development (CMS)

Training session	Date	Venue	Number of Participants
CMS1	Feb 19-21, 2024	PSU	11
CMS2	May 13-15, 2024	RMUTL	9
CMS3	Jun 5-7, 2024	CPRU	14
CMS4	Jul 26-28, 2024	MU	10
CMS5	Sep 10-11, 2024	UBRU	21
Total			65

Table 6 Training events: Industrial Management in Industry 4.0 Era (IM4)

Training session	Date	Venue	Number of Participants
IM41	Jun 3-5, 2024	RMUTL	10
IM42	Jul 10-12, 2024	MU	9
IM43	Jul 24-26, 2024	PSU	10
IM44	Jun 10-12, 2024	RMUTI	12
IM45	Sep 10-12, 2024	LPRU	8
IM46	Nov 7-8, 2024	RBRU	13
Total			62


Table 7 Training events: Applications of Optimization and Technology in Value Chain (AOV)

Training session	Date	Venue	Number of Participants
AOV1	Mar 18-20, 2022	MU	15
AOV2	May 2-4, 2022	PSU	13
AOV3	Jul 22-24, 2022	LPRU	10
AOV4	Nov 14-15, 2022	KKU	9
AOV5	May 22-23, 2023	RMUTI	23
Total			70

Table 8 Training events: Digital Manufacturing (DM)

Training session	Date	Venue	Number of Participants
DM1	Aug 28-30, 2023	PSU	11
DM2	Sep 8-10, 2023	RMUTL	15
DM3	Sep 30-Oct 2, 2023	KMUTNB	13
DM4	Oct 25-27, 2023	RMUTI	21
DM5	Dec 15-16, 2023	LPRU	17
Total			77

Table 9 Training events: Innovative Product Design and Development (PDD)

Training session	Date	Venue	Number of Participants
PDD1	Dec 20-22, 2021	RBRU	8
PDD2	Feb 25-27, 2022	MU	12
PDD3	Apr 1-3, 2022	PSU	12
PDD4	May 6-8, 2022	LPRU	14
PDD5	Nov 19-21, 2022	SRU	8
PDD6	Nov 30-Dec 2, 2022	KKU	8
PDD7	Sep 20-21, 2024	CRRU	15
Total			77


Table 10 Training events: Data Analytics (DA)

Training session	Date	Venue	Number of Participants
DA1	Nov 9-11, 2022	PSU	20
DA2	Jan 18-20, 2023	CPRU	11
DA3	Nov 25-27, 2022	LPRU	13
DA4	Apr 7-9, 2023	KMUTNB	17
DA5	Apr 26-28, 2023	RMUTL	16
Total			77

3 Methodology

To evaluate the project impact, the satisfaction scores given by the participants of each training session were analyzed. Specifically, all participants were required to fill in the questionnaires (evaluation template) as shown in ANNEX I and ANNEX II. Here the questionnaire in ANNEX I was used during Dec 2021-Jul 2022 and the one in ANNEX II was the most recent version and has been used since Jul 2022. Once the questionnaires were filled in, the average satisfaction scores were computed. The average score for each of the training sessions were illustrated in terms of a bar chart along with the corresponding 95% confidence interval.

This study in fact used the questionnaire results from the Training Evaluation Report, vol. 1-9. In this case, only the questionnaire Parts h) and i) were taken into the consideration: “h) The training was valuable experience for professional growth.” And “i) After the training, my knowledge and experiences in this subject have been improved.”

To study the impact of this project further, all the comments from the participants (The Questionnaires Part 3. Impact of the Training) were analyzed. Since the comments section is descriptive and qualitative in nature, important keywords, e.g., “apply/applied”, “use/used”, “improve/improved”, “help/helped”, or “change/changed” were highlighted and used to analyze the impact of this project.

4 Impact evaluation results

Figures 1-10 illustrated the average score for the questionnaire Part h) of all the training modules. Also Figures 11-20 depicted the average scores for Part i). It should be mentioned that the question Part i) has been used in the Questionnaire ver.2 since Jul 2022 and hence the scores of all training sessions modules carried out before such period did not have the results of the question Part i). Those training sessions included the modules CPD, AVO, and PDD.

Results from Figures 1-10 revealed that most participants gave a score of 4 or higher for all training sessions across all modules. This indicated that most participants were satisfied with the training and thought that those training sessions were valuable experience for professional growth. There is an exception however for the Training module AOV, as shown in Figure 7. The score for the AOV1 was far below 4. Such incident was reported in Training Evaluation Report vol. 2. The previous analysis suggested that roughly 50% of the participants indicated the training topic was not relevant to their teaching profession. Moreover, half of



them mentioned that the training contents are too difficult to understand. Such incidents were reported to the project executive committee (PEC) and the issue has been resolved, i.e., individuals were chosen to join the training only if the training topic was relevant to their teaching practice. Figures 11-20 also showed that the satisfaction scores were above 4 in all cases. This disclosed that most participants felt that after the training, their knowledge and experiences have been improved.

Table A1-A10 showed trainees’ comments for each of the training modules respectively, where only Part 3 Impact of the Training was given. In general, all participants were satisfied with the training and gave positive feedback in terms of impact of the training. There were several keywords that represent the impact of the training. Those keywords include “apply/applied”, “use/used”, “improve/improved”, “help/helped”, or “change/changed”, as highlighted in red. Examples of the trainees’ comments that designate the impact of the training are as follows: CDD1: “I can use this to develop my own course.”; ITM2: “Able to apply the knowledge acquired to adjust the teaching style in the subjects currently being taught.”; and DA1: “Be able to apply knowledge to research and teaching.” All these results fulfilled the objective of the project that the capacity and ability of the non-university sector at the tertiary level in Thailand for the effective delivery of engineering and technology knowledge and skills related to Industry 4.0 have been enhanced.

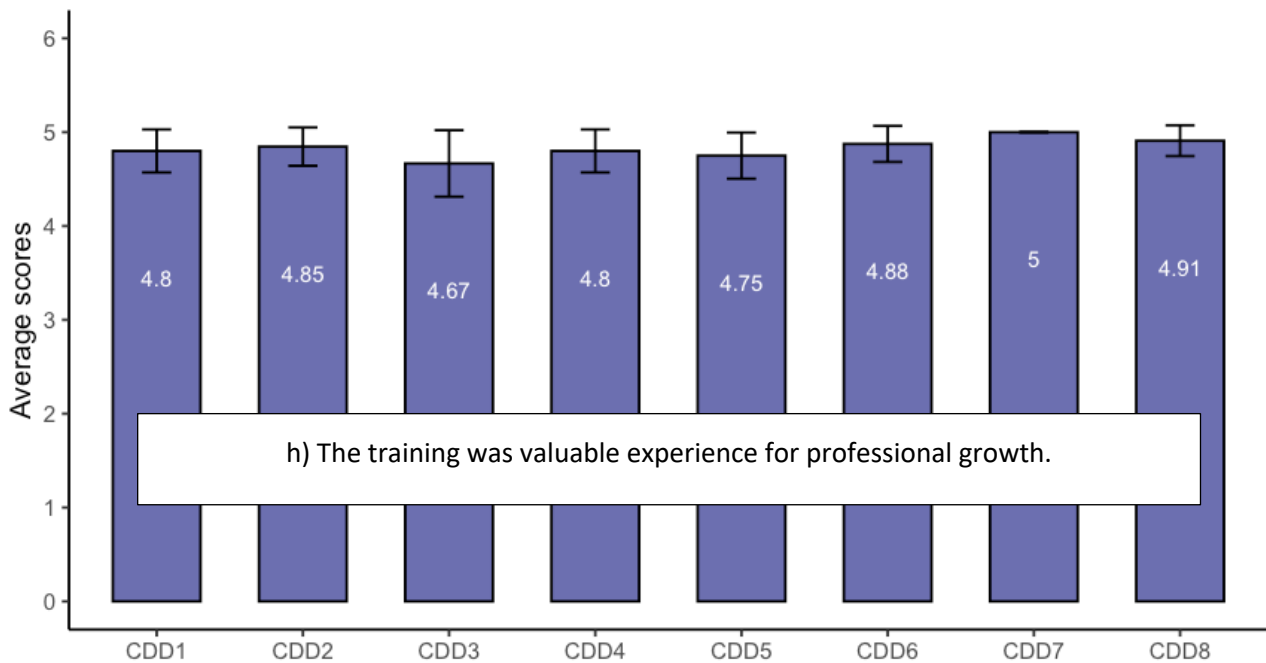


Figure 1 Average scores of Satisfaction Statement h): Learning Experience-Focused Course Design and Development (CDD)

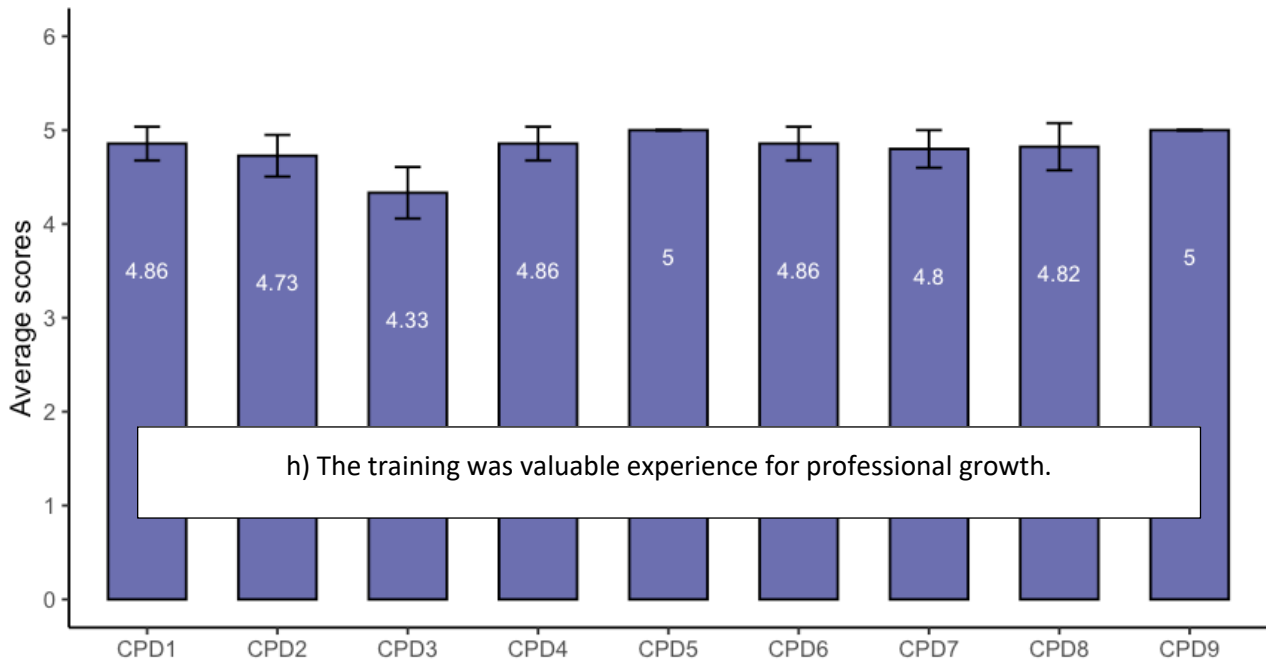


Figure 2 Average scores of Satisfaction Statement h): Communication and People Skills Development (CPD)

