Hợp tác Đức
DEUTSCHE ZUSAMMENARBEIT

Implemented by
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PROGRAMME "REFORM OF TVET IN VIET NAM"

INSTRUCTION

ON E-TEACHING DESIGN

IN BLENDED LEARNING ENVIRONMENT

HANOI, DECEMBER 2024

INTRODUCTION

The Program of Digital Transformation (DX) in Technical Vocational Education and Training (TVET) aims to enhance training quality, contributing to the improvement of the quality of skilled human resources, which helps increase labor productivity and national competitiveness in the context of international integration (as stated in Decision No. 2222/QD-TTg dated December 30, 2021). This program also helps keep pace with the rapidly changing demands of the labor market for becoming more green and digital.

In this context, we have developed an instruction material on "E-teaching design in blended learning environment" to support TVET teachers in applying a backward design method. This method ensures that the course development process aligns with learning objectives and expected learning outcomes as the primary orientation.

This instruction material supports TVET teachers in developing professional skills, renovating training methods, effectively applying digital tools, creatively designing learning courses, saving time, enhancing training quality, and better meeting practical requirements.

The instruction material includes 6 lessons:

Lesson 1: Overview
Lesson 2: Defining learning objectives
Lesson 3: Assessment methods
Lesson 4: Training contents
Lesson 5: Interactions in blended learning course
Lesson 6: Digital tools and learning objectives

This instruction material is designed for TVET teachers as a practical and useful handbook, which supports them in meeting training requirements in the current context of DX.

General information

The instruction material is developed was developed with the support of the Viet Nam-Germany Cooperation Program "Program Reform of Technical Vocational Education and Training in Viet Nam". The program is authorized by the German Federal Ministry of Economic Cooperation and Development (BMZ), implemented by the Deutsche Gesellschaft fur Internationale Zusammenarbeit (GIZ) GmbH in collaboration with the Directorate of Vocational Education and Training, under the Ministry of Labour, Invalides and Social Affairs. This programme also helps keep pace with the rapidly changing demands of the labor market for becoming more green and digital.

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LESSON 1: OVERVIEW

1. Introduction

This lesson aims to introduce the core concept of e-teaching design in a blended learning environment for TVET teachers. By engaging with these concepts, teachers shall connect with the content of each lesson to effectively design and implement training courses in a blended environment for better addressing practical needs, training objectives, and enhancing the learning experience for learners.

2. The concept of objectives-based teaching

Objective-based teaching is an educational method focusing on defining the expected learning outcomes for learners, rather than just focusing on the training content. Spady [1] defines outcome-based education as an approach focused on learners successfully demonstrating what they have learned. In particular, the expected learning outcomes refer to what learners can do and demonstrate after the learning process. These outcomes reflect the learners' capacity to apply knowledge, skills, and learning tools. According to Spady, in objective-based education, what learners learn (learning contents) and their ability to successfully apply what they have learned are more important than learning timeline and format.

The characteristics of objective-based teaching include the following aspects:

01 Clearly define the learning objectives and expected outcomes for learners after each learning phase or upon completion of a course.

02 Learning objectives should be designed based on the SMART principles (Specific, Measurable, Achievable, Relevant, and Time-bound).

03 Design relevant training curriculum, teaching and learning activities, and assessment methods to ensure that learners can achieve learning objectives.

04 Regularly assess learners' learning results based on predefined objectives, thereby making timely adjustments during the teaching and learning process when necessary.

05 Encourage autonomy, proactivity, and self-discipline in learners.

[1]. W. G. Spady, "Outcome-based education," in Critical issues and answers, Arlington, American Association of School Administrators, 1994, pp. 1-8.

3. Blended learning

Blended learning is an educational model that combines online learning with face-to-face instruction, utilizing technologies to minimize lecture time and enhance interaction through learner activities. This model helps learners achieve their learning objectives by encouraging the personalization of the learning process and the development of self-study skills. Through this model, essential skills for future career such as teamwork, communication, and problem-solving are fostered. This model prepares learners to meet the practical demands of learning and work in the current modern society.

4. Flipped classroom model

The flipped classroom model is a learning model in which learners study lessons at home using digital learning materials and complete comprehensive exercises. In the classroom, learners participate in practical activities and engage in in-depth discussions about the lesson. Teachers facilitate various interactive activities to foster learners' creativity. In a blended learning environment, the flipped classroom model is used to design training contents more effectively.

5. Learning style

Learning style [1] refers to the way an individual receives, processes, and remembers information. It may involve a preference for learning methods based on visual, auditory, direct hand-on practice or blended practice. Identifying learning styles helps both teachers and learners choose the most suitable methods and tools, thereby enhancing learning effectiveness. This document explores Kolb's learning styles in the Lesson 4.

6. Teaching content

Teaching content refers to a collection of knowledge, skills, information, and learning activities that are purposefully organized to help learners achieve learning objectives. It includes key topics, core concepts, practical exercises, illustrative examples, and reference materials, all of which contribute to ensuring effectiveness and quality in teaching and learning.

7. Teaching design

Teaching design for a course is the process of planning in details about objectives, contents, methods, teaching materials, and assessments within a defined timeframe. This process helps teachers organize teaching and learning activities effectively, ensuring that learners achieve learning objectives. This document introduces the backward design approach for teaching design.

