ACTIVE LEARNING IN HIGHER EDUCATION

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Contents

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PREFACE

In the rapidly evolving 21st century, education is being redefined to prepare students for the future by developing their critical thinking, problem-solving, and collaboration skills. Active learning is at the heart of this transformation. While traditional teaching methods, often favored for efficiency and existing infrastructure, remain prevalent in higher education, factors such as diversified access to information, technological advancements, and changing student demographics have paved the way for student-centered approaches to gain prominence. The need to increase efficiency in education and improve the quality of learning are among the driving forces for innovations in teaching methodologies. Demographic changes experienced with globalization and the penetration of technology into all areas of life have forced educational institutions to transform, leading to more prominent student-centered learning approaches.

In its simplest sense, active learning is any method that actively involves students in the learning process. This approach is based on two basic principles: shifting the focus from the instructor to the student during the lesson and allowing students to perform higher-level cognitive tasks through active interaction. In traditional methods, instructors present ready-made information while students receive it passively. In active learning, students can question, process, and apply information. Especially in recent years, changes in student profiles, limitations in the focus processes of new generations, and the rise of online education have revealed the need to implement active learning methods in addition to traditional methods. Active learning supports students in internalizing information and developing their metacognitive skills. At the same time,

it encourages the development of both individual and professional skills through interactive strategies such as discussion, problem-solving, and group work.

Active learning is a process in which students take responsibility for their learning. It challenges them to utilize their mental abilities through complex instructional tasks and allows them to make decisions and self-regulate aspects of their learning. This approach not only enhances students' knowledge but also fosters the development of metacognitive skills by helping them internalize information. Active learning encourages students to think critically about the concepts they learn, apply that knowledge, assess their understanding, explain their ideas, and engage in interactions that lead to a deeper comprehension of the class material and improved study skills.

The active learning strategies not only impart professional and life skills but also encourage students to collaborate with their peers to share ideas, complete tasks, and solve problems. This approach positions students as active participants in their learning rather than passive recipients of information. As a result, they actively engage with questions and apply the material they learn. This deep engagement fosters a better understanding of the course content, moving beyond superficial learning, and enables students to implement their knowledge in real-world situations. Additionally, when students participate actively in the learning process, it makes their knowledge retention more robust, ultimately enhancing their academic performance and motivation. In addition, students' active participation in the learning process helps them develop the critical thinking, analytical skills, and collaboration skills necessary to succeed in today's complex and rapidly changing world.

Active learning, which paves the way for learners to develop problem-solving skills, also provides learners with real-time feedback. Students receiving real-time feedback allows them to use feedback to improve their learning processes. In this process, students make better sense of their learning and can achieve their own learning goals more effectively. These features make learning more meaningful and permanent. Another basic feature of active learning is the capacity to maximize student participation. Active involvement in the learning process encourages students to analyze information and engage in discussions about their questions. This approach allows them to apply what they have learned in practice. When students take responsibility for their learning, they develop the ability to guide their educational journey. This active participation enhances self-regulation skills and strengthens the motivation needed for lifelong learning. Furthermore, when students have greater control over their learning experiences, their education becomes more personalized and meaningful.

In the active learning process, the instructor takes on the role of a guide and facilitator, leaving the traditional role of transferring information. In this new role, the instructor creates learning environments that allow students to discover their learning processes and supports students in this process. The instructor guides students, directs questions, provides feedback, and encourages students to take an active role in the learning process. This approach requires the instructor to adopt a student-centered teaching approach and establish a more interactive relationship with students. In active learning, the instructor creates an environment that offers students learning opportunities while also providing the necessary

support to overcome the difficulties encountered in the learning process. For active learning to be effectively implemented, learning environments must be designed to support this approach. Active learning classrooms should encourage student interaction and collaboration. The layout should be flexible to facilitate group work, and various technological tools should enhance this process. Additionally, digital platforms can provide students with easy access to information, reinforce what they have learned, and promote collaborative learning environments. It is also essential for active learning environments to ensure that students feel safe and supported, both physically and emotionally. Such environments empower students to engage confidently in their learning processes and to take charge of their own education more effectively.