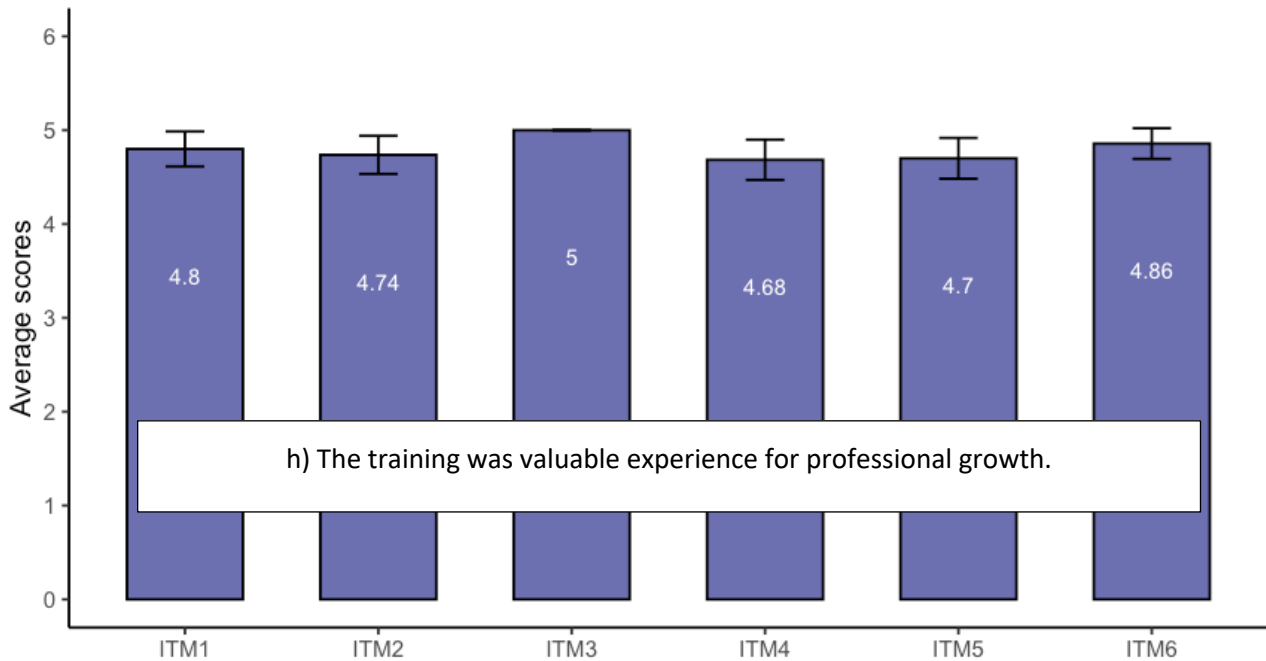


Figure 3 Average scores of Satisfaction Statement h): Innovative Teaching and Learning Methods (ITM)

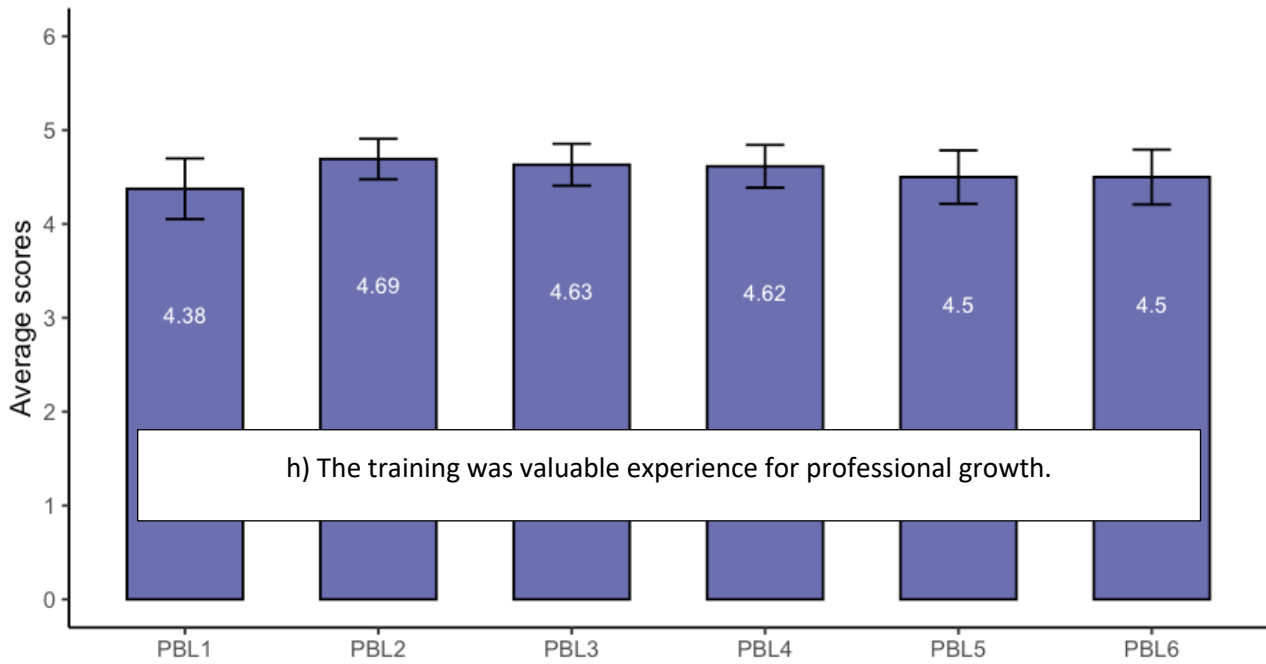


Figure 4 Average scores of Satisfaction Statement h): Project-Based and Problem-Based Learning (PBL)

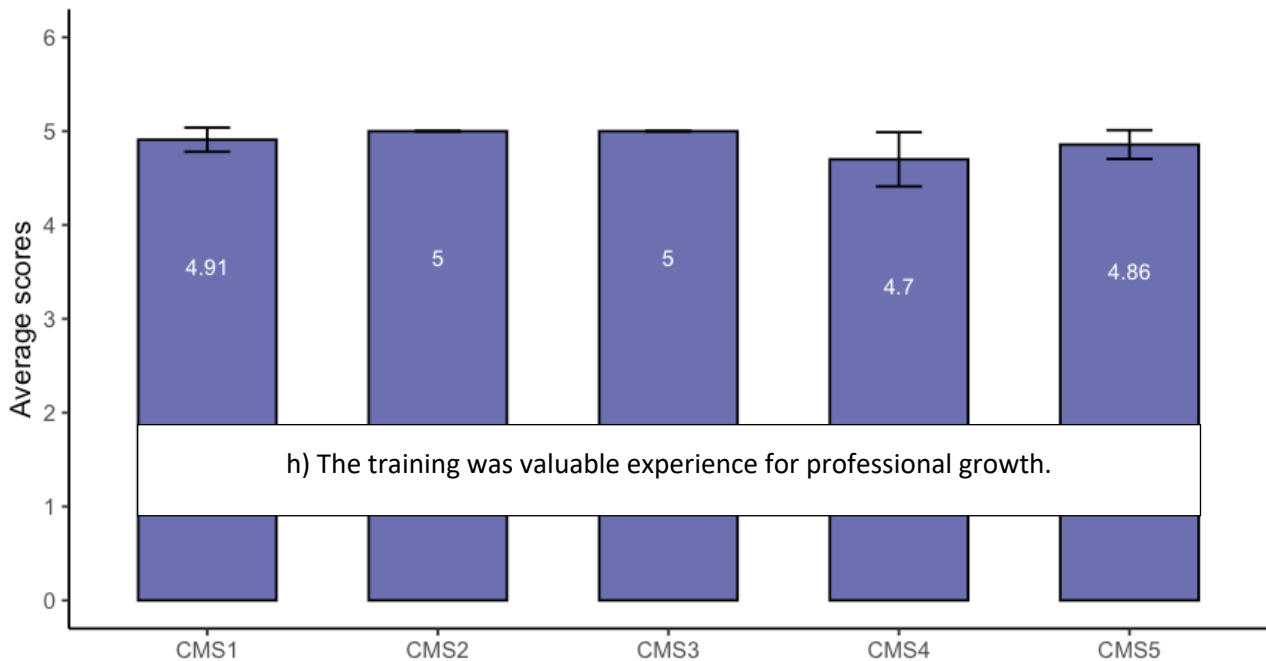


Figure 5 Average scores of Satisfaction Statement h): Coaching and Mentoring Skills Development (CMS)



Figure 6 Average scores of Satisfaction Statement h): Industrial Management in Industry 4.0 Era (IM4)

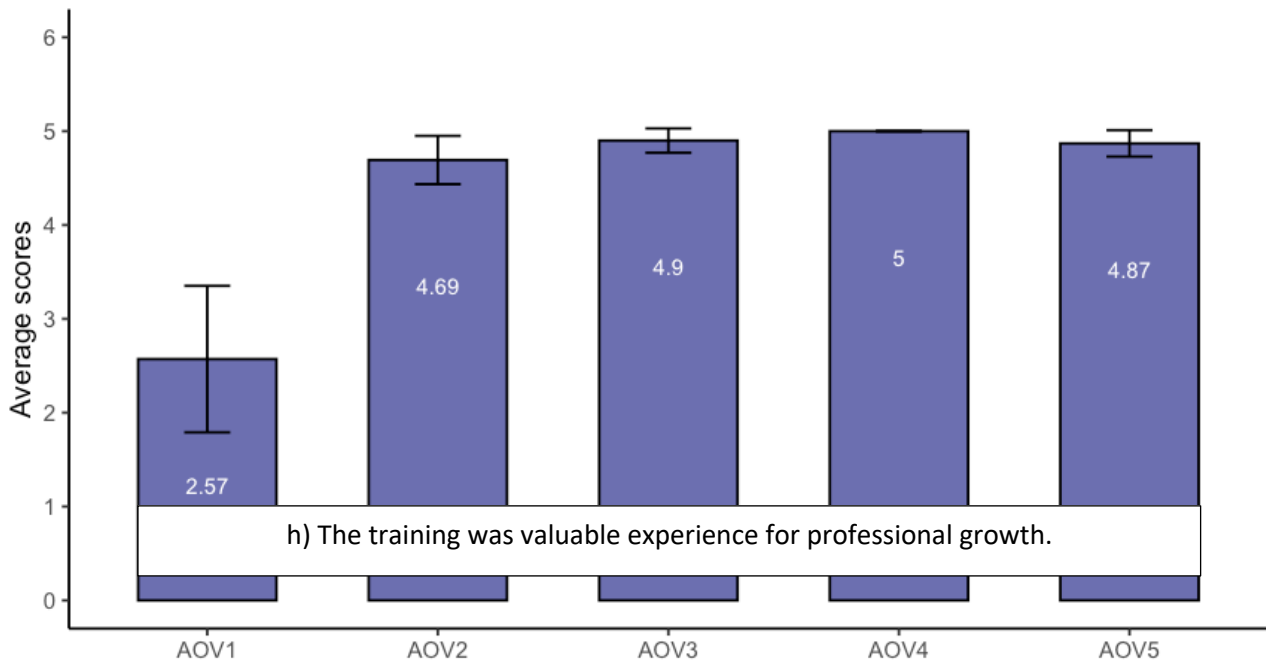


Figure 7 Average scores of Satisfaction Statement h): Applications of Optimization and Technology in Value Chain (AOV)