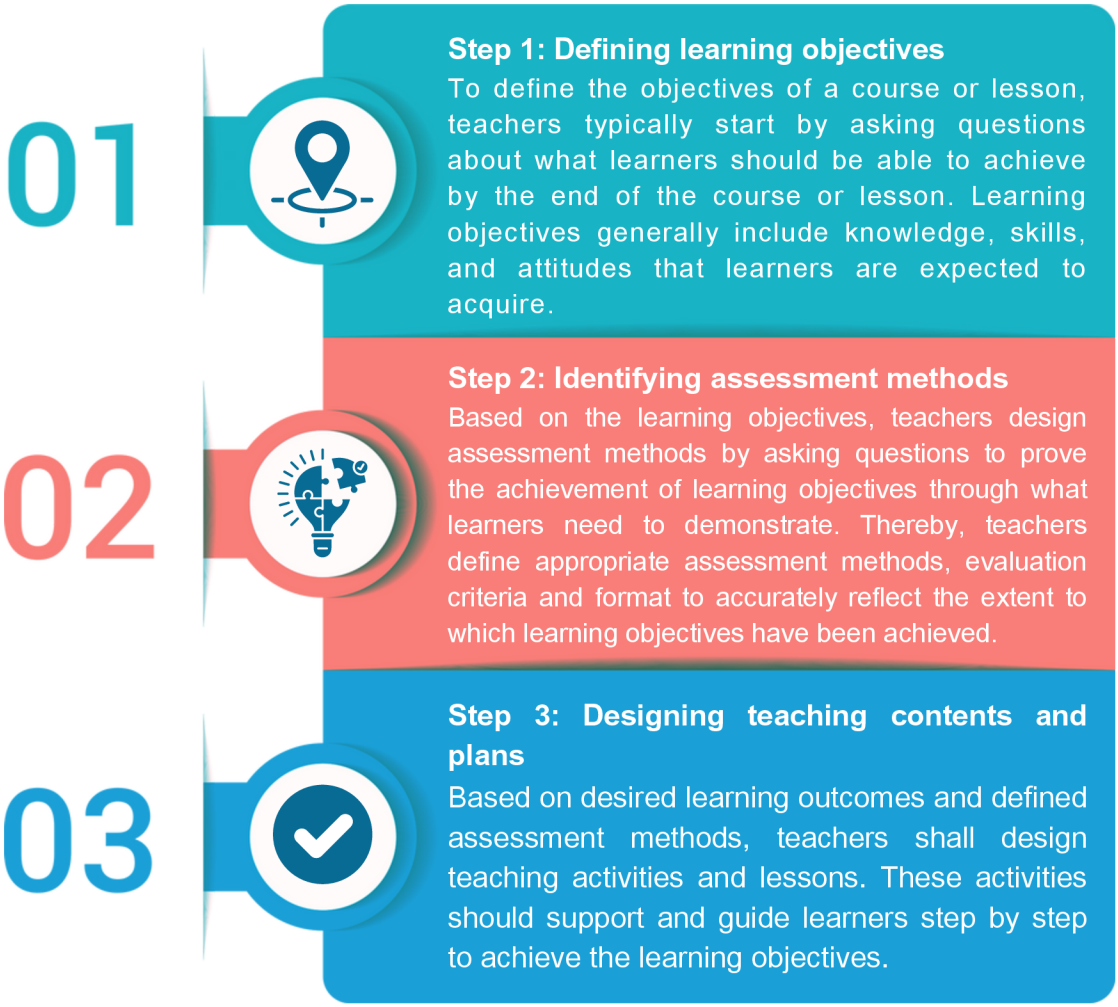
[1] Dunn, R., & Dunn, K. (1978). Teaching Students Through Their Individual Learning Styles: A Practical Approach. Reston, VA: Reston Publishing.

8. Backward design method

a. Definition

The backward design method is an effective approach in competency-based education. In this approach, teachers start by defining the expected learning outcomes (course objectives) and then developing teaching activities and assessments that align with these objectives. This method ensures that teaching contents and methods are clearly oriented, helping learners develop necessary competencies and achieve the highest learning outcomes.

b. Implementation steps



Benefits of the backward design method

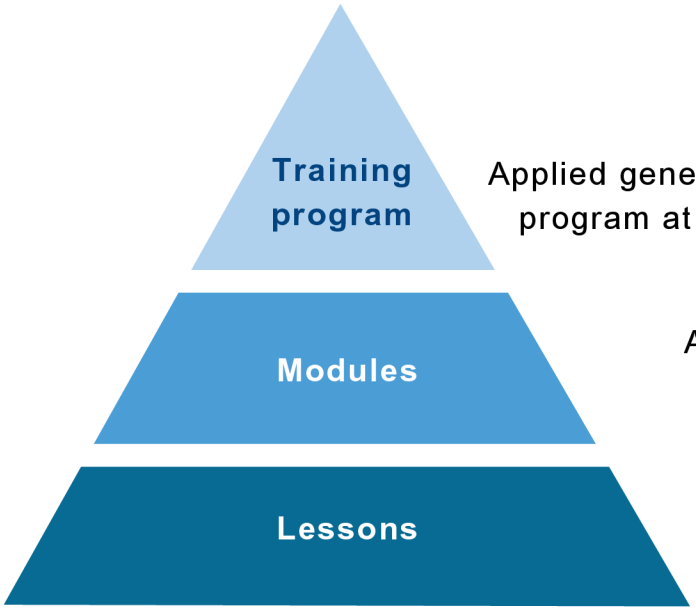
Focus on outcomes: This method ensures that all teaching and learning activities aim at helping learners achieve learning objectives.

Objective-based assessment: Examinations and assessment methods are designed to directly measure the extent to which learning objectives have been achieved.

LESSON 2
DEFINING LEARNING OBJECTIVES

1. Definition of learning objectives

Learning objectives are defined as knowledge, skills, and capacity on autonomy and self-responsibility, or attitudes that learners are expected to achieve after completing a course. Typically, learning objectives are generally structured across three levels.



Applied generally to the entire training program at a given educational level

Applied to specific subject or module

Applied to specific lesson

Knowledge

Including information, theoretical comprehension that learners need to demonstrate successfully after completing the course.

Skills

Including abilities to apply knowledge into implementing work and solving practical issues

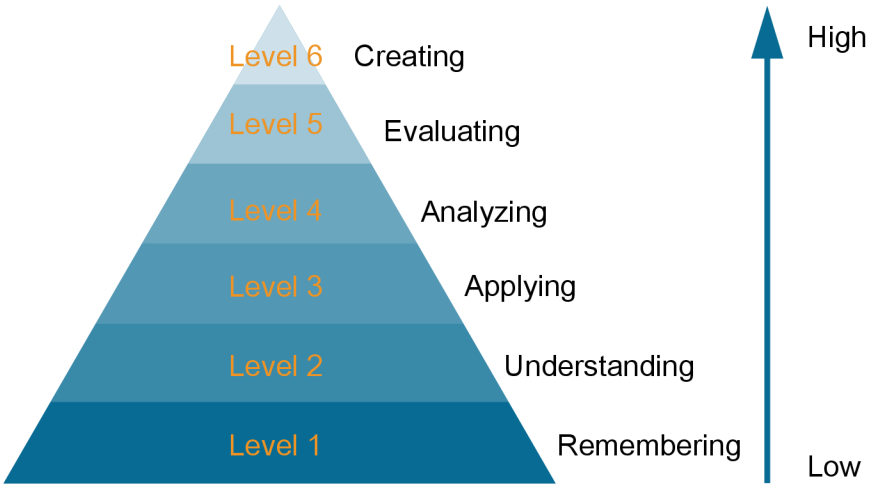
Attitudes

Including the way of thinking, behaving, and responding that learners need to acquire after completing the course