Therefore, this book is a guide on how to use active learning strategies in higher education. The book aims to help instructors effectively implement these strategies by providing various practical examples along with the theoretical foundations. The book consists of four main sections. The first chapter discusses methods for capturing students' attention and ensuring their active participation at the beginning of the lesson. It includes both theoretical insights and sample applications. The second chapter focuses on increasing student interaction during lessons. It offers suggestions for group work, case studies, and practical activities. The third chapter examines activities that can be implemented at the end of a lesson to reinforce and evaluate students' learning. Finally, in the fourth chapter, technology-supported active learning activity examples are included. It provides both theoretical information and sample applications. This book serves as a comprehensive resource

for instructors who wish to explore the potential of active learning strategies and understand how these approaches can positively impact the classroom environment. Its primary goal of this book is to engage students in their own learning by encouraging them to think critically about meaning, application, and analysis. This approach allows students to generate ideas, test them, share their findings, and learn to give and receive constructive criticism. By taking responsibility for their learning and the methods they use to learn, students will be able to build a strong foundation for lifelong learning. Therefore, the book emphasizes the importance of exciting and relevant learning experiences that involve active student participation in the teaching process.

Asst. Prof. Dr. Ozlem Kurt
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February 2025

CHAPTER 1

WARM-UP ACTIVITIES

Marija Stevkovska

INTRODUCTION

Warm-up exercises prepare the body for physical training in the same way as warm-up activities get students' minds into learning mode. The former is essential for enhancing sports performance, while the latter makes students more focused and receptive to new information (McGowan et al., 2015). If we were to compare the language classroom to a football pitch or an athletic track, we would not expect our students to enter the classroom and immediately start doing the main reading, writing, listening, or speaking activity according to our lesson plan. Just as sports people, learners should be allowed to take some time to prepare for the activity they are to be engaged in.

Typically, lessons consist of three main phases: introduction, main phase or body, and conclusion (Izuagba, 2012; Savage, 2014). Warm-up activities are part of the introductory phase. Despite the latest trends in higher education that promote active learning, lecturing has been the predominant teaching method across universities (Brockliss, 1996; Børte et al., 2020). Such teacher-centered lectures lack warm-up activities at the beginning of the lesson and do not allow students to be properly introduced into the lesson.

The Benefits of Warm-up Activities

Both students and instructors benefit greatly when a lesson begins with a warm-up activity. Learners are introduced to the topic of the lesson in a spontaneous way, which motivates them to focus and become engaged in the learning process (Velandia, 2008). Additionally, students' prior knowledge is

activated, and they can relate the topic to what they have been previously taught (García & Martín, 2004). Since memorizing and repetition are necessary for certain (language) skills to be acquired, instructors who regularly employ warm-up activities establish a routine that enhances the development of these skills. The greatest advantage of warm-ups for instructors is that they usually require minimal preparation.

A question for the instructors: Think about the best instructor you had at university. Did he/she use any warm-up activities in each class? Can you remember any? Which one(s) did you like best? How did they help you stay active in class?

Types of Warm-up Activities

Several terms are used across the literature to refer to activities that are utilized at the beginning of a lesson: stirrers, energizers, settlers, ice-breakers, warm-ups, warm-up activities, warmers, classroom openers, lesson starters, bell ringers, hooks, brain teasers or brain warm-ups. Below is a description of each of these terms:

- *Stirrers or energizers*: activities that activate students physically or mentally and make them feel excited (Brewster et al., 2002). Stirrers usually refer to Total Physical Response-type tasks, which involve some kind of physical movement. Clinical data and anatomical studies indicate that 'moderate exercise enhances cognitive processing' (Jensen, 2005, p. 67).
- *Settlers*: refer to activities that help students to calm down or settle so that they can focus on the next activity (Clark, 2024). Settlers are designed to have the opposite effect of

stirrers and are particularly useful for young learners who are noisy before the lesson starts. Settlers include drawing, word games, manual activities, or silent reading.

- *Ice-breakers*: activities employed in the first few classes at the beginning of a course or session that allow students to get acquainted with one another. Using ice-breakers can help students become less stressed and cooperative while creating a relaxed and friendly classroom environment (Deering, 2011).
- *Warm-ups, warm-up activities, warmers, classroom openers, or lesson starters*: a general term for any activity used at the start of a lesson, the aim of which is either to revise before introducing students to a new topic or to attract students' attention and help them concentrate on the lesson.
- *Bell ringers*: tasks students do as soon as they enter the classroom. The task is typically written on the board, or students are given a handout. The aim of bell ringers is to settle learners and help them focus on the class.
- *Hooks*: activities designed to grab students' attention once a lesson has begun. This can be done by asking a provocative question or presenting an unusual fact, which is intended to arouse students' interest and curiosity.
- *Brain teasers or brain warm-ups*: they activate the brain and stimulate it to think creatively and focus better. Typical brain teasers include riddles, word games, and puzzles.