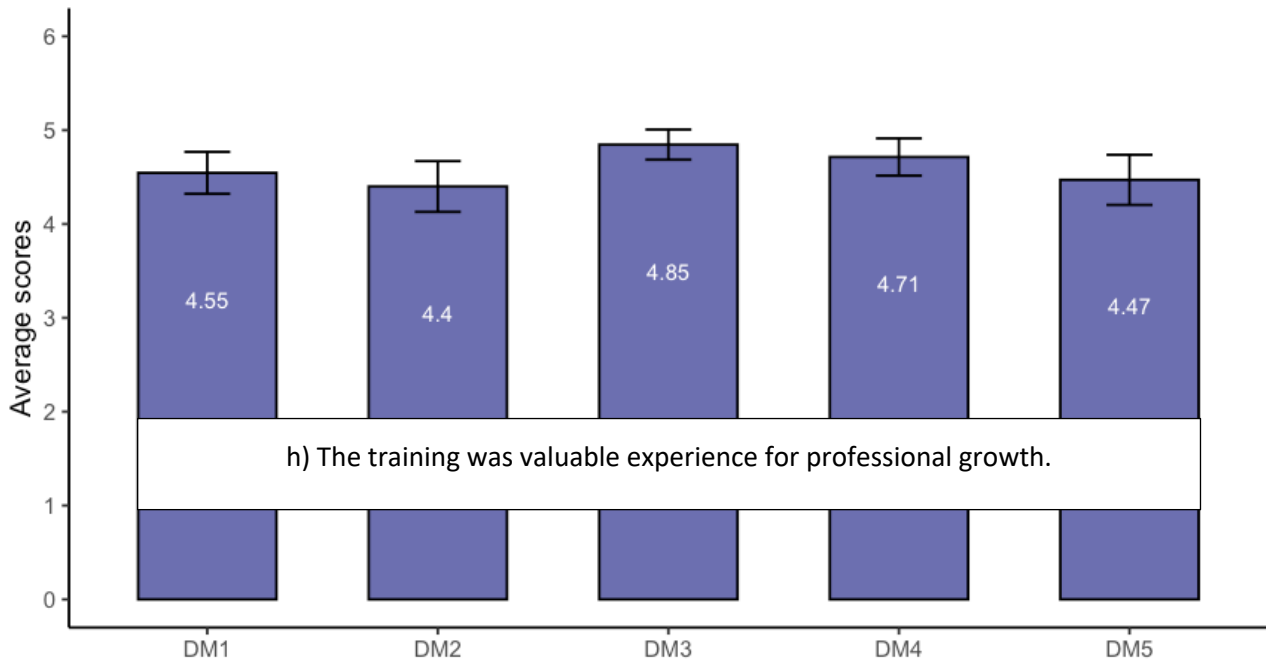


Figure 8 Average scores of Satisfaction Statement h): Digital Manufacturing (DM)

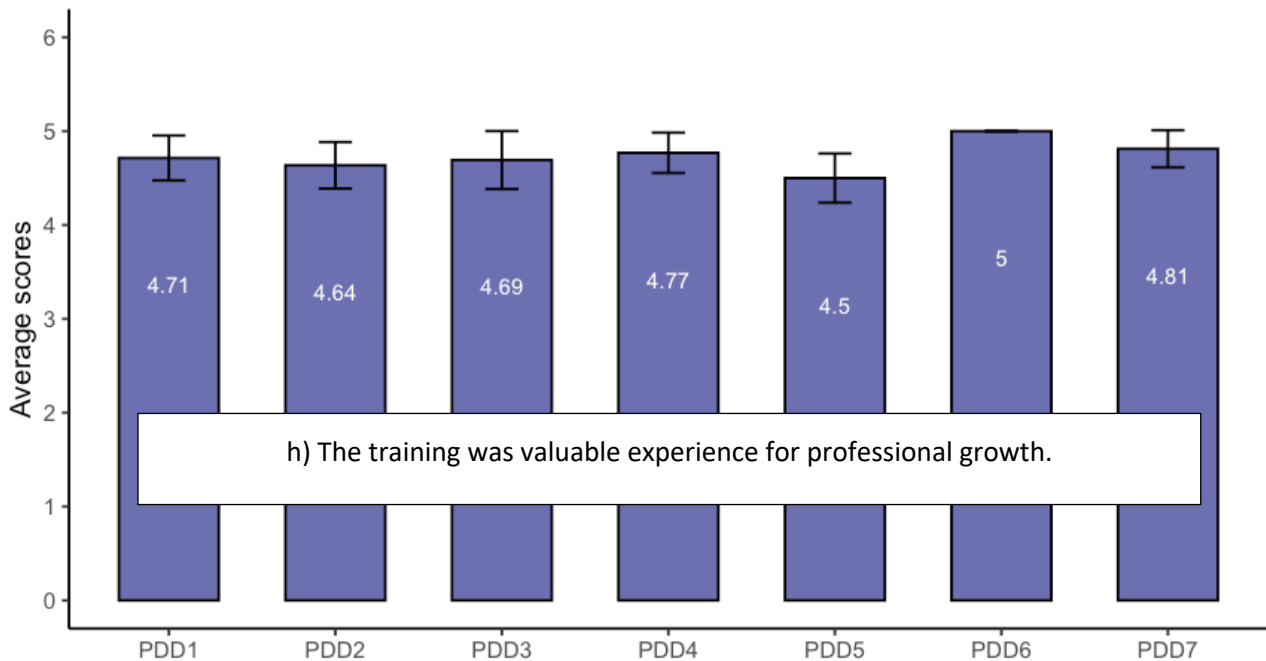


Figure 9 Average scores of Satisfaction Statement h): Innovative Product Design and Development (PDD)



Figure 10 Average scores of Satisfaction Statement h): Data Analytics (DA)

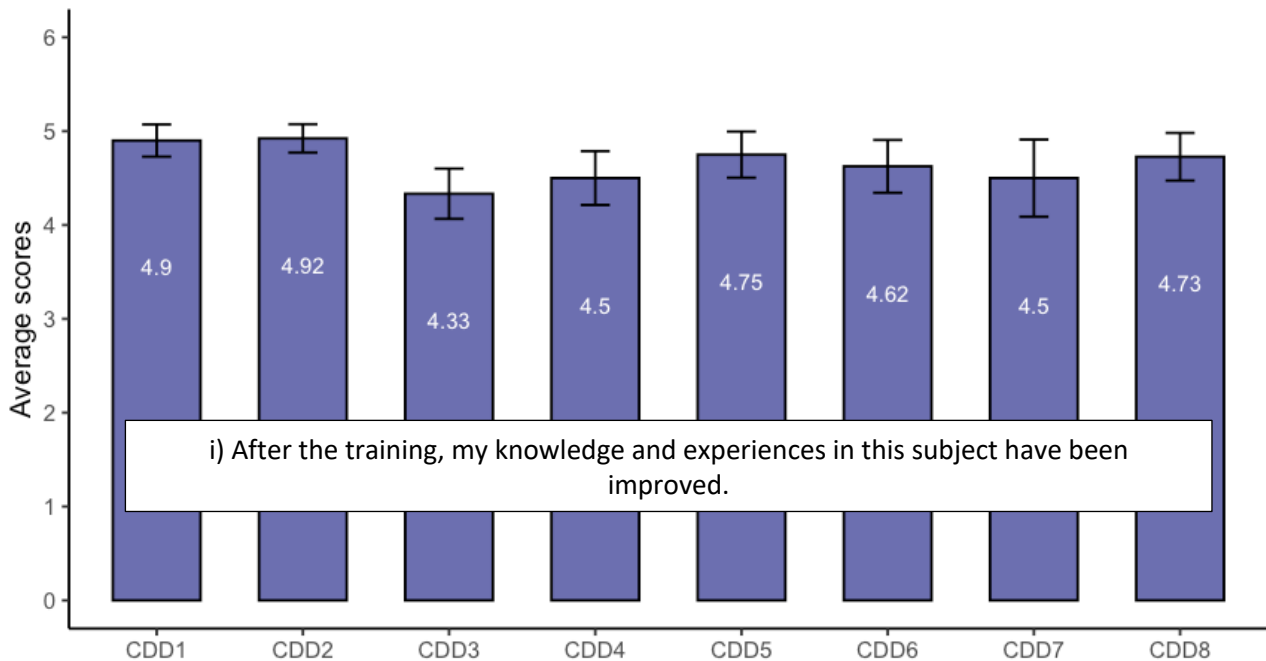


Figure 11 Average scores of Satisfaction Statement i): Learning Experience-Focused Course Design and Development (CDD)

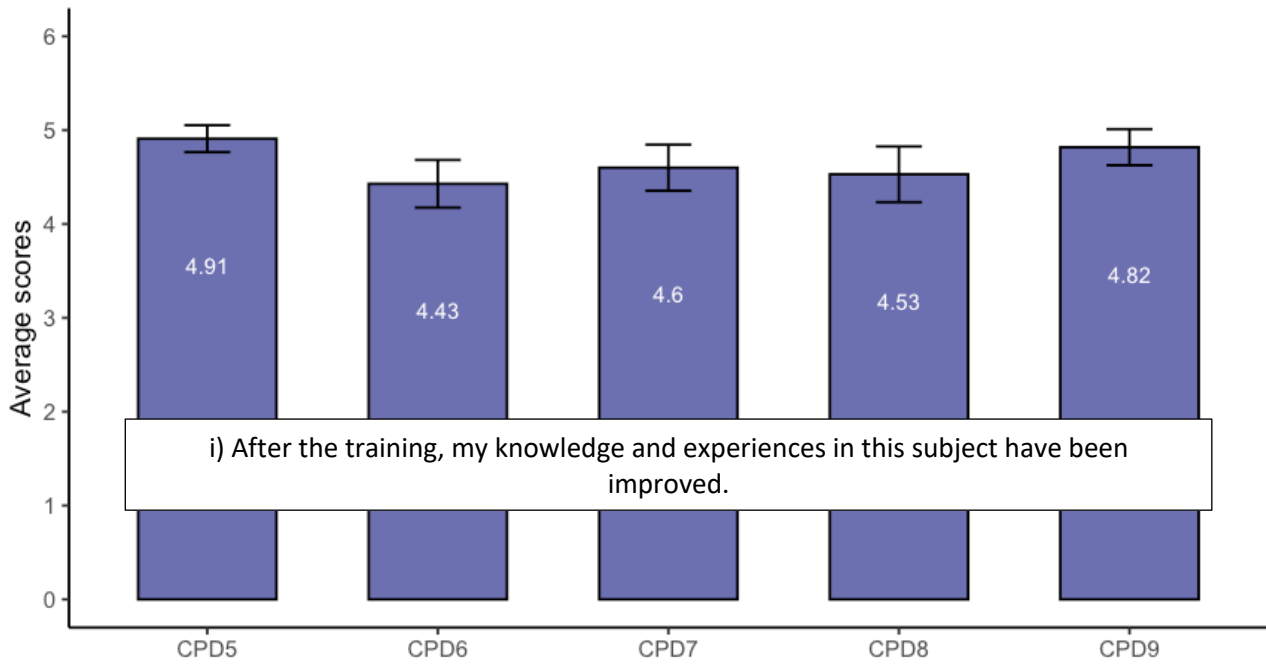


Figure 12 Average scores of Satisfaction Statement i): Communication and People Skills Development (CPD)

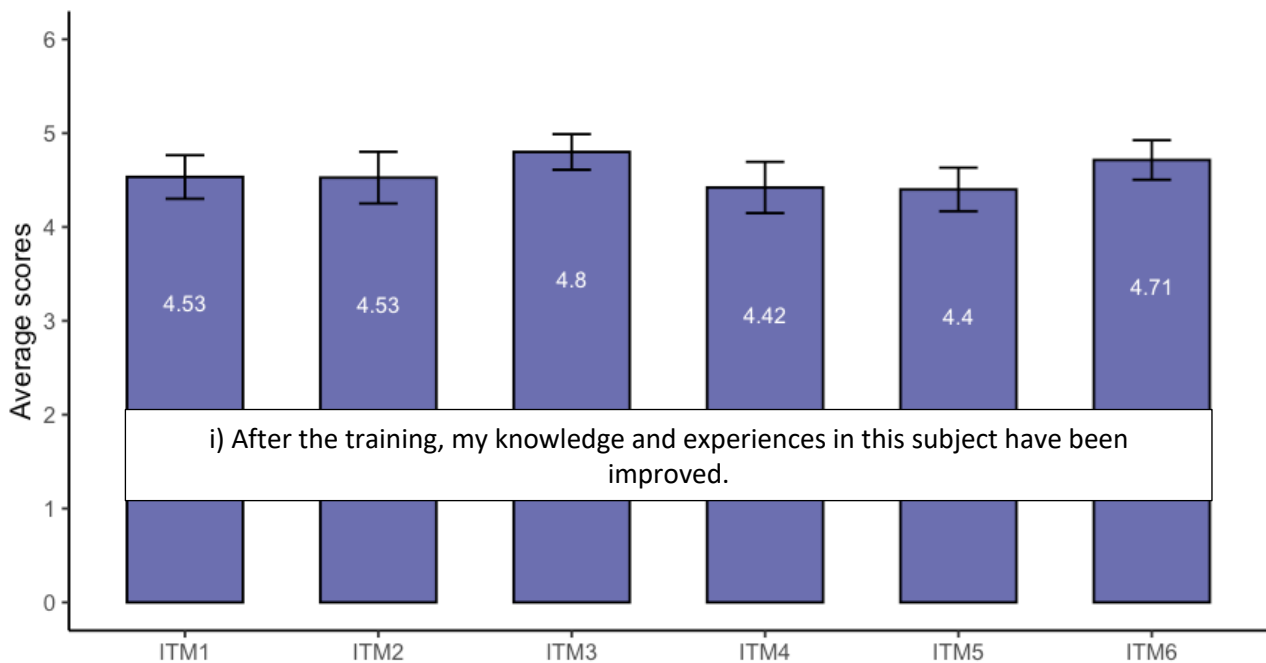


Figure 13 Average scores of Satisfaction Statement i): Innovative Teaching and Learning Methods (ITM)