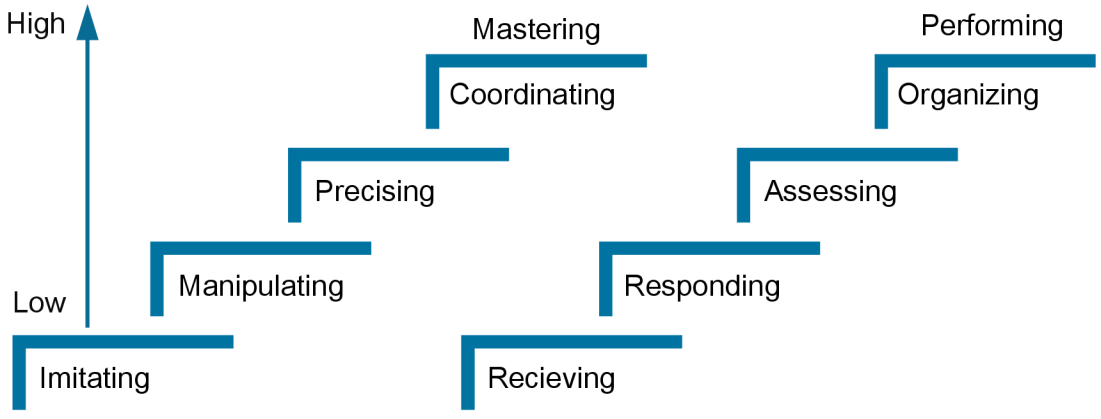
- The learning objectives of the course must be designed according to a learning taxonomy to ensure scientific accuracy and compatibility.
- The learning objectives must begin with an action verb + the object and context.
- The learning objectives must specify the level and the domain of knowledge to which the learning outcomes apply

2. BLOOM's taxonomy of cognitive levels

In 1956, Benjamin Bloom [1-3] and his colleagues introduced Bloom's taxonomy of cognitive levels. This taxonomy emphasizes three fundamental factors for measuring learners' competencies. By dividing it into three domains, Bloom and his research team aimed to ensure that the evaluation and development of learners' competencies focus not only on knowledge but also encompass emotions, attitudes, and practical skills, creating a comprehensive and multidimensional approach.



Levels of the cognitive domain



Levels of the psychomotor domain

Levels of affective domain

[1] B. S. Bloom and D. R. Krathwohl, Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain. New York, NY, USA: Longmans, Green, 1956.
[2] L. Anderson and D. R. Krathwohl, "Bloom's taxonomy revised - Understanding the new version of Bloom's taxonomy," [Online]. Available: http://www0.sun.ac.za/ctlresources/wp-content/uploads/2018/11/Anderson-and-Krathwohl.-2001.-Extract-from-A-taxonomy-for-learning-teaching-and-assessing-a-revised-Blooms-Taxonomy.pdf. [Accessed: Jan. 1, 2020].
[3] R. H. Dave, Developing and Writing Behavioral Objectives, R. J. Armstrong, Ed. Tucson, AZ, USA: Educational Innovators Press, 1970, pp. 20–21.

2.1. Cognitive domain

The cognitive domain focuses on the ability to think, understand, and use information, with six levels ranging from lower to higher: **(1) Remembering, (2) Understanding, (3) Applying, (4) Analyzing, (5) Assessing, and (6) Creating**. These levels address various aspects of the learning process and cognitive development.

Remembering

Learners memorize and accurately recognize information, concepts, principles, and events.

Understanding

Learners explain and rephrase information in their own words and understanding.

Applying

Learners apply theories, principles, and processes to solve problems in various contexts.

Analyzing

Learners break down information into smaller parts, identify, compare, and explain how these parts relate to each other.

Assessing

Learners make judgments about the value of information, ideas, or results based on specific criteria or standards.

Creating

Learners combine ideas and skills to create a new product or solution.

Example: The knowledge domain can be illustrated by the action of cooking Pho. At the remembering level, learners list the basic ingredients such as beef bones, pho noodles, onions, herbs, and spices. At the understanding level, learners explain why bones need to be simmered for a long time to give the broth a natural sweetness. At the application level, learners cook pho broth according to instructions. At the analyzing level, learners analyze the flavor of the broth to recognize whether there is a lack of or an excess of spices. At the assessing level, learners evaluate the quality of pho based on its taste and presentation. Finally, at the creating level, learners create a variation of pho such as vegetarian pho or pho combined with new ingredients.

[1] B. S. Bloom and D. R. Krathwohl, Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook I: Cognitive Domain. New York, NY, USA: Longmans, Green, 1956.
[2] L. Anderson and D. R. Krathwohl, "Bloom's taxonomy revised - Understanding the new version of Bloom's taxonomy," [Online]. Available: http://www0.sun.ac.za/ctlresources/wp-content/uploads/2018/11/Anderson-and-Krathwohl.-2001.-Extract-from-A-taxonomy-for-learning-teaching-and-assessing-a-revised-Blooms-Taxonomy.pdf. [Accessed: Jan. 1, 2020].

2.2. Psychomotor domain

The psychomotor domain focuses on measuring the ability to perform motor and manipulation skills [1]. It includes levels of **(1) imitating; (2) manipulating; (3) precising; (4) coordinating; and (5) mastering**.

Imitating

Learners imitate the actions and manipulations they observe, so instructors need to provide model demonstrations.

Manipulating

Learners can perform a simple action with minimal assistance.

Precising

Learners can perform skills with high precision and minimal or no errors.

Coordinating

The coordination of multiple skills and actions to complete a complex task.

Mastering

Learners can perform skills automatically and efficiently, even in new or challenging situations.

2.3. Affective domain

The affective domain relates to emotions, attitudes, and personal values. It measures learners' awareness, responses, values, organization, and evaluation of their values regarding the learning content. This domain helps assess development not only in knowledge but also in attitudes and personal values. The affective domain includes 5 levels:

1. **Receiving**: Learners are aware, attentive, and receptive to information.
2. **Responding**: Learners show interest, engagement, and reaction to the instructor's activities.
3. **Assessing**: Learners understand and accept values, rules, and standards, and make decisions based on their values.
4. **Organizing**: Learners organize values and integrate them into their belief system.
5. **Performing**: Learners not only understand and accept values but also live in according to them.

[1] R. H. Dave, Developing and Writing Behavioral Objectives, R. J. Armstrong, Ed. Tucson, AZ, USA: Educational Innovators Press, 1970, pp. 20–21.