Features of Warm-up Activities

- *Short* - Since they are used at the beginning of a lesson, warm-up activities should last between 5 to 10 minutes so that they do not take away much of the time planned for the other stages of a lesson.
- *Simple to explain* – Warm-ups are brief, therefore long and complicated instructions are unnecessary.
- *Gripping* – Warm-up activities should be interesting to students to motivate them to participate. This involves using relevant content, which is related to the lesson topic, and engaging for all students.
- *Diversified* - Different activities should be used in almost every lesson to avoid predictiveness, which ultimately leads to boredom.
- *Low-stake* - The activities are generally designed as a lead-in. Students are not assessed, which reduces pressure and fear of making mistakes.

EXAMPLES OF WARM-UP ACTIVITIES

Brain-Teaser

A Y F M H K N

Materials: A marker and a board

Procedure: The instructor writes the following letters on the board *A Y F M H K N* and asks the students which letter does not belong to the group of letters.

Answer: The letter *M* does not belong because one needs four strokes to write it, while the other letters are written using 3 strokes.

When to use it: The activity can be used with learners of all ages and departments (if used with university students) as a general brain-stimulating activity.

Alternative: The instructor could ask the students to design a similar riddle. They could replace the letters with other letters written with three or four strokes. Alternatively, they could write four-stroke letters with the odd-one one being a two or three-stroke letter.

Classroom Opener

warm-up

words, activity, rapport, mystery, unwind, pressure, and strategy.

Materials: A marker and a board

Procedure: The instructor writes a word on the board related to the topic of the lesson and asks students to brainstorm words related to the topic, starting with each letter in the word. For example, if the word is warm-ups, possible words could be: words, activity, rapport, mystery, unwind, pressure, and strategy. Each student may come to the board and write a word in case they need some movement.

When to use it: Before introducing a new topic or to revise terminology or content from the previous lesson.

Alternatives:

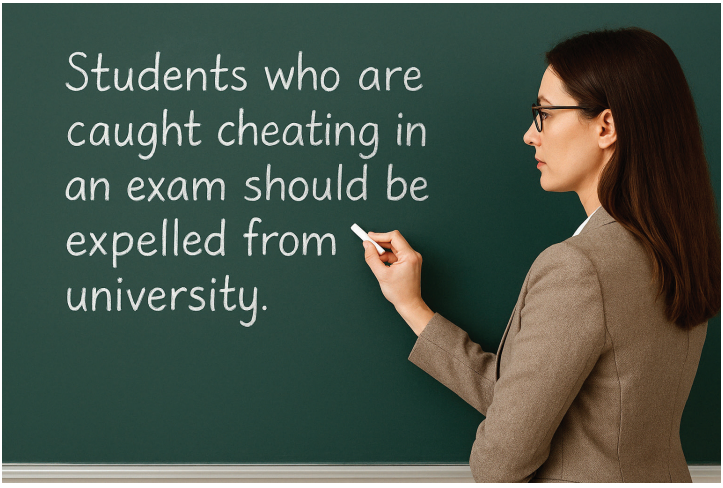
- The instructor may ask a student to come to the board and write a word related to what was taught in the previous lesson.
- The instructor may write a scrambled word and ask the students to unscramble it before brainstorming words beginning with each letter of the given word.
- The instructor may use the chapter (course) title and ask students to write down words related to the chapter.
- In case there is no board in the classroom, the activity can be done online. The instructor could use mentimeter.com to create a presentation with a slide-type Word cloud and share the code with the students, who would then be able to type words.

Hook

Materials: A marker and a board or a computer screen

Procedure: The instructor writes a provocative question on the board or shows students an unusual image. The question or image should reflect current events that students can relate to, e.g., a local festival, a new film, a sports event, political or economic issues, or global events. The topic may not necessarily be related to the lesson material.

When to use it: The instructor could use this hook to grab students' attention if he/she has noticed that the students are distracted at the beginning of the lesson. Additionally, a dose of humor would liven up the atmosphere in the classroom.