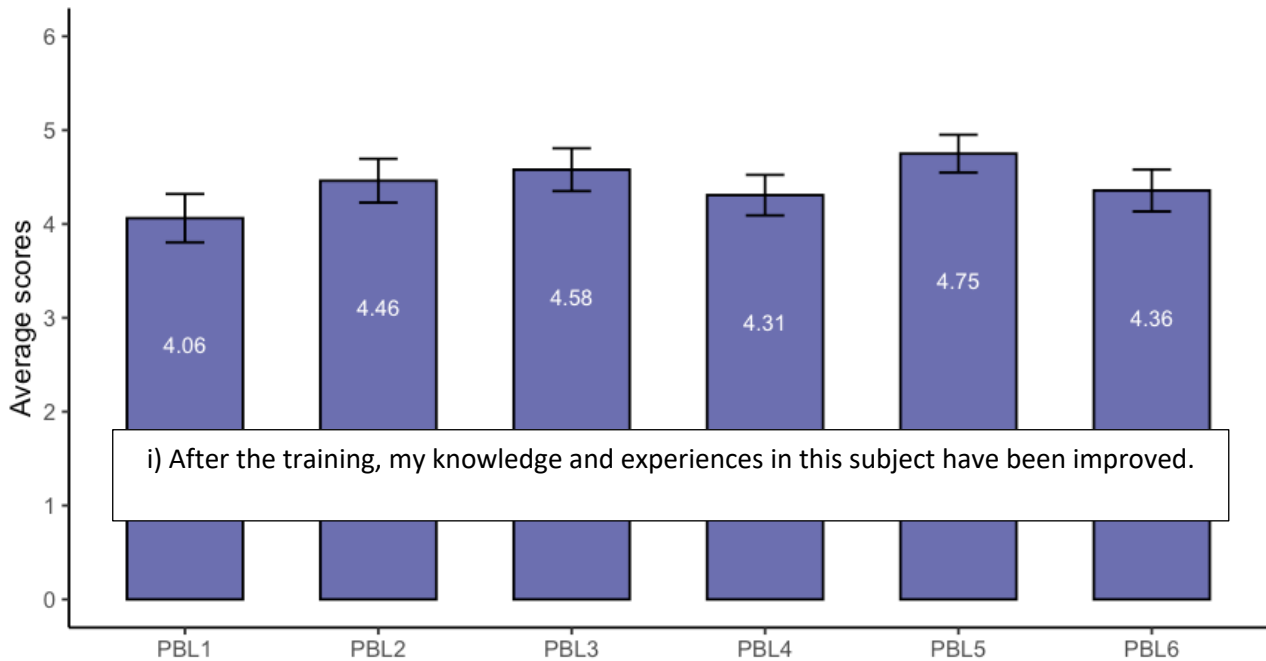


Figure 14 Average scores of Satisfaction Statement i): Project-Based and Problem-Based Learning (PBL)

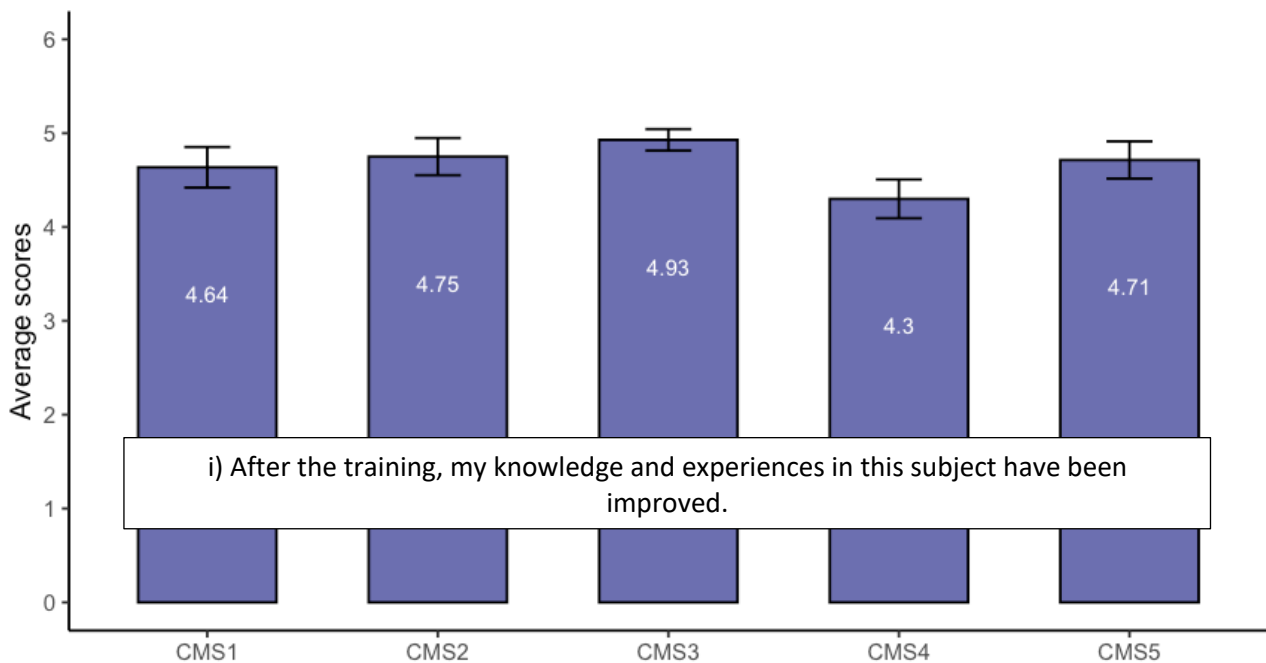


Figure 15 Average scores of Satisfaction Statement i): Coaching and Mentoring Skills Development (CMS)



Figure 16 Average scores of Satisfaction Statement i): Industrial Management in Industry 4.0 Era (IM4)

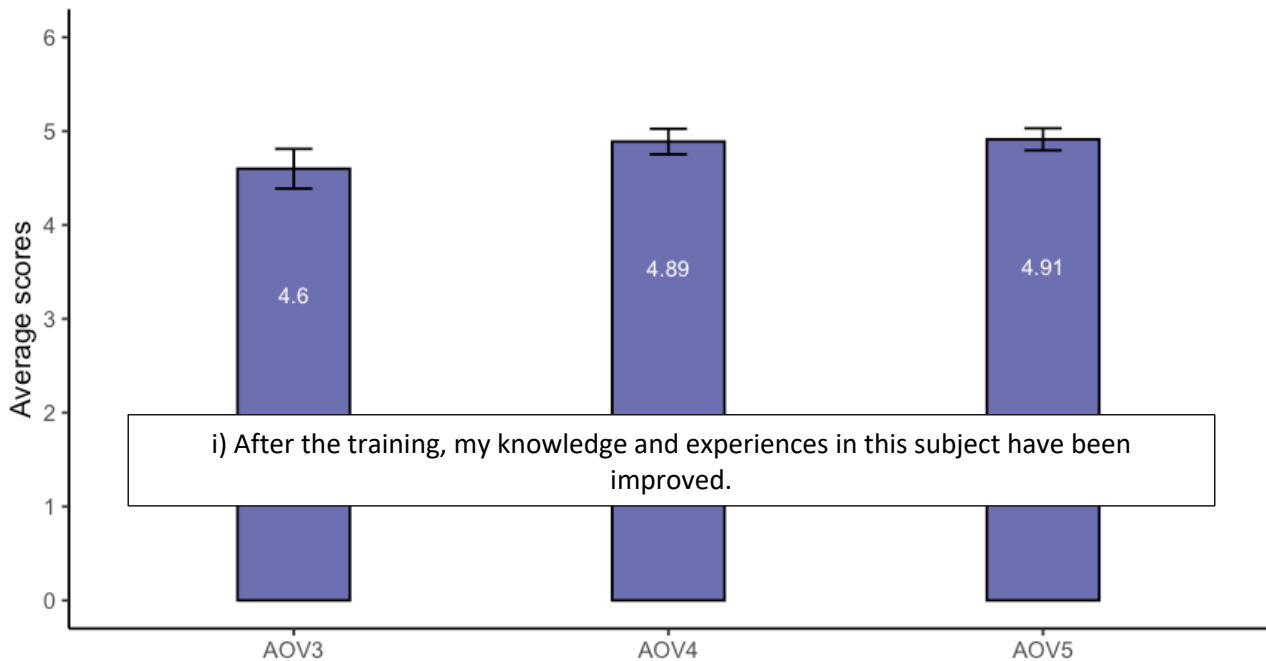


Figure 17 Average scores of Satisfaction Statement i): Applications of Optimization and Technology in Value Chain (AOV)



Figure 18 Average scores of Satisfaction Statement i): Digital Manufacturing (DM)

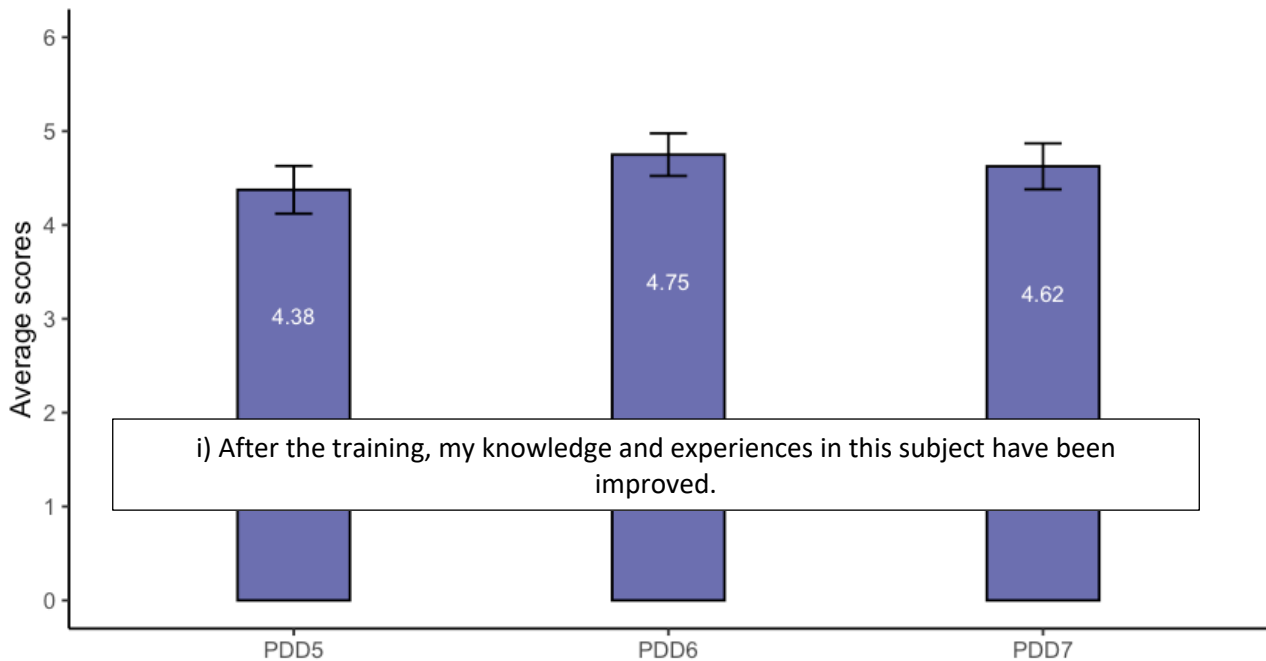


Figure 19 Average scores of Satisfaction Statement i): Innovative Product Design and Development (PDD)