3. The table of verbs corresponding to the domains

Cognitive domain

01

REMEMBERING

Explain, discuss, describe, assess, illustrate, arrange

02

UNDERSTANDING

Describe, name, list, define, present, repeat narrate

03

APPLYING

Apply, utilize, use, calculate, practice, experiment, operate

04

ANALYZING

Analyze, compare, test, contrast, diagnose, indicate, explore

05

ASSESSING

Evaluate, assess, revise, suggest, predict, recommend

06

CREATING

Establish, synthesize, create, design, propose, produce

Psychomotor domain

Imitating
Observe, comply, follow, copy, imitate, repeat

Manipulating
Perform, execute, implement, reproduce, demonstrate

Precising
Test, use, perform, execute, refine, integrate

Coordinating
Adapt, acquaint, coordinate, arrange, design, adjust, solve, produce

Mastering
Design, develop, invent, support, repair, manage

Affective domain

Receiving
Acknowledge, recognize, accept, inquire, comply, listen, perceive

Responding
Act, react, clarify, comply, consider, investigate, select, practice, express, memorize, approve, volunteer

Assessing
Adapt, balance, resist, contrast, defend, acknowledge

Organizing
Change, adjust, organize, form, establish, remain loyal

Performing
Express, justify, model, affirm values, maintain, contribute

4. Method for define learning objectives

The objectives of a course/module and lesson are typically formulated using the formula: **Verb + Object + Context**, and follow these 4 steps:

01 Define the learner's competency domain (knowledge, skills, and affect) according to Bloom's Taxonomy for learning objectives.

02 Define the level of the objective corresponding to the domains.

03 Choose appropriate verbs according to the cognitive levels and competence domains to define learning objectives

04 Appy the formula: Verb + object + context to define

Example: After completing the course, learners will be able to: **Design a residential solar power system.**

1. Structure of learning objectives

According to the learning objective design model, this objective is constructed based on the following formula:

- Action verb: Design
- Object: Solar power system
- Context: Residential (the system is applied to households, small
- buildings, or non-industrial scale)

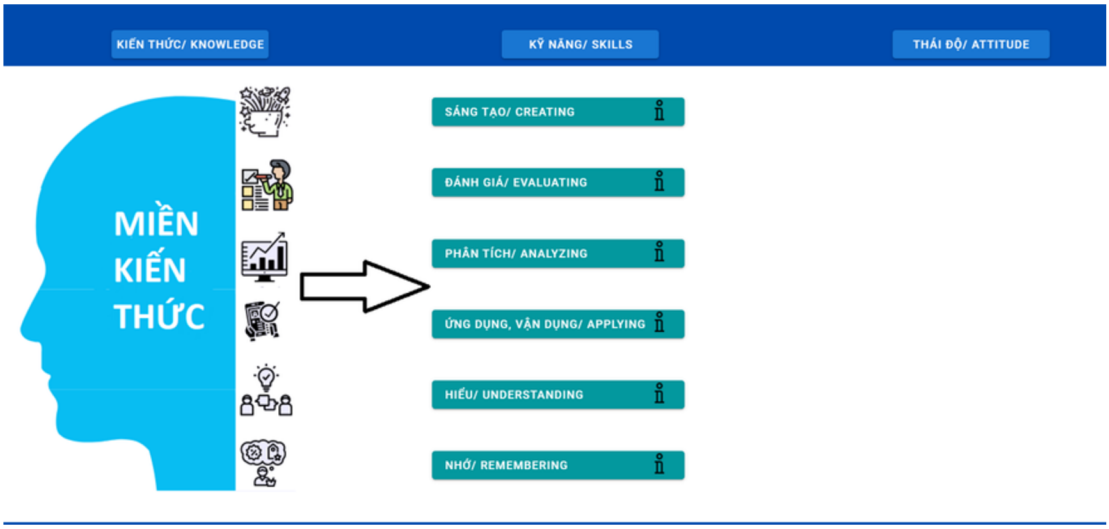
2. Classification according to Bloom's Taxonomy

The verb "Design" falls under level 6 in the Cognitive Domain according to Bloom's Taxonomy. This is the highest level, requiring learners to synthesize knowledge and skills to create a new product or solution.

5. Applying software to determine learning objectives

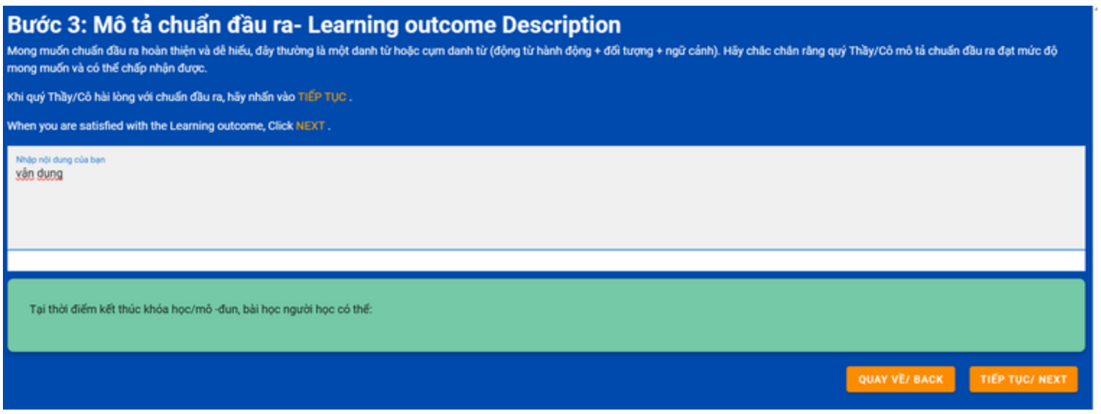
Step 1: Access the link

Step 2: Define the learner's competency domain by clicking on the corresponding domain (Cognitive, Psychomotor, or Affective)



Step 3: Select the appropriate level corresponding to the relevant domains of competence and cognitive levels to define the learning objectives.

Step 4: Select appropriate verbs corresponding to cognitive levels and competency domains to identify learning objectives.



Step 5: Enter the object and context to complete the learning objectives.

LESSON 3
ASSESSMENT METHODS

1. Introduction

To assess learners, teachers typically apply either direct or indirect assessment methods. Direct assessment involves teachers applying assessment methods requiring learners to demonstrate or show the results or learning objectives. Indirect assessment, on the other hand, is when the learners or someone else reports on how the learners have achieved a specific learning goals or outcomes [1]. This section introduces direct assessment methods corresponding to different levels of cognition according to Bloom's Taxonomy.

When designing the assessment methods for learners, teachers should ensure fairness, value, and validity.

1. Fairness: Ensure that all learners are assessed equally, and that the assessment accurately reflects what learners have demonstrated during the assessment process.
2. Value: Ensure that the assessment questions are directly related to the knowledge, skills, and affect that need to be measured in the subject. No additional elements should be included, and the questions should be approved by the Department's academic council.
3. Validity: The assessment questions should be approved by the Department's academic council and remain valid for the assessment process.

2. Common assessment methods [2]

In modern education, understanding and applying methods of student assessment is essential to monitor progress and improve the quality of teaching and learning. Below are some common assessment methods.