Alternatives:

- Instead of a question or an image, the instructor could play an Instagram or TikTok reel and invite the students to share their opinions on it.
- The instructor could assign students a homework assignment from the previous lesson to find or to take themselves an interesting image related to the lesson topic or a video reel they would like to share and discuss with their classmates. Students' assignments could be used as a warm-up activity instead of the teacher finding a provocative question, image, or video.

Stirrer

Materials: Plastic Kinder eggs, paper strips, a marker, and a board.

Procedure: The instructor writes words on paper strips and puts them in Kinder Eggs. Prior to the lesson, he/she hides the eggs around the classroom. At the beginning of the lesson, students are divided into teams, and they start looking for the eggs. After finding all the eggs, all the students who have an egg open it and explain the word(s) to their team members. The instructor, or a student from the opposing team, writes the answers on the board to keep track of the words the team has guessed. The team that managed to guess more words is the winner.

When to use it: This activity can be used for revision of previously taught terms/vocabulary or checking students' understanding of new concepts.

Alternative: To make the activity more dynamic, there can be a certain time limit. A student from the opposing team may act as the timekeeper.

Brain Teaser

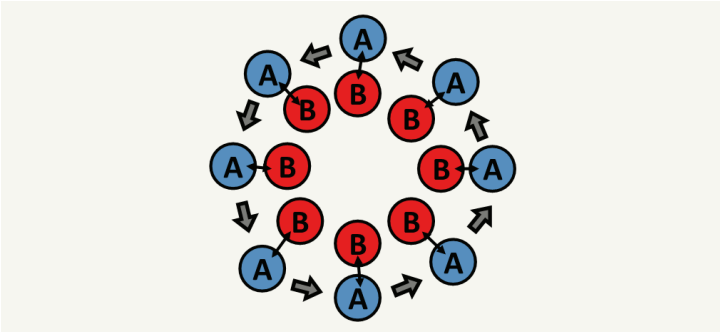
	A	B	C
1	planet	merchandise	access
2	Earth	commerce	connection
3	globe	import-export	cyberspace
Column A/B/C word	WORLD	TRADE	INTERNET
Final word	**GLOBALIZATION**		

Materials: A marker and a board

Procedure: The instructor draws a table on the board with six rows and four columns, as shown in the image. Then, he/she divides students into teams and they choose a field alternatively. In each turn, the instructor writes a word in a field the team has chosen, and students try to guess the word associated with the other words in the particular column or the final word, which is related to the words from columns A, B, and C. The team that has guessed more words is the winner.

When to use it: This word associations game can be used to revise vocabulary or to introduce students to a new topic by using the words/terms that would be taught during the lesson.

Alternative: Ask students to prepare a word associations game at home and try it out with their classmates at the beginning of the lesson.



Energizer

Materials: Free classroom space

Procedure: The instructor divides students into two teams. Team A are the members of the outer circle, while Team B students are standing in the inner circle, each of them facing a student from the outer circle. The students in the inner circle do not move. Those standing in the outer circle move to their right until they make a full circle and return to their initial position. Students in team A are given a list of several words, depending on the number of students in the class. Each student explains the word to the member of Team B. Once he/she has (or hasn't guessed the word), the student moves to his/her right and explains another word to another student from Team B.

When to use it: A wheel in a wheel is a TPR activity you can use to stir students and revise previously taught terms. It could also be used as a background knowledge probe to gauge students' familiarity with certain topics and receive feedback on how acquainted they are with the lesson topic.

Alternative: Team B could move instead of Team A, or after Team A has made a full circle, they can change positions with Team B students.

Ice-breaker

Find at least one thing in common with the people in your class:

- Do you do sport? Do you like football?
- What languages do you speak?
- Do you have any children?
- Do you have any hobbies?
- Do you like travelling? What countries have you visited?
- Do you like cooking?
- Do you have a pet?
- What kind of series/films do you like watching?