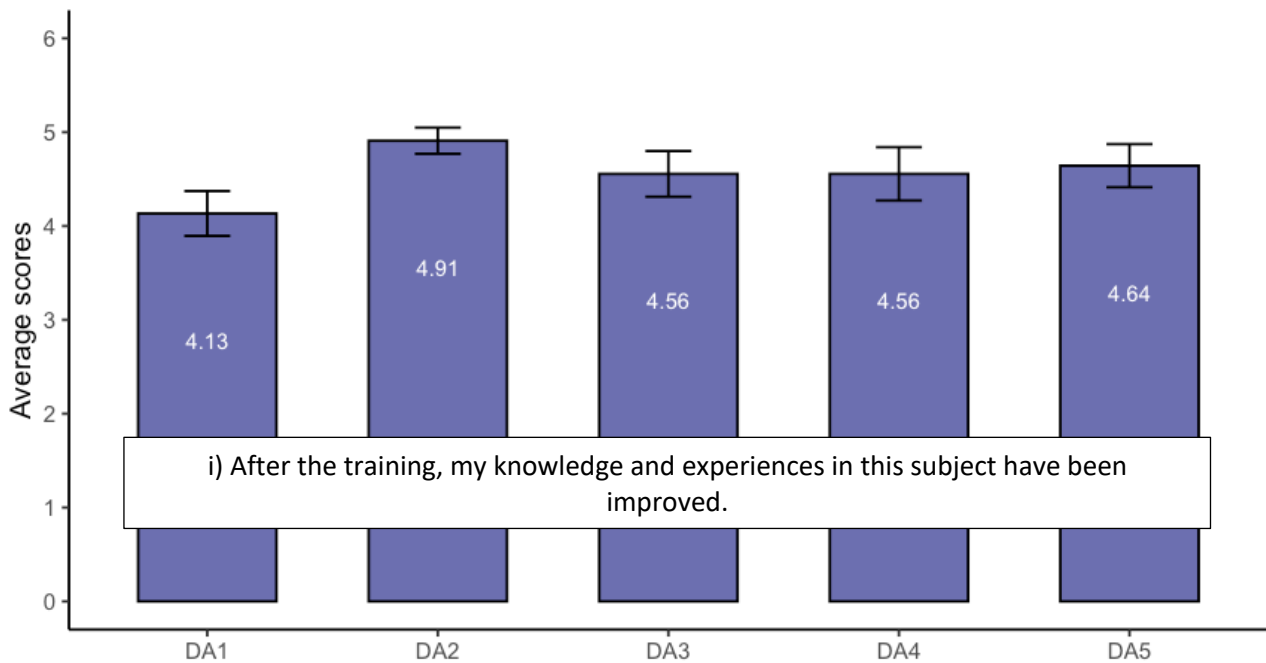


Figure 20 Average scores of Satisfaction Statement i): Data Analytics (DA)

5 Conclusion

Impact evaluation for the training sessions of this project during the period of Dec 2021-Nov 2024 was presented in this report. There were 62 training sessions with 443 individuals (trainees) which accounted for 804 participants who attended the training, where one individual may attend more than one training sessions. To study the impact of this project, feedback and comments from the participants attending the trainings were collected and analyzed. All the data were taken from Training Evaluation Report vol.1-9. The results revealed that most participants were satisfied with all the training sessions with an average score of 4 or above. The results further suggested the implication of the project impact that the training was valuable experience for the participants’ professional growth and knowledge and experiences of the participants have been improved. In terms of comments, all the trainings had no major concern. All the comments in general were positive and some trainees expressed that they would apply what they have learned from the training into their teaching practices.



ANNEX I: Questionnaire ver.1 (Training evaluation template ver.1)



TRAINING EVALUATION TEMPLATE

Dear Participant,

Thank you for attending the training activities carried out at **Rambhai Barni Rajabhat University during December 13-15, 2020**. In our effort to analyze the impact of the training, we invite you to complete the following questionnaire.

We appreciate your valuable contribution and we thank you in advance!

1. GENERAL INFORMATION

- 1.1) Sex (Please tick the appropriate option): Female Male
- 1.2) Your Age _____
- 1.3) Teaching experience (in years) _____

2. OVERALL FEEDBACK

2.1) In a scale 1 to 5, please identify for each item your level of accordance.

1: Totally Disagree, 2: Disagree, 3: I am not sure, 4: Agree, 5: Totally Agree

Statement	Level of your agreement (1-5)
a) The training was useful and relevant for the project activities.	
b) I understood the concepts presented in the training.	
c) The themes / topics developed in the training were relevant for my teaching practice.	
d) I had an active participation during the training activities.	
e) The trainers had an effective approach during the activities developed.	
f) The training materials used were useful for the project activities.	
g) The training was valuable experience for professional growth.	
h) I will recommend this training to somebody else.	



2.2) In my opinion, the positive aspects of the training were:

2.3) In my opinion, the less positive aspects of the training were:

2.4) Suggestions and other comments.

3. IMPACT OF THE TRAINING

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples).

4. ANY FURTHER COMMENTS

Thank you for your cooperation.



ANNEX II: Questionnaires ver. 2 (Training evaluation template ver.2)



TRAINING EVALUATION TEMPLATE

Dear Participant,

Thank you for attending the training activities carried out at _____ [University], _____ [city and country], _____ [date]. In our effort to analyze the impact of the training, we invite you to complete the following questionnaire.

We appreciate your valuable contribution and we thank you in advance!

1. GENERAL INFORMATION

- 1.1) Sex (Please tick the appropriate option): Female Male
- 1.2) Your Age _____
- 1.3) Teaching experience (in years) _____

2. OVERALL FEEDBACK

2.1) In a scale 1 to 5, please identify for each item your level of accordance.

1: Totally Disagree, 2: Disagree, 3: I am not sure, 4: Agree, 5: Totally Agree

Statement	Level of your agreement (1-5)
a) I have sufficient background for this training.	
b) The training was useful and relevant for the project activities.	
c) I understood the concepts presented in the training.	
d) The themes / topics developed in the training were relevant for my teaching practice.	
e) I had an active participation during the training activities.	
f) The trainers had an effective approach during the activities developed.	
g) The training materials used were useful for the project activities.	
h) The training was valuable experience for professional growth.	
i) After the training, my knowledge and experiences in this subject have been improved.	
j) I will recommend this training to somebody else.	

2.2) In my opinion, the positive aspects of the training were:



2.3) In my opinion, the less positive aspects of the training were:

2.4) Suggestions and other comments.

3. IMPACT OF THE TRAINING

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples).

4. ANY FURTHER COMMENTS

Thank you for your cooperation.



ANNEX III: Trainees' comments



Table A1	Comments on Training CDD1: Learning Experience-Focused Course Design and Development (CDD) at RBRU, May 27-29, 2024
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<p>CDD1: May 27-29, 2024 at RBRU</p>
<p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Good activities for course design. The course enables us to understand our roles in each step of learning and teaching. • I can use this to develop my own course. • Help me to develop teaching plans with activities. This can be applied into my teaching profession. • Good tools for course development with content and activity planning. • New methodology for course development. • New methodology for teaching and work systematically. • Good and effective tools for teaching. • It can be applied into my work. • Good training. It was helpful for course development. I wish all the teaching staff in my department could join this training. • It can be applied for course development and my teaching practice.

<p>CDD2: Jun 5-7, 2024 at PSU</p>
<p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • -Designing the course as a loop • -Making students understand from start to finish • Modify the love model teaching style and make students have an experimental learning cycle with neocortex's function. • I can apply this in teaching and learning design so that students are at the center of learning. • The most meaningful experiences were seeing how to develop courses and developing ourselves in areas that we did not yet have enough knowledge by receiving training and coaching on new and challenging tasks. Allowing us to have increased skills • I think, I can coach other teachers to understand the learning and teaching which was designed by following the theory of learning. • I learned techniques and guidelines for designing a curriculum that has multiple meanings in many dimensions.



<p>CDD3: Jul 17-19, 2024 at RMUTL</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • To join workshop enable me to understand in depth. • Determination of learning outcome, evaluation and course activities. • Relationship with friends. New knowledge. • New knowledge for future development. • The process of course development more systematically. • I will employ the approaches into teaching and research.

<p>CDD4: Jul 25-26, 2024 at MU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • It is a new modern topic. Course development helps to satisfy the need of stakeholders. • Enable me to do course design and development. Students can receive maximum benefit. • I can apply what I have learned to course design and development. Students can have maximum benefit. • Joined activity for course design. Had a chance to comment and received comments from participants. • Learning was improved to be active learning. • Develop counseling for my students in the seminar subjects. • Good for course design and development and curriculum development. I will recommend this to other teaching staff. • Good for course development. • Exchange experience among participants. Received new perspective. Can be applied in real practice. • It can be applied to my teaching course, including other course activities, in response to course learning outcome. • Good training. Helped to improve the process of course planning.

<p>CDD5: Aug 3-4, 2024 at CRRU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Relax learning environment encourages long-term memory. • Real practice, real experiment enables students to have experience, with several teaching method.



<p>CDD5: Aug 3-4, 2024 at CRRU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Help my career. I can apply this to my work. • I gained a lot of experiences from the training such as theoretical concepts, activities, workshop, the learning journey. • It was very useful for course design and development. • To know myself. Realize the need to improve my teaching practice in terms of concepts, ideas, and approaches. • Change my own mind-set in teaching and teaching technique. • Ann idea of how to develop course activities, in response to changes, e.g., technology, students' lifestyle. • It encourages me more to try to work on my teaching and improve my teaching techniques. • Enable me to understand course design and planning more. I would like t apply this to my work.

<p>CDD6: Aug 16-18, 2024 at LPRU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Course design and development. • Course planning. • Received knowledge for course planning. This for better learning experience and environments for students. I can apply to my teaching profession. • Simulation of class teaching in each learning situation. • Workshop for the training. • I can apply for my work. • I can apply to course development of my class.

<p>CDD7: Sep 6-8, 2024 at SU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Creating a learning journey is very useful to design a course. However, time vs. contents to be covered will be a challenge part. • As an internal AUN-QA assessor, I have mostly focused the outcome-based education concept on the design of the curriculum, rather than the course and students learning experiences. Particularly in this training course helped me realize that I have to put more effort in the design of the course I am responsible for in order to make a real change. • Well prepared materials.



<p>CDD7: Sep 6-8, 2024 at SU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Silapakorn University should do this workshop but may be shorter to improve the course design knowledge.

<p>CDD8: Sep 12-13, 2024 at CPRU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Learned the concept of course design as a tool which enable effective teaching in accordance with OBE. • Correctly conceptualization. • Correctly process to produce or create new course syllabus. • Have learned what I 'd to learn about performance, course design, different perspectives of discussions. • I can apply this training to design my subject which will help students get benefit in learning. • Very good activities. Have learned curriculum design, using proper tools for class evaluation, model selection, enable students to develop learning skills. • Knowledge for the teacher. • Learned the process of course design.

<p>Table A2</p>	<p>Comments on Training CPD1: Communication and People Skills Development(CPD) at Rambhai Barni Rajabhat University, Dec 13-15, 2021</p>
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<p>CPD1: Dec 13-15, 2021 at RBRU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Presentation with myself in classroom. • learn how to communicate persuasively, how to use teaching media and methods. These can be applied to my teaching. • 1) how to present powerfully, 2) how to speak with people efficiently, 3) have new experiences and knowledge about communication matters and know source to further research. • Help to communicate more effectively, reduce stress and worry. • How to visualize the knowledge.



<p>CPD1: Dec 13-15, 2021 at RBRU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> The training contributed much inspiration for self-improvement in the area of personality, presentation, how to speak effectively, body language, and improvement of self-weakness.