Knowledge survey

At the start of the course, teachers ask the learners to list any prior courses related to the upcoming course and uses a basic knowledge survey via short-answer questions, true/false, or multiple-choice questions. This approach helps collect specific and useful feedback before introducing new topics.

Self-explanation

Teachers provide learners with an outline containing missing headings or materials related to a lesson that has been partially completed, or a homework assignment that was prepared in class, and gives them a limited amount of time to fill in the gaps. This method helps learners better organize and understand the content they have learned.

[1] Phương pháp đánh giá, trực tuyến tại https://academicprograms.calpoly.edu/content/assessment-methods
[2] Angelo, T.A., & Cross, K.P. (1993). Classroom assessment techniques: A handbook for college teachers. San Francisco: Jossey-Bass.

Multiple choice

An objective multiple-choice test consists of true-false questions, near-miss questions, or matching types. Each question has a main statement (the stem) and alternative options, with one correct answer and several distractors.

Short answer

Short-answer questions require a brief response, typically consisting of a phrase, sentence, or a short paragraph.

Oral examination

An oral examination is an assessment method in which the educators directly ask questions and the learners provide answers. This is a highly interactive form of assessment allowing the instructors to quickly evaluate the learners' knowledge, thinking skills, and ability to express themselves through direct communication.

Portfolio

The portfolio assessment method is a collection of written samples, self-assessments by learners, and goal statements reflecting the learner's progress. Learners usually select topics to include in their portfolio, but teachers may also suggest specific topics. The portfolio is a powerful tool that allows learners to track their learning progress from one course to another.

Essay

Preparing an essay requires learners to select and integrate materials on a specific topic, allowing teachers to assess writing skills, argument development, and evidence application. The length of the essay can range from one page (300 words) to ten pages (3,000 words) and it may be written under exam conditions or prepared in advance.

Performance test

The learners follow the guidance of teachers and perform tasks or exercises in a laboratory, workshop, or experimental setting to be assessed on their skills and performance effectiveness. Teachers should focus on observing both the process and the actual results.

Report

A report is a common means of presenting information and conclusions related to a specific purpose. It is prepared based on the collection and analysis of data using specialized methods. Reports can be applied in the assessment of experiments, fieldwork, internships, or case studies.

Project

A project is an extended task based on specific requirements, which may be assigned by teachers or stakeholders. Projects can vary in size, be carried out individually or in groups, and the outcome may be a report, design, artwork, poster, or an applied product.

Presentation

A presentation is the act of delivering a prepared topic in front of a class, using support tools such as PowerPoint. The assessment can be conducted individually or as a group. Presentation formats include role-playing, group activities, workshops, conference presentations, debates, product demonstrations, and Q&A sessions.

Poster

A poster is an image that represents the theme or outcome of a learning activity. A poster can utilize various media, including learning technologies, and can be created individually or as a group.

Case studies

Case studies assessment helps learners explore and apply skills and theories in real-world situations. The case can be either real or hypothetical. Learners analyze and provide personal responses, often presented in the form of a report or presentation. Instructors assess how learners apply skills and theories in researching a specific case

Essay-type assessment

Learners are required to answer questions by presenting their own ideas, analysis, or reasoning, or by solving problems. Unlike multiple-choice questions, essay-type assessments ask learners to express their answers in writing, often not limited to a right or wrong choice, but focusing on their ability to understand, apply, and critique the subject matter.

One Sentence Summary

This technique helps develop higher-order thinking and assess the learner's ability to synthesize information. Learners answer questions such as "Who?", "What?", "For whom?", "When?", "Where?", "How?", "Why?" and then combine the answers into a complete summary. For example, nursing students may summarize a hypothetical patient scenario, or engineering students may summarize fluid dynamics in a specific situation.

Problem Solving Task

Teachers ask learners to solve problems within a narrow scope, applying appropriate rules or techniques. For example, learners may conduct an experiment, solve a task based on a hypothesis, or analyze a hypothetical situation to apply the knowledge they have learned to real-world contexts.

Interview

Teachers organize a formal meeting to collect information from learners or a group of learners. For example, teachers may interview learners directly or through a panel of judges. Learners may also conduct interviews with a specific individual to develop their communication skills and gather information.

Placement performance

Learners apply their knowledge and professional skills in real-world contexts at their workplace or within the community. The assessment may be carried out by teachers or industry supervisors, or both.

Examples: internships, vocational programs, field experience, clinical internships, community service, professional experience, cooperative education.

Design

Design 2D or 3D models

Examples: drawings, backgrounds, interior layout plans, building designs, software models, mock-ups, concept diagrams, etc.

Direct observation

The assessment via direct observation is an approach involving instructors closely monitoring learners while they carry out a specific task. This allows teachers to assess how learners apply their knowledge, analyze situations, collaborate in teams, and implement their skills in real-world contexts. Based on these observations, teachers can offer detailed feedback and comments, helping learners improve their skills more clearly and effectively.

Simple tasks

The method of assessing the completion of simple tasks is an approach to assess learner's abilities by requiring them to complete a specific, clear, and easy-to-execute task. This task typically focuses on a particular skill or area of knowledge, allowing the instructors to directly observe the process and results, thereby providing accurate feedback and assessments for improvement. This method is suitable for practical activities or real-world applications.

Basic practice exercises

The method of doing practice exercise is an assessment approach in which learners engage in specific tasks or activities to apply the knowledge and skills they have learned to real-world situations. Through the practice process, teachers can assess the level of understanding, application ability, and problem-solving skills of the learners. This method encourages initiative, skill development, and enhances the ability of practical work.

3. Assessment methods corresponding with learning objectives

BLOOM's taxonomy cognitive domain	Assessment methods	Reasons for selecting methods
Remembering	Short answers, multiple-choice questions, problem-solving exercises.	These methods are suitable for testing the ability to recall and recognize information, helping to assess basic knowledge.
Understanding	Multiple-choice with explanation, essays, one-minute feedback, case studies.	These methods require learners to interpret and apply ideas by explaining or discussing them.
Applying	Essays, portfolios, practical exercises, workplace practice, projects, design.	These methods require learners to apply knowledge to solve real-world problems, demonstrate their ability to apply skills effectively.
Analyzing	Reports, project presentations, case studies, problem-solving exercises.	This method requires learners to analyze, compare, and establish relationships between ideas or information.
Assessing	Case studies, posters, project presentations, essays, self-assessment feedback.	Assessing the ability to critique, provide evidence-based opinions, and evaluate the value of proposed solutions or presented information.
Creating	Case studies, posters, project presentations, design, projects.	These methods require creativity, innovation in approach, and the ability to create new products or solutions.