Materials: A handout with questions

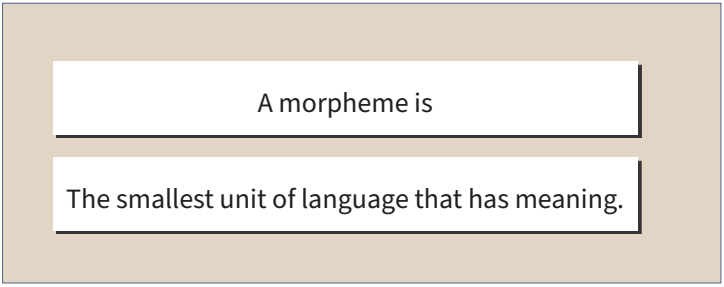
Procedure: The instructor tells the students to walk around the classroom and talk to as many people as they can in 3 minutes in order to find out at least one thing they have in common. Then, the handouts with possible questions are distributed. After the time is up, each student reports to the class what common things they have found to have with some of their classmates.

When to use it: This activity can be used at the beginning of a course or a training session. It is particularly useful if the students do not know each other because they can meet and talk to most students in the class. The activity can be repeated at the beginning of the first few classes until students learn each other's names and basic information about their classmates.

Alternative: Different questions can be prepared, depending on the lesson when the activity is used.

- Students may be asked to write two truths and a lie about themselves. Each student reads the statements while the others guess which statement is false.
- Students can interview several classmates in three minutes and write down their short bio. The instructor gives each student a card with the questions and students need to write the answers.

Mixed-up Sentences



Materials: Strips of paper

Procedure: Depending on the number of students, the instructor organizes students to work individually, in pairs, or in groups. Students are given strips of paper, and they must match the two halves and form a sentence, which could be a definition of a term they have previously studied/will study during the lesson.

When to use it: The activity could be used at the beginning of a revision lesson, especially before an exam, to revise important concepts. It could also be used to introduce new concepts and check students' previous knowledge of those concepts.

Alternative:

- Instead of definitions, famous quotes could be written on paper strips.
- Students could be asked to match a term to a definition.
- The definitions could have a word missing, so the students would have to match the word to the definition.

Another Stirrer

Materials: No materials needed.

Procedure: The instructor tells students to stand up. Everyone says a word on a certain topic and sits down. If someone cannot think of a word, he/she has to continue standing up until all the students have had their turn.

When to use it: To revise key vocabulary or concepts. The activity helps students be physically active, particularly if they have already had several classes and have been sitting for a long time.

Alternative:

- All the students are sitting down while saying a word, and those who cannot think of a word have to stand up.
- Instead of a word, students might be asked to provide a definition, an explanation, or an example of something. For example, the teacher may ask the students to give examples of words with prefixes.
- Students may be asked to say words on a certain topic, starting with each letter of the alphabet.

Settler

Materials: A board and a marker

Procedure: The instructor writes a statement on the board and asks students to write a paragraph or a single sentence expressing their opinion on the topic. After 3-4 minutes, students exchange their notebooks and write whether they agree or disagree with what their classmate has written.

When to use it: If students are very noisy or agitated at the start of a lesson, this activity would help them calm down, relax, and focus.

Alternative:

- Instead of a statement, students could be asked to answer a question they may have on the exam.
- The teacher may write a question related to the material that will be taught in the lesson to check students' previous knowledge on the topic.

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CHAPTER 2

ENHANCING INTERACTIVITY IN THE CLASSROOM

Marijana Klemenchich

Introduction

Interactivity in education is defined as the active engagement and dynamic exchange of information between students and teachers, which fosters collaborative learning and participation (Anderson, 2003). Interactivity is critical to learning (Blasco-Arcas, 2013). It has been widely demonstrated that by increasing interactivity in the classroom, we can significantly improve students' learning outcomes (Beauchamp & Kennewell, 2010). Student-teacher interaction is one of the most influential factors in learning (Beauchamp & Kennewell, 2010), and when classrooms are interactive, students become more engaged, more participative, and more motivated to learn (Caldwell, 2007). Class interaction is seen as a means of obtaining an impartial evaluation of teacher-student interaction in the classroom and an examination of successful teaching (Tsui, 2008).

There are different types of interaction in the classroom:

Teacher-Student Interaction: Direct communication and engagement between teachers and students, including discussions, feedback sessions, and question-answer interactions.

Student-Student Interaction: Collaborative learning activities where students interact with each other, share ideas, and work together on projects or assignments.

Interactive Multimedia: Educational materials incorporating interactive elements such as videos, animations, simulations, and quizzes, allowing learners to actively engage with the content.

Interactive Whiteboards: Digital presentation tools that enable real-time interaction and manipulation of content, facilitating dynamic classroom discussions and demonstrations.