<p>CPD2: Mar 11-13, 2022 at MU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> I will apply the thing that I had learned to teaching to my student and share this technique to friend. Presentation. Presenting in fluent English language. Self-awareness and a broader outlook on others. As an example, as a director, you must respect both sides' reasons. Experiences gained from the activities related to other fields can reflect different perspectives that can be used to improve teaching activities and professional personality. The trainer provides activities to practice not only lecturing such as watching a movie and then analyze the movie in terms of learning topics and it can enhance the knowledge and not boring. Can learn the weak point and also push up the new skill that absolutely important with academic. I believe that the topic "Developing Essential Communication Skills for Self-Expression" is the most beneficial for me. The experiment that resulted from this learning enabled me to comprehend the entirety of the best communication and presenting processes. I think, the throughline for presentation was very a good point. I 'd just more realized the important about the open and closing sentences that raised interested my presentation.

<p>CPD3: Mar 18-20, 2022 at PSU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> Speaking Practice. Get to know your personality Personality analysis. Know myself and any shortcomings that need to be developed further. It's a very good way to start practicing as instructed.



CPD4: Jun 17-19, 2022 at LPRU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- **Improve** my presentation skills, personality, applications for my teaching in class rooms and public.
- **I can apply this knowledge to my teaching practice.**
- Communication is about creating a picture that you have in the audience's mind, understanding yourself and others.
- Good for self-improvement in communication.
- **Can applied into my teaching practice.**

CPD5: Dec 12-14, 2022 at CPRU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- Get practice during the training. To know myself and analyze my personality and then **change** it accordingly in order to communicate with other.
- Learned to communicate more effectively with practice. **I can applied this to my teaching practice.**
- Good for individual development. I can **use** this concept to analyze the learners and myself.
- I have learned that “Teacher not only teach but to be a trainer, coach, and facilitator.”
- **Can be applied to my teaching practice.**
- Learned with practice. Active learning.
- Good for individual development.
- **Help** individual development in communication.
- Everyone involved in every activity.
- It was a good training. I can **applied** this for student development.
- Speak, communicate, present, listen. To analyze the body language of the speaker.
- Received knowledge and good experience from the training.
- I can **use** the technique from this training to **improve** my communication skills because it is very important for my teaching career
- Good knowledge. I know my point of self-improvement.
- The training was fun. I have received a lot of knowledge for personal development.
- The instructor was great, very knowledgeable. The activity flowed smoothly.
- Class actives enable the learners to learn more effectively.



CPD6: Jan 19-21, 2023 at SU, Sanam Chandra Palace

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- **Improve** my skills.
- Presentation techniques.
- Not like other training. Not boring. Easy to understand. Suitable documents.
- Very good learning environment.
- I hope to join a course like this again.
- Good activity. Good courses. Good instructor.
- It is a good experience for me to join this course.
- I rarely **used** project activities in my class but after this training, I will try hard to **use** project activity in my class.
- The atmosphere was relaxing and open which allowed participants to express their opinions and share experiences. Yet not too relax, still stimulating and encouraging us to us to find out what we can do to win over people.
- This training gave me a lot of idea to **improve** my presentation. I have been teaching for 6-7 years but rarely obtained any comments from students, whether they like my class or not.
- Training with real practice through activity during the training. I can learn about myself and other people.
- I can learn about my strengths and weaknesses through the comments of my presentation and suggestion for improvement.
- Good training with real practice with constructive comments.
- Learn how to communicate with the audience effectively.

CPD7: Feb 23-25, 2023 at KSU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- Good experience. **Help** to develop my personality and presentation skills.
- Effective communication skills. To satisfy the need of audiences.
- **The training can be applied in practice.** **Help** to develop my presentation, communication skills and persuasion skills.
- It was good for self-development and communication skills.
- To understand more deeply of communication with practices.
- **We can apply what we learned** in the future.
- Presentation and writing papers.
- Effective communication and presentation.



<p>CPD8: NOV 22-24, 2023 at WD</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Presentation skill. • Understanding personality types. To understand oneself and other more. • Help us to be able to communicate more effectively. • Help to improve my presentation and learn from one another. • The most meaningful is to understand human types. • To understand the audience and help to prepare my presentation. • Received good comments from the instructor. The instructor encouraged me to speak with good and unique technique. This is very useful for my career. • Help to improve my presentation skill. Understand more. • Presentation of each participant with debates among everyone. • Can be applied to my work. Help to improve my communication skill and control emotion. Can be applied to project presentation and meeting. • This experience helped to improve my routine presentation. Learned to use voice and pace for presentation. • Understand more about presentation, content, action, thought, brain function, and presentation itself. • Learned and practice communication between leader and team members and others in work place.

<p>CPD9: Jan 26-28, 2023 at SU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • I got knowledge to prepare myself to teaching and presenting works. • I saw good examples at good speakers. • Body language, voice level. • How to make an efficient way of communication and convincing others to understand or willing to do what we are trying to say or do. • Presentation of research. • We can know drawbacks/good points when we are presenting. • We can know types of personality. • How to do well in communication. I need to understand the audiences. • Received to improve the teaching in my class, e.g., making eye contact, body language, pace of speech, how to get response from audiences. • Presentations by the audiences with valuable comments from the trainer.



Table A3	Comments on Training ITM1: Innovative Teaching and Learning Methods (ITM) at PSU, Mar 27-29, 2023
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<p>ITM1: Mar 27-29, 2023 at PSU</p>
<p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • give more time for practice and sometimes, the internet signal is quit low • Adapting teaching and learning techniques to suit the nature of the learners, for example, children who graduated from Mathayom 6 comparing with a Vocational Certificate or High Vocational Certificate student will have some different characteristics, such as calculations or the basics of mechanic work. etc. • Attracting students' interest in teaching active learning • Resulting in a wider view of teaching and learning, such as self-understanding how we design teaching and how do students respond to teaching in different ways? • There is an idea to apply the training to statistics subjects by using it in the process of entering the lesson, access to content and to have joint activities in searching for information and use the information to make decisions. • Activity forms and associations • Knowledge exchange, jigsaw, small group discussions to large groups. Finding different tools to stimulate student interest

<p>ITM2: Mar 27-29, 2023 at PSU</p>
<p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Getting concepts, methods, and procedures to convey to students will have more knowledge and interest in learning. • Learn to use new materials and tools to teach, such as the miro, padlet. • Intend to apply every technique and method gained from the training to their own subjects both activities and assessments • Can be used to teach better both techniques, teaching styles and tools. • Favorite tools are miro, padlet. • The use of various tools for assessing student learning is an interesting and useful topic for application. But spend quite a bit of time on this topic. Still want more training. • Taking action and using technology to help in teaching to create participation and learning of learners. • knowledge and techniques gained from the training will be applied to teaching and learning to develop students' learning potential and develop teaching courses to apply for academic positions.



ITM2: Mar 27-29, 2023 at PSU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- I will use tools and techniques that I have learned in this class to apply in my class for example Data Mining, Data Science, English for information technology
- able to apply the knowledge gained in the subjects taught better.
- Able to apply the knowledge acquired to adjust the teaching style in the subjects currently being taught.
- teaching tools
- The tools that the trainers give such as web app, mentimeter. I can apply its into my teaching method. Also the ideas about active learning and teaching in class.
- Organizing activities such as jigsaw think-pair-share.
- The most meaningful experience is knowing about using the online tools for making the teaching more fun.
- To be adapted in the teaching and learning process to suit the format and context of the course and the students.

ITM3: May 29-31, 2023 at KKU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- active learning with innovative tools. I get the real feeling and see ways to apply it further. I received good feedback from trainer; assessment of learning.
- New goal and assessment of learning.
- Platform and tools for active learning design.
- I have learned theory of learning, learning assessment, active learning, creation of learning environment, how to draw attention from learners.
- I have learned skills and techniques for active learning, I can use it for my classes.
- Theory of learning, active learning, class activities corresponding to teaching plans, reflection.
- I have learned new techniques; Padlet, Mino, new techniques for active learning.
- I certainly apply it to my class next coming semester.
- I can apply it to my classes via active learning.

ITM4: May 31-Jun 2, 2023 at RMUTL

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- Use teaching methods and technology that help teach in the classroom in the form of active learning and jigsaw, including the use of mentimetoer tools to ask students about certain topics, etc.



ITM4: May 31-Jun 2, 2023 at RMUTL

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- I expected to apply to real students
- The use of different platforms in teaching and learning in different subjects makes teaching and assessment easier.
- A useful activity is the design of group instructional processes, including the mindmap and reflection of the facilitator.
- - I will use the activity to teach innovation business development because this type of teaching will be taught through practice so that students can participate in activities and be able to apply knowledge and ideas to further use.
- The great experience in this program is to practices and hands-on the activities learning, activities before class, class grouping strategies.
- Use this techniques for adapt the teaching behavior.
- - Apply new methods of teaching using technology to teach liberal arts subjects.
- The learning management experience has been enhanced and instructional planning is active process, such as think pair share square activities, and teaching planning according to constructive theory.
- There are new teaching methods in the subjects taught by using active learning and the theories learned/training are applied so that students do not get bored in learning Thai.
- An activity that can be adapted for teaching and learning is to organize a jigsaw activity that divides groups of 4 theory and then learns what it is. Then take it out as an activity that allows other groups of learners to learn from real practice, making them understand more. This activity can be used in the course itself, including the use of silent dabate and think-pair-share, and every activity can be applied
- Jigsaw can allow students to experience dynamic self-study and train students to codify and convey.
- Learning techniques and technology in using them as teaching tools and teaching materials and gaining more skills in using various programs
- Metaverse teaching room. It's new teaching tools for my semester in English for accounting.
- -I learned new friends Learn the teaching techniques of other teachers.
- -I have learned from the experiences of other friends.
- -I can apply techniques, tools, and processes to make teaching interesting and exciting for students to learn. (virtual classroom) and self-study (jigsaw).
- Activities based on various learning theories. I have seen techniques, perspectives, plans, and experiences from friends applied from the presentation of teaching topics
- Self groups, such as jigsaw sharing etc.
- Apply to use in modern classrooms.
- Group activity to learn Theory (Jigsaw) and Think-Pair-Share-Square



ITM5: Jun 9-11, 2023 at MU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- Can be applied for my teaching profession with good examples.
- Help to develop my teaching plan.
- Learning from other experience and sharing knowledge
- Getting a lot of ideas and know tools for achieve teaching
- Understand the contents with real practice during the training.
- Know the new tools.
- Tried to apply to the real course.
- Helped to improve teaching effectiveness.
- I like the concept of Think Pair square share.
- I'd to use the concept of "Jigsaw" in my classroom.
- I've learned appropriate activities design for courses. Reviewed of course activities and improved. Exchange experiences among the participants and the instructor.
- Being organization all learned info and transferring to
- my friends and use AL more often in some hr in my class
- Open to new concepts and applications. Sharing thoughts among participants, regarding problem-solving in a classroom.
- Help to change the teaching paradigm for the course Data Analytics.
- Learned techniques, tools, ideas which can be applied for teaching. Previously I taught only theory and concept. Now I will use active learning activates to let students practice.

ITM6: Jun 16-18, 2023 at LRU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- -
- A well-rounded exchange of knowledge
- -
- Learned through activities that can be remembered, do not forget to make skills and expertise happen.
- -Techniques for using technology media have been adapted for teaching and learning activities.
- -There are many tools to help organize active learning activities that can be applied in class.
- -
- Re-arrange my knowledge base on teaching skill for classroom
- The use of a variety of activities in learning that are beneficial.
- -
- Adapting to teaching methods such as active learning methods, media used in teaching and learning methods for measuring and evaluating active learning
- -



ITM6: Jun 16-18, 2023 at LRU	
3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)	
<ul style="list-style-type: none"> • Exchange of knowledge 	

Table A4	Comments on Training PBL1: Project-Based and Problem-Based Learning (PBL) at RMUTSV May 8-10, 2023
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PBL1: May 8-10, 2023 at RMUTSV	
3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)	
<ul style="list-style-type: none"> • Useful, see the picture to be applied to the actual teaching. • Instructors have a true understanding of PBL. • Understand PBL models. • Apply the knowledge gained to adjust teaching and learning in the project subjects. It is a good way to follow and evaluate student work including teaching and learning with more processes. It is a real challenge for teachers to work with. • Increase the teaching challenge, change teaching methods and develop more teaching styles. • Finding problem topics for project-based learning. • The examples from the Marshmallow challenge activity will be applied to the teaching subjects because it takes time to do activities and create learning in a short time, stimulating learning well and having fun. 	