BLOOM's taxonomy cognitive domain	Assessment methods	Reasons for selecting methods
Imitating	Practice, direct observation.	Assessing the ability to follow instructions or replicate demonstrated actions.
Manipulating	Performing simple tasks, practical exercises.	Assessing the ability to perform simple tasks independently.
Precising	The performance test, workplace practice.	Assessing the accuracy and effectiveness of performing specific skills.
Coordinating	Group project, collaboration in studying complex cases	Requiring learners to integrate multiple skills to complete the task.
Mastering	Designing models, creating products, and executing real-world projects.	Assessing ability to creatively design and effectively apply skills proficiently in real-world scenarios.

LESSON 4
TRAINING CONTENTS

1. Introduction

This lesson focuses on guiding the design of lesson content to align with the identified learning objectives and assessment methods. Additionally, the chapter addresses the design of teaching and learning activities based on different learning styles. The diversity of learning styles will help teachers select activities that are suitable for the specific learners in the classrooms. This will improve the ability to learn and ensure that all learners have the opportunity to develop optimally.

2. Kolb's learning style

David A. Kolb developed extensive research on learning styles based on the Experiential Learning Theory. Kolb argued that each individual perceives and processes information differently during the learning process. He proposed the Experiential Learning Model based on two main dimensions: perceiving information and processing information. Based on these two dimensions, Kolb identified four distinct learning styles [1], as follows:

Diverging Style (Perceiving and Observing)

Learners are sensitive, enjoy observing and collecting information, use their imagination to solve problems and look at situations from multiple perspectives.

Assimilating Style (Observing and Thinking)

The learner prefers logic, conciseness, focusing on ideas and concepts that require clear explanations. They simplify complex problems into more straightforward, understandable, and concise ones.

Converging Style (Doing and Thinking)

Learners who prefer this style enjoy hands-on experiences and solving specific problems, such as working through exercises applying examples and designing ideas based on given models.

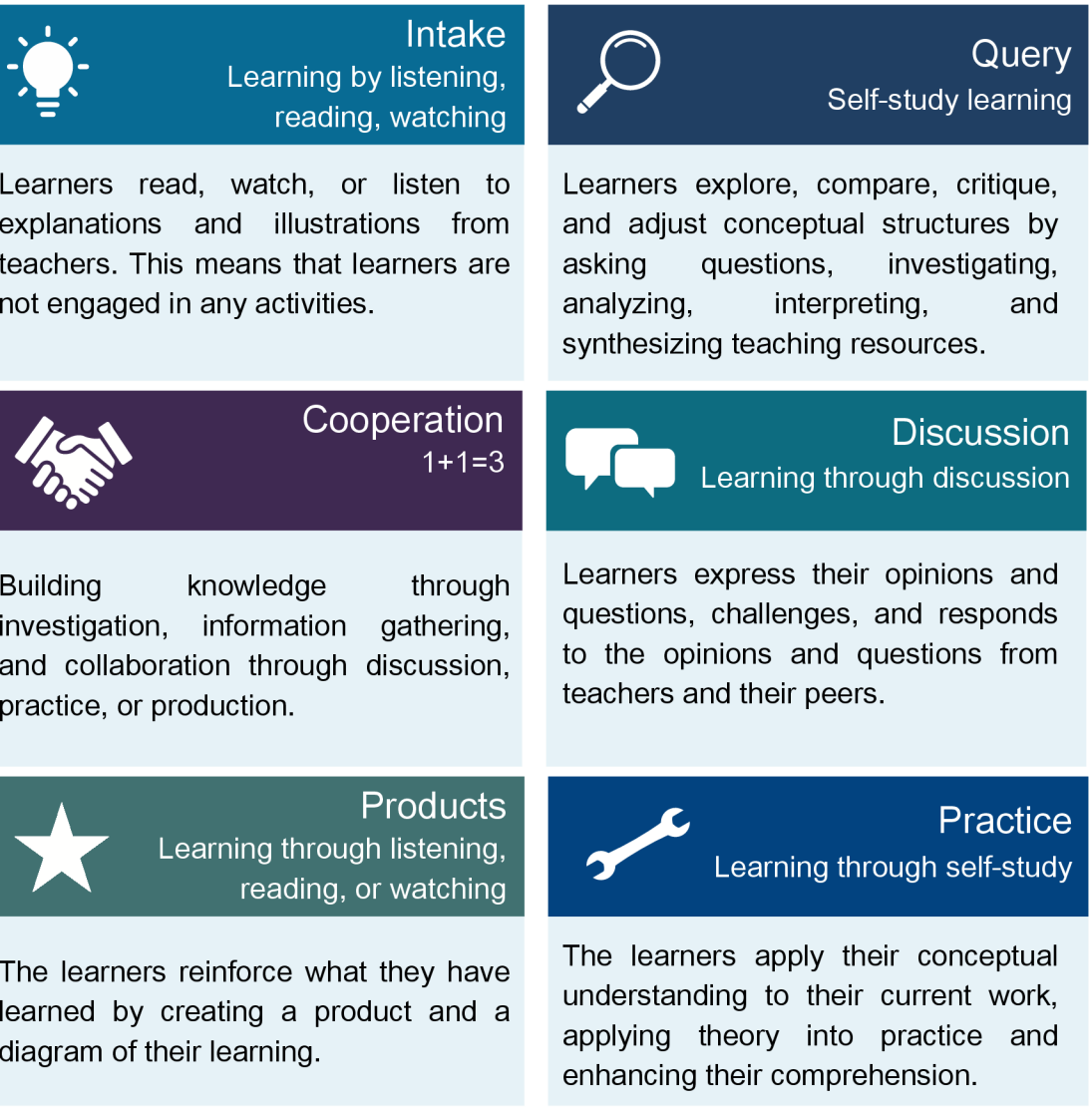
Accommodating Style (Doing and Feeling)

Learners prefer to connect lessons with specific problems. They enjoy conducting experiments, practicing hands-on activities; and tend to avoid purely theoretical lessons.

[1] Kolb, D. A. (2007). The Kolb learning style inventory. Boston, MA: Hay Resources Direct.

3. Forms of learning in a blended learning environment

In the blended learning model, teachers design appropriate learning materials based on the learning objectives and student activities. Laurillard, D. [1] researched and introduced 6 forms of learning, which help teachers easily design creative courses. The key feature of these forms is that instructors can create effective courses without prior experience in instructional design. They are as follows:



[1] Laurillard, D. (2012). Teaching as a design science: building pedagogical patterns for learning and technology. London: Routledge.