PBL2: May 8-10, 2023 at RMUTSV	
3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)	
<ul style="list-style-type: none"> • Be able to apply knowledge to teaching with PBL/PBL from lesson planning teaching activities including evaluation. • Real action and see case study and listen to group members' presentations • The team of trainers manages to learn for us to understand the lesson with a simulated learning activity overlapping learning. This allows us to clearly understand the learning management process of PBL so that we can apply it in the classroom. • Make a clear teaching learning plan including the use of activities 	



PBL2: May 8-10, 2023 at RMUTSV

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- I see the benefits that students will receive when teachers **change** their teaching style to PBL, for example, when students do their own research to find answers. These make students understand the content they are learning more deeply.
- The training courses was useful for the PBL and Active learning
- Learned PBL, Active Learning in real Training. Has developed a real lesson plan Project-based learning. The training uses The real Active Learning model.
- The hands-on practice resulted in a greater understanding of the PBL process and **being able to apply it to the subjects taught.**
- It can be practical and easy to understand.

PBL3: May 19-21, 2023 at LPRU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- - Implementation of PBL in teaching and learning
- - Giving examples of PBL and giving students and **able to apply/solve problems encountered in real situations**
- Teaching technical on other field or area in education. This course can increase more knowledge.
- Creating courses in PBL format
- The trainers provided a variety of examples for the participants **to apply in their teaching.**
- Follow up from coaching program of this course
- To manage teaching in the course to be able to assess clearly
- - **Used** in the development of the curriculum, the subject process for students to gain knowledge **able to truly apply knowledge.**
- - Integration between different subjects to work together with a common approach.
- - Different forms of assessment that are more effective than traditional assessment forms.
- - Participation in the training
- - Application of knowledge

PBL4: Jun 23-25, 2023 at MU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- - The concept from this training will **be applied for teaching my students** in the WIL program that are conducting in RMUTP, in this academic year.



PBL4: Jun 23-25, 2023 at MU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- The most meaningful experience is trying to set my training session so I can know what I miss and I will adapt this knowledge to develop my own class.
- **Can be applied into my class.**
- Enabled the learners to practice searching for problems, analyzing, selecting solutions and working as a team.
- Learned and shared from among the participants and instructor the ideas and experiences.
- - How to motivate students yourself
- - clarification to teaching team & student team
- a starting point activity
- get a prototype for PBL.
- Inspiration for improvement for teaching.
- The most significant experiment out come encompassed the practical application of the acquired knowledge, specifically through the experiment with particular emphasis on diversifying methodologies
- **Help to change** my class to be more fun and useful for students.
- New teaching paradigm helped students to search for problems and solutions by themselves. Very useful for students.

PBL5: Jun 29- Jul 1, 2023 at CPRU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- **Apply to create knowledge**, e.g., the study of how to manage community business in accordance with consumers' needs.
- Learned how to design course activities, student development, making them to be more focused and enthusiastic.
- This is very useful for teaching and students.
- **Applied into practices.**
- Several course evaluations.
- **Applied to my class**, make it more effectively, enhancing students' skills, both soft and hard skills.
- This helps me **improve** my teaching skills, making comments to students when do presentations.
- **Applied into my class into PBL.**
- **Applied to classroom management.**
- **I can apply what I learned to my teaching practice appropriately.**



<p>PBL6: Jul 17-18, 2023 at KSU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Appropriate practice and activities. • I have practice developing and designing courses using PBL and received feedback and I can improve and apply to my work. • It is a good project. I have learned new knowledge from skillful trainers.

<p>Table A5</p>	<p>Comments on Training CMS1: Coaching and Mentoring Skills Development (CMS) at PSU, Feb 19-21, 2024</p>
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<p>CMS1: Feb 19-21, 2024 at PSU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Gain ideas, skills, and processes for organizing teaching and learning so that students can participate. • Solving academic problems for students • In the grow process, I have been tested to play all the roles of coach, coaches, observer. • Helps to be professional. • Have more coaching and mentoring skills and will use them in teaching. • Using coaching principles in being a Mentor and being able to develop yourself to be a mentor to students. • I will apply the GROW model for coaching my senior projects and undergraduate students.

<p>CMS2: May 13-15, 2024 at RMUTL</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • I like Grow modal activities on how it would be organized to be successful. But it is difficult and challenging about coaching. I really like this activity. • It helped me understand the correct steps of coaching • I think experience is very important when giving advice and mentoring, such as guidance on university life or teaching. • Practicing acceptance of being open and listening to others,



<p>CMS2: May 13-15, 2024 at RMUTL</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • talk less and listen to others. • The communication exercise is one of interesting point to understanding students' aspect as learner. This topic is influence me to make a communication with student better by listen to them more. • From the basic knowledge of being a coach who has not been trained before, some activities are not understood clearly. For some activities, I don't really understand the purpose of that activity. But every activity can be adapted.

<p>CMS3: Jun 5-7, 2024 at CPRU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Get practiced in the role of coaches. Be able to apply in my work. • I have more confidence in coaching. • Learned coaching and mentoring skills. • Developed my skills in coaching and mentoring. Good for my career. • About communication. • Can be applied into my teaching profession. • Training is important because it represents a good opportunity for coach and coachees and observers.

<p>CMS4: Jul 26-28, 2024 at MU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Received concepts that can be applied into my work. • Trained to be a good listener. This can be applied into my work. • I have joined counseling activities with feedback. • Joined real activities and role play so I can understand roles in different aspects. • Coaching and mentoring help to gain a deeper understanding of the application. • It can be applied into my work.



<p>CMS5: Sep 10-11, 2024 at UBRU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • I have joined group activities. Practicing how to be a mentor, mentee, observer. I can apply it to real situations. • I practiced how to be a mentor and coach. I can apply it to my work. • Understood how to ask as a coach. • I can use the coaching technique according to the GROW model. • I will apply to give counseling to my students and apply some activities to my classroom such as communication exercises or Jigsaw activities. • Activities for asking questions as the GROW model, which lead to be a more effective coach. • “Observation” is an activity that helped us to be a good listener. Practicing asking some questions, GROW coaching process. • How to be a coach, practice asking questions, practice listening the mentees, how to be a good observer, making summary of points, as of the GORW model. • Practicing being a coach.

Table A6	Comments on Training IM41: Industrial Management in Industry 4.0 Era (IM4) at RMUTL, Jun 3-5, 2024
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<p>IM41: Jun 3-5, 2024 at RMUTL</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Methodology of active learning with self-learning activities. • It can be applied into my teaching profession, for students’ projects. • I can apply this into my project management class. This also helps me in working with the industry. • I can apply what I have learned into the project management and system management classes. • Exchange knowledge and experience with other via project activities.



IM42: Jul 10-12, 2024 at MU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- Learned new technology in Industry 4.0.
- I can apply the Program “SCRUM” into my work.
- LEGO and SCRUM activities.
- Technique to play games.
- Planning before implementation.
- Conclusion for pros and cons for each of the lessons.
- Fun with the technique of SCRUM.

IM43: Jul 24-26, 2024 at PSU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- Teaching
- Industrial
- The knowledge gained can be used to develop or evaluate in the industrial sector to develop into an industry. 4.0
- It can be applied to teaching and practical work in the process and research.

IM44: Jun 10-12, 2024 at RMUTI

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- Agile project management can be applied in teaching.
- Guideline for implementing in the class or industry. Experiment of teaching techniques.
- Understanding more on IM4.0 and active learning can be applied in teaching.
- I think agile project management can be adapted in my classroom also with BPM as well.
- The training was valuable experiences in this subject.
- Effectively inspired me for the course design.
- I am motivated and have experienced in the training session. I will try to adapt what I have experience in the training to the class that I'm teaching this coming semester.
- I may develop my own course using this concept, enable students to achieve the learning goal more effectively.
- Understand mechanism of the brain in learning, help my own growth from a normal teacher to be a coach.
- “Excel” help to fill in the Learn Journey Creation effectively. Convenience, clear and applicable.



IM45: Sep 10-12, 2024 at LPRU
3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)
<ul style="list-style-type: none"> - Applicable for my job. It can be applied for my relevant works. Can be applied to my work.

IM46: Nov 7-8, 2024 at RBRU
3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)
<ul style="list-style-type: none"> Real practice helped me to understand more. It was fun to learn. The workshop is great. To build a city enables us to learn how to plan. Building a city help us to learn how to plan, do work scheduling. This training can be applied into my class.

Table A7	Comments on Training AOV1: Applications of Optimization and Technology in Value Chain (AOV) at MU, Mar 18-20, 2022
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AOV1: Mar 18-20, 2022 at MU
3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)
<ul style="list-style-type: none"> I think this experience will be applied in some topics of my fields such as the decision or selection of the material composition. I think that the most meaningful experience for me, I can learn how many things about concept in IE tool and IE field to apply in the future of project. New methodology about optimization and taking in snake research about optimization for development in real situation. There were many case studies and exercise. That helped to more understanding and how to apply solving problem



<p>AOV1: Mar 18-20, 2022 at MU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • I can apply this knowledge and trainers' technique to use with my class. This knowledge is very challan me because it is new knowledge for me. And I think, it helps me to suggest my students about speciate problem in logistics management. • Give idea for my future research. • The contents can be used for current research project and services. • It can be used to conduct further research and also transfer the knowledge to students and let students to join research projects. • Can solve problem by using mathematics in my job or relative. • The content is not matched with teaching and research fields. However, it can be applied to improve action researches. • Challenge me for mane more understanding and mane research motivative • Understanding optimization and Digital Technology application • It can be used to conduct research and teaching.

<p>AOV2: May 2-4, 2022 at PSU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • The scope is comprehensive because optimization research requires formulation of problems and with Excel and heuristics, it must go hand in hand, which in this course provides comprehensive knowledge on all aspects leading to future implementation. Participants are able to follow the speakers on new research topics at any time, helping to open up the world view. This course can serve as a guideline for teachers to continue teaching students. • It can be applied in the line of work to add more interest • I could use the concept in research in the future • It shows the benefits of applying AOV in real cases that the speakers used as an example. • Some parts of the contents will be added to my data science subject for forth year students. • I will consider to open the special topic subject for elective course. My group project students may be introduced about this subject to do the research problem in this field. • The most meaningful experiences are the concept of optimization and practical application of optimization • Training methods can be used to compare with our research to see how different they are. Choosing good points to apply to research or an alternative tool for use in research which can be applied to all aspects of every job, not just industry and extending Industry 4.0 • Getting into practice to be well developed in interested projects • There are teaching techniques inserted into the content which is very useful in applying that technique to further teaching. • Able to develop more knowledge in optimization concept. Able to apply knowledge to teaching research work and solve problems for industry, economic and social sectors



<p>AOV2: May 2-4, 2022 at PSU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • In the work that can be used in relation to their own research, topics from the training can be applied to fill in the design or can find various important variables. • Lead to an optimization course. Applied in research on optimization • It can be applied to optimization, digital technology, IOT in research and academic services that are currently being done, including teaching students in OR and Optimization courses

<p>AOV3: Jul 22-24, 2022 at LPRU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Systematic thinking. Algorithm. Use things around us to create new things. • Experiences from the real practices. Theory and practice with coding. • I can apply it to my research, like planning for material use. • The most meaningful experience for me is understanding formulation in optimization papers. • Great experience for me. I can apply it for resource management. It is a great decision making tool. • Great impact for projects on transportation, distribution of goods, and hotel management.

<p>AOV4: Nov 14-15, 2022 at KKU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • I can use program (Lingo) and understand concept, basic example of Operation Research. • I understand concept and use Lingo and Excel to run program for Math. • High chance of applying the knowledge I learnt in local practice. • Having a clear picture from case studies shown in class. This can be applied in future project research. • The training is informative. The speaker explained very clearly.



<p>AOV5: May 22-23, 2023 at RMUTI</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Optimization method with digital data.

Table A8	Comments on Training DM1: Digital Manufacturing (DM) at PSU, Aug 28-30, 2023
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<p>DM1: Aug 28-30, 2023 at PSU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • -It is a training that provides knowledge and has real experience in designing and manufacturing. I understand the processes, techniques and requirements. • -I understand the utilization program involved in the production process. • -I can actually use it. • Process design and optimization • -Simulation and analysis working system with Plant Simulation program. • -Pre-production prototype design and simulation for additive manufacturing. • This training was really practical. It can be used to develop labs in Industry 4.0 subjects. • I have actually used it and have been able to further develop it in teaching labs to students, making it possible to take the knowledge gained further to create beautiful designs. • CAM by the new program. We can produce the vase from the 3D printer by the useful tools. • I have learned and practiced more. • I have practiced and can learn better. • I can lead teaching and apply it to research to create various parts as examples for teaching and have additional knowledge about the programs used. • The use of plant simulation in teaching work study subject. • I gained more expertise and experience such as simulation related work.

<p>DM2: Sep 8-10, 2023 at RMUTL</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Used to develop teaching in related subjects such as manufacturing for mechanical engineering



DM2: Sep 8-10, 2023 at RMUTL

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- Transfer knowledge to students
- Bring knowledge in digital manufacturing **Used** in teaching in subjects taught such as production process design.
- **Use** the knowledge gained in teaching engineering drawing.
- **Used** in courses that teach plant layout.
- Opening up the world of innovation outside the classroom creates inspiration for learning.
- See the overall picture at the industry event.
- **used** in teaching
- I can **use** it for presentations of establishments in academic services events.
- Experience is important. This training is clearly shown by people with real experience. It makes me want to develop my potential even more.
- **Used** in the teaching process of the production planning course.

DM3: Sep 30-Oct 2, 2023 at KMUTNB

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- Create model affect business start up
- **Use** the knowledge to teach students. It results in research that is valuable and applicable, including students with highly useful skills that are in high demand in the job market today.
- 1. Know the active learning activities.
- 2. Update the simulation program for improving in the classroom activities.
- Simulation program is very useful for my student to do senior project with prove of concept.
- I would adapt and **apply what I have learned to my classes**. It inspires me to **change** the way I **used** to teach my students.
- I learned something new about simulation. It helped me understand more. It was useful to teach students.
- 1. Selecting different prototypes for 3D printing, each person's results vary, leading to a better understanding before coaching.
- 2. Designing factory and production machinery makes the picture much clearer.



<p>DM4: OCT 25-27, 2023 at RMUTI</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Implement to teaching student. • Improving my knowledge in Digital Manufacturing.

<p>DM5: Dec 15-16, 2023 at LPRU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • It is modern technology that is necessary to work in Industry 4.0. • It can be used to teach students very well. • Consistent principles and practices provide a picture of their application to material work. • The trainers are very experienced and are able to convey and solve problems for the participants very well. • I use the knowledge I have to develop and expand on future projects. • I will use this knowledge to develop myself professionally in the future. • Getting products from the printer and trying to learn new things and being able to create innovations to teach to friends. • I will use the knowledge I have gained to develop myself and pass it on to the younger generation.

<p>Table A9</p>	<p>Comments on Training PDD1: : Innovative Product Design and Development (PDD) at Rambhai Barni Rajabhat University, Dec 20-22, 2021</p>
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<p>PDD1: Dec 20-22, 2021 at RBRU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • This topic is quite helpful. I can apply this to my teaching. • The design thinking concept can be adopted to create new program or activities in my teaching. • We can apply this knowledge to our teaching and future projects. • This can be applied to my work. Help me to think systematically. • I have learned thinking and designing process which helped me to really understand the concept. • Tools and applications are helpful for developments of projects and research.



<p>PDD2: Feb 25-27, 2022 at MU</p>
<p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Sharing idea and case study • The most meaningful experience is new knowledge such as Kano (new for me :) • This training can support me for new project creation. • It can be used to design or adjust curriculum. • Example in QFD in service sector. • Can be used as samples for research and teaching. • - knowledge and experience • - Team work • - Facilitate course with active learning.

<p>PDD3: Apr 1-3, 2022 at PSU</p>
<p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • From the training, the most important thing would be the practical implementation of the definition, process, proper use of tools. and analyze the data rationally • What is most meaningful in training is the process of designing a product that meets the needs of the customer • It can be applied in community product design and course design • Mulberry Wine • It can be extended and transmitted in teaching • It is able to apply knowledge to research and academic services • Using product specification creation and QFD concepts that can be applied in research. Even it is initiating or extending research that is being studied or being done. • The activities were brainstorming and discussing in all contents. In the class talking about BMC, it can make me challenging and gaining a lot of knowledge. • This leads to the development of product design of products in the local area or community.

<p>PDD4: May 6-8, 2022 at LPRU</p>
<p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Group activities. • Have a broader perspective on product design. Learning with practices using tools on PDD.



<p>PDD4: May 6-8, 2022 at LPRU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Can apply into real practices. Use the concept and analysis for my works. • I like every part of the training. • It is a concept for product design with a concept for curriculum development.

<p>PDD5: Nov 19-21, 2022 at SRU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • To work as a team. • Received more knowledge of product design and use it to teach in my class. • Understand the concept of product design from start to finish. • The training was useful for community products, business strategies, teaching a class. • The instructor gave a clear lecture. • I can apply this concept to help the community in product design. • Very good for community. I can apply this training to help the community. It also helps me to develop new curriculum. • QFD is a good tool, helping me to develop new curriculum. • Very experienced instructor. • I have gained more knowledge, teamwork, systematic thinking. • I can see the picture clearly, understanding of Product Design systematically. • Teamwork, creativity. • To learn PDD from start to finish. • Great and experience instructor. • Very good training with good example. • Learn PDD systematically. • Systematic lecture with practices. • Very useful topic.

<p>PDD6: Nov 30-Dec 2, 2022 at KKU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p>
<ul style="list-style-type: none"> • Very useful for practical use. • PDD can be applied into other projects effectively. • New knowledge and can be applied to my research and teaching practices.



PDD6: Nov 30-Dec 2, 2022 at KKU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- Very effective training. I can practice and learn. I like every activity.
- I involved a lot in this training. It was fun activities.
- Hands on experienced that can be **applied** to local projects.
- I have more knowledge and understanding of QFD. I wish other people could have joined this training.
- I understand more of the concept because I involved in the class activities.
- Learned from real cases.
- Learned from weaknesses of product and **change** them through PDD.
- New approached for PDD for local community because my University is for community development.
- **Improve** competitiveness through PDD, market analysis, customer analysis.
- To learn to work as a team and present our idea systematically.
- Learned to **use** appropriate tools to develop a product to satisfy customer's' need.
- Learning with class activities helps to understand the contents more effectively.

PDD7: Sep 20-21, 2024 at CRRU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- Learned determination of mission and marketing.
- Marketing analysis.
- Kano model analysis helps to see all perspectives. This helps to gather the data to be **used** for design.
- Good in all processes.
- Learned from practicing creating new products. If understand, we may be able to create a new product.
- Can be **applied** for curriculum design for the nursing school, course planning and innovation development.
- The most meaningful experience is the important of how to design and develop the product effectively.
- The most meaningful is process how to develop process of teaching.



Table A10	Comments on Training DA1: Data Analytics (DA) at PSU, Nov 9-11, 2022
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<p>DA1: Nov 9-11, 2022 at PSU</p> <p>3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)</p> <ul style="list-style-type: none"> • It is a topic that is useful for both teaching and research. • Excellent lecturer, able to convey knowledge very well. Documents are detailed. • Gained knowledge about data management • Get an idea to take into consideration to suit the data obtained from the observations for further analysis. • It can be used for teaching and research. • Be able to apply knowledge to research and teaching • Apply the knowledge gained to research and teaching. • statistic and regression • Data Clustering • Data Clustering, Data Visualization • Regression • Have knowledge in applying it to teaching • Acquire basic knowledge in order to be able to study further. • Research and Teaching in the future. • Clustering and Classification • Have applied the knowledge gained to data management and can apply some content for teaching and research • Know the principles of data management, which is important for use in data analysis research. To represent the relationship and meaning of the data and use it to compare the data for decision making. • From training and practice, the principles obtained can be further applied in material research. • Have an understanding of the practice of making examples. There should be more to learn. • It can be extended to work on related research • Being able to practice using the colab program because it is something new from learning in this training. • The practice can be extended to research work such as programming to do data clustering and data classification. • applied in teaching and research • Develop knowledge and apply it in teaching and research • Student research on forecasting • Predictive Maintenance • Getting ideas and using new program functions to be used to manage data more easily. • Able to analyze a large amount of preliminary data using the appropriate software for this data analysis.



DA2: Jan 18-20, 2023 at CPRU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- Have more knowledge in Data Analytics.
- I can apply DA to my work and be able to transfer my knowledge.
- I can apply DA to my teaching profession and trainings for the industry.
- Use Python in DA.
- I have more knowledge in DA.
- Data analysis is useful.
- Useful for my teaching and research.
- Very useful for my teaching profession and students.
- I need further training on DA.
- Useful for my teaching and research.
- I can learn more through activities in class.
- I can apply DA to my research.
- Can be applied into real life.
- All the contents were useful for my teaching.
- Understand more of DA, classification, and prediction.
- Can be applied into my teaching and research.
- I can apply DA into my teaching and research.
- Very useful for my teaching profession.

DA3: Nov 25-27, 2022 at LPRU

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- Applying in data analysis for doing research.
- Applying in teaching for statistics and data analysis.
- I will use this knowledge for my research.
- DA can apply for teaching and research, but I need to learn more.
- I read books for teaching public health information, so I learnt about data but studying data analytics in this training gave me with a different perspective on data that I can apply.
- Doing various activities before teaching.


DA4: Apr 7-9, 2023 at KMUTNB

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- **It can apply for my job or be materials to develop for student in the future.**
- The most meaningful experience is that my knowledge and skill (Data Analytics) are **improved**.
- Active learning can certainly be **used** in a small class. The student can participate in activities that will make learning more interesting.
- Teaching data analysis to staff so that they are aware of the importance of correct data collection.
- Data analysis and data type can be **used** to correctly teach student and do research.
- Many tools and data analysis.
- **Big Data can apply many projects for development.**
- Learning how to teach the most difficult topic such as Statistics, Regression to students using the interesting activities, learning by doing, and remembering concepts instead of contents.
- The activities were teaching and coaching. **It can apply to improve my skill.**
- Knowledge can be **applied** for teaching in the future.
- It was applicable to some subjects such as Inventory and Simulation.
- I learned about the data management process, such as if we had data and what to do with it. **I can apply it for research and teaching.**
- This training motivated me to create the teaching activities. It helped students in learning.
- From this training, I will bring not only the knowledge such as data clearing, data visualization, statistic and regression, data clustering, and data classification but also skill to **apply to my student in the university.**

DA5: Apr 26-28, 2023 at RMUTL

3.1) In your opinion, what was the most meaningful experience carried out in the context of the training, taking into account the project activities to be developed and the challenges of your teaching practice? Please, justify your answer (including examples)

- It can be into 2 things, first one is for my research in parallel computing on Big Data processing including data clustering and my teaching is second one.
- Using the teaching concept and data to teach students in related subjects.
- Programs of running data, It can **use** with many researches.
- **I can apply the knowledge of this training to my student in the engineering statistics class.**
- **Preparation data.**
- **It can apply in the future for not only research but also teaching.**
- Teaching and research applications.
- 1. Learning creative teaching methods that made studying more enjoyable. 2. Learning new tools such as Padlet.