4. The course design method for blended learning based on different forms of learning

To design a blended learning course, the following steps are typically followed:

Step 1: Based on the identified learning objectives and assessment methods, develop the lesson content.
Step 2: Select the content learners need to study before class, typically including videos for lessons, reading materials, or online lessons.
Step 3: Design pre-class activities (apply interactive techniques in asynchronous online courses).
Step 4: Plan in-class activities (utilize class time for practice, discussions, and addressing complex issues related to the content learners have studied independently. Design interactive activities in classroom).
Step 5: Design post-class activities, typically consisting of homework, projects, or quizzes.
Step 6: Develop assessment methods for learners to monitor the learning process and progress to achieve learning objectives. Collect feedback from learners to improve the course if necessary.

5. Teaching and learning plan for blended courses

To design a blended course, the plan should be presented in specific stages such as: pre-class learning stage, in-class learning stage and after-class learning stage. The details of each stages are clearly shown in the table mentioned below.

List the learners' activities, pre-class learning, assessment if any	The content will be learned online simultaneously by the learners	List the activities that learners should perform in class	List the activities that learners should perform after class

Example:
Lesson 1: Assembling household electrical circuits

Watch video (Introduction of household electrical circuits;Components of electrical circuits). **Read document:** Operating principle of 3-way lighting circuit		**Discussion:** Operating principle of 3-way lighting circuit and its application **Practice:** Installing a 3-way lighting circuit	**Homework:** Draw multi-way control circuits and list the applications of these circuits

PRACTICE
DESIGN BLENDED COURSES

Step 1: Define learning objectives:
Objective 1:.....
Objective 2:.....
Objective 3:.....

Step 2: Define assessment methods that align with the learning objectives

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Step 3: Select the content that learners need to study before attending class

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Step 4: Design pre-class activities

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Step 5: Plan in-class activities

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Step 6: Design post-class activities

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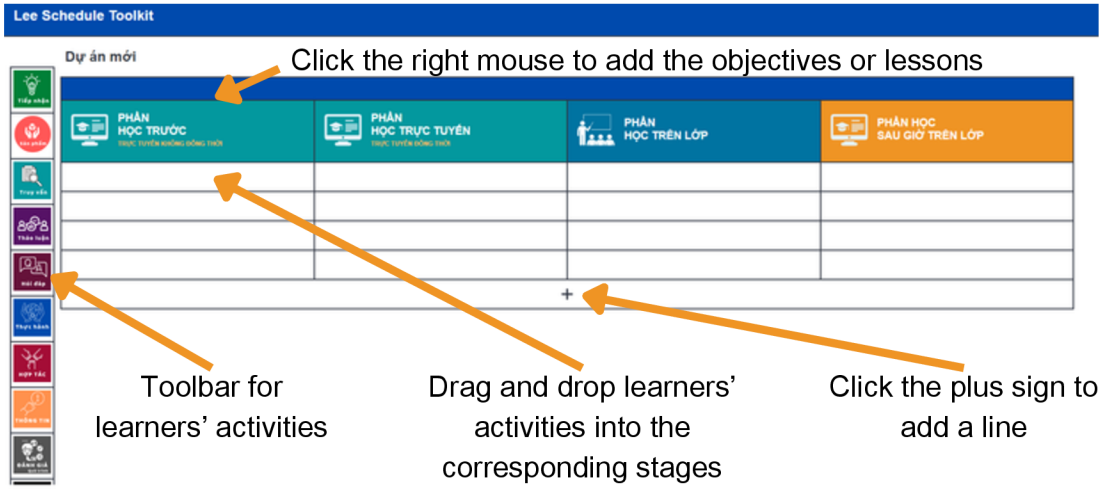
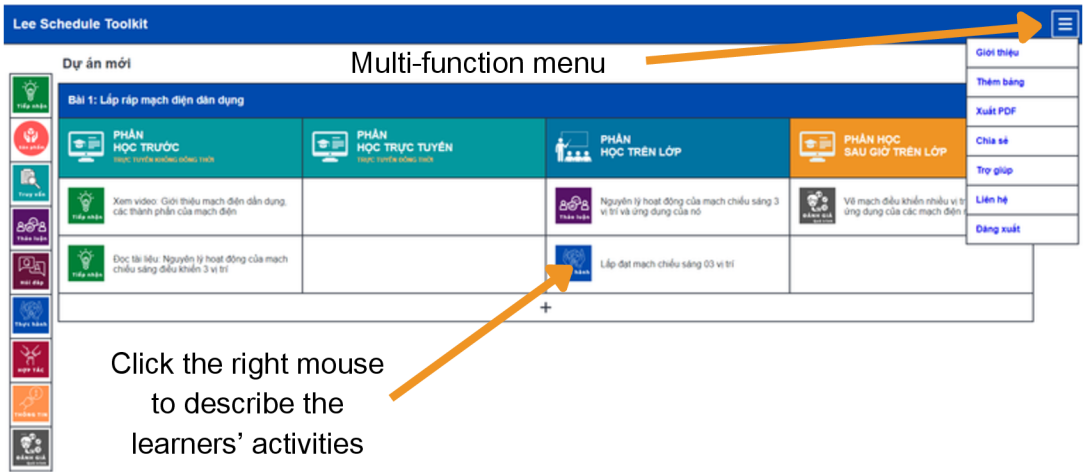
PRACTICE
DESIGN BLENDED COURSES

Application of software designing blended course

Software designing the blended course is built on the basis of learners' activities and the flipped classroom model, including three phases: pre-class phase, in-class phase, and after-class phase. Visit the following link to design https//www.

When accessing the software, users register an account, users can drag and drop learners' activities into the corresponding stages. To add content or customize activities, click the right mouse on the icons. The software interface is shown as shown below.

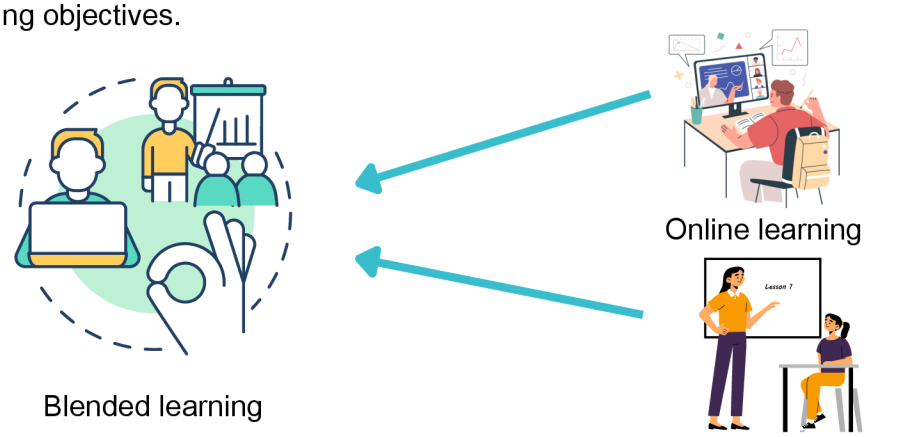




LESSON 5
INTERACTION IN BLENDED LEARNING COURSES

1. Introduction

Interaction is a critical element that helps maintain motivation and enhance learning outcomes. In blended learning courses, synchronous online interaction facilitates real-time exchanges between teachers and learners, while asynchronous interaction offers flexibility through forum discussions and self-directed learning. Additionally, in-person interaction in classes supports practice, group discussions, and assessments. The integration of these interaction modes fosters greater engagement, encourages learner autonomy, develops essential skills, and enables the effective achievement of learning objectives.



2. Interaction in synchronous online courses

A synchronous online course is an online learning activity where both teachers and learners participate in training activities at the same time (in real-time) in the same learning space. Effective interaction in a synchronous online classroom requires a combination of traditional pedagogical methods and modern technological tools.

Some interaction methods in synchronous online courses include:

Quick test

- Create small questions for quick test.
- Apply tools of Menti, Kahoot, Quizz...

Intermediate feedback

- Encourage learners to ask questions and engage in discussions through chat.
- Teachers will respond immediately or discuss later

Group discussion

- Divide the class into small groups to increase interaction and participation
- Use the group division feature in online platforms.

Game

- Create educational games / reward systems to encourage participation and motivate learners.

3. Interaction in Asynchronous online courses

In asynchronous online classes, interaction between teachers and students needs to be designed to ensure that learners still feel connected and engaged in the learning process.

Here are some effective interaction methods in an asynchronous learning environment:

Pre-recorded lectures (Interactive Videos): Provide pre-recorded lecture videos that learners can watch at any time. The inclusion of quick quizzes or short exercises after each section of the lecture should be done so that learners can assess their understanding.

Learning Resources: Provide a resource library including reference documents, videos, podcasts, and other additional documents being accessed at any time by learners. This helps learners to engage in self-directed learning and delve deeper into the course content

Conduct group assignments: Encourage learners to participate in group projects or assignments. Although the learning is asynchronous, learners can still collaborate utilizing online tools such as Google Docs, Slack, or Trello.

Discussion forums: Create online discussion forums where learners can post, ask questions, and discuss course content. The instructor facilitates and encourages the discussion, helping learners share their opinions and learn from each other.

Encourage feedback and self-assessment: Provide self-assessment exercises and ask learners to give feedback on the course. This not only helps learners evaluate their own progress but also assists the instructor in improving the course quality.

Query: Teachers provide topics and links, requiring learners to access, gather information, and then write a summary report through forums or sharing tools.

4. Interaction in Blended Courses

Blended courses are the combination of asynchronous online learning and face-to-face sessions, requiring careful interaction to ensure an effective learning experience. Theoretical knowledge is designed in an online environment and various interactive formats are applied for the asynchronous courses. Teachers use face-to-face classes to provide valuable opportunities for learners to ask questions, engage in group discussions, and receive direct guidance from the instructors.

Here are methods to enhance interaction in blended courses:

Pedagogical Intent in Face-to-Face sessions: Utilize face-to-face time to clarify complex concepts introduced online, engage in in-depth discussions, and conduct hands-on activities that benefit from direct interaction.

Combine online and face-to-face learning: Assign online readings or exercises to help learners prepare for deeper discussions or activities during face-to-face sessions. After face-to-face sessions, ask students to write reflections or online discussion posts connecting the online content.

Leverage Technology: In face-to-face sessions, utilize tools such as live polling or Q&A platforms to gather real-time feedback and encourage active participation from all learners.

Collaborative projects: Assign group projects requiring learners to collaborate online and meet in person, combining the flexibility of asynchronous learning with the immediacy of face-to-face collaboration.

Forums: Create discussion forums where learners can engage in thoughtful debates, ask questions, and share opinions at their convenience. This allows learners to reflect before participating.

PRACTICE
INTERACTION IN BLENED COUSES

1. Objectives

- Teachers design teaching and learning activities appropriate for blended courses.
- Developing the skills to select and organize effective interactive activities in a blended learning environment.

2. Practice contents

01

Select appropriate content and design online activities

- List the lesson content.
- Classification of online and face-to-face content
- Select the assessment part
- Select suitable digital tools for each format

Learning objectives:

.....

Online part	Face-to-face part	Assessment	Tools
....	....	....	....

02

Design interactions

- According to the content of each part, select the interaction method

Learning objectives:

.....

Contents	Online part	Face-to-face part	Tools
....	....	....	....

LESSON 6
DIGITAL TOOLS AND LEARNING OBJECTIVES

1. Choose digital tools that match your learning goals

Step 1. Classify digital tools by function:

Based on learning objectives, classify digital tools into different functional groups such as:

- **Communication and collaboration support tools:** Zoom, Microsoft Teams, Google Meet for learners to work in groups or exchange online.
- **Learning management support tools:** Google Classroom, Moodle help monitor learning process and provide documents.
- **Content creation support tools:** Canva, Google Slides help students create presentations or projects.
- **Assessment and testing tools:** Kahoot, Quiz help check and evaluate the learner's.

Step 2: Evaluating the suitability of the tool:

The evaluation should be done to a list of tools you have to check which tools are appropriate for the learning goals based on factors such as:

Ability to meet objectives: Does the tool help learners achieve the intended skill or knowledge?

- Easy of use: Is the tool user-friendly? Can learners easily use it without too much guidance?
- Compatibility: Is the tool compatible with the devices that learners and instructors use?
- Cost: Is the tool free or does it have affordable price?

Step 3: Review and Adjust

- Review the effectiveness of the tool.
- Adjust or change tools if necessary.

Learning objectives	Learning activities	Digital tools	Explaining the functionality
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

2. Integrating digital tools into teaching and learning activities

Integrating digital tools into teaching and learning activities is not simply about using new technologies, but also ensuring that they are applied effectively and seamlessly to improve the quality of learning. Based on the learning objectives, it is necessary to select tools appropriate for the teaching activities, then guide learners on how to use these tools. However, when integrating digital tools into teaching and learning activities, the following principles must be followed:

Diverse features:
Utilize technology tools integrating diverse features including text-to-speech, automatic captioning, and customizable interfaces to support learners with disabilities.
Ex: Zoom to support direct subtitle, Google Docs to read the content for the learners with vision impairment

Accessibility:
Ensure that all learners have the right to access equipment and internet connection to participate in online learning courses.
Create alternative methods for learners having no equipment, such as providing offline learning materials or organize learning courses at technology centers.

Suitable with all learners:
Allow learners to learn at their own pace and in their preferred style, such as rewatching video lectures and participating in out-of-class digital tools to align with their individual learning styles and needs.

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