Online Discussion Forums: Virtual platforms for asynchronous communication and collaboration, enabling students to engage in discussions, share resources, and ask questions outside of class.

According to Bradbury (2016), the average attention span of a student during lectures is 10-15 minutes, and it has more to do with the teacher than the actual student. So, how should teachers combat the short attention spans correlated with the learning environment? The answer is creating an interactive and engaging learning system in our classrooms. According to Oluwajana, "the main purpose of interactivity among students in the class is to help increase student engagement, and their

feedback will help promote learning outcomes" (Oluwajana et al., 2019, p. 1).

According to Yuldashevna, (2019), the main goals of interactive learning are:

- stimulation of educational and cognitive motivation;
- development of independence and activity;
- fostering analytical and critical thinking;
- formation of communication skills;
- self-development of students.

In the classroom, the interactive communication on the instructor's side is intentional, and the interaction is goal-oriented. The interactive methods are based on the principles of interaction, student activity, reliance on group experience, and mandatory feedback. An environment of educational communication is created, which is characterized by openness, interaction of participants, equality of their arguments, the accumulation of joint knowledge, and the possibility of mutual assessment and control. The teacher and the trainer, along with new knowledge, lead the participants in the study to an independent search. The activity of the teacher gives way to the activity of students, his task is to create conditions for their initiative. The instructor refuses the role of a kind of filter that passes educational information through himself and serves as an assistant in the work, one of the sources of information (Yuldashevna, 2019).

Features of an Interactive Classroom

In an interactive classroom the students and teachers actively collaborate, exchange ideas, and drive the learning process together. Classroom engagement is fundamental to the success of the teaching and the learning processes. An interactive classroom goes beyond traditional teaching methods by actively involving students in their learning process. It transforms the learning environment into a dynamic space where students engage with the content, collaborate with peers, and participate in meaningful discussions.

Creating an interactive classroom is about fostering an environment where students are actively engaged and motivated to participate in their learning journey. By implementing interactive strategies, instructors can enhance student engagement, promote collaborative learning, and ultimately improve learning outcomes.

An interactive classroom is characterized by its dynamic and engaging environment where students and teachers actively participate in the learning process. To create such a classroom, several key features are essential. These features contribute to fostering a more engaging, collaborative, and effective learning experience.

Key Features of an Interactive Classroom

a. Dynamic Layout and Design

In the interactive classroom, the desks should be arranged in a way that facilitates group work. The students should have their own space where they can freely discuss with their classmates and the seating arrangement should allow this. In addition, there should be so-called interactive spaces, which are designated areas for different types of activities, such as a discussion zone, project area, and technology station. Such seating arrangement and interactive spaces in the classroom would enhance the interactivity in the classroom. The students would feel comfortable and safe, and this will allow more interaction among students.

b. Technology Integration and Engaging Content and Resources

The interactive classroom should have Interactive whiteboards or smartboards which would engage students with multimedia presentations, real-time annotations, and interactive exercises. The students should be allowed access to Educational Technology Tools such as tablets, and educational apps that facilitate real-time feedback, interactive quizzes, and collaborative tasks should be a part of the interactive classroom. The integration of technology in the classroom allows students to be more interactive and engaged in the learning process. The teacher should incorporate multimedia resources, such as videos, interactive simulations, and educational games, to make content more engaging and accessible in the classroom.

c. Active Learning Strategies and Collaborative Learning Environment

Collaborative Activities that require active student participation, such as debates, role-playing, and simulations that make learning more engaging and practical, should be designed and used in the classroom. The instructor should implement strategies such as group projects, peer teaching, and team-based problem-solving tasks to encourage student collaboration and interaction. Group work and discussions should be a part of an interactive classroom. This will facilitate opportunities for students to work in groups, share ideas, and engage in discussions. Collaborative learning helps students learn from each other and develop learning and leadership skills. Peer-to-peer interactions through structured activities and collaborative

projects encourage students to learn from their peers and contribute to group success in the classroom.

d. Real-Time Assessment and Feedback

In the classroom formative assessment should be implemented more often, which means that student understanding of the material will be regularly assessed through interactive methods. The teacher should give immediate feedback to the students and has to use tools and techniques that provide instant feedback on student performance, such as online quizzes, polls, and interactive assessments. Real-time assessment and feedback are crucial in improving the students' performance in class.

e. Inclusive and Supportive Atmosphere

The interactive classroom should foster an environment where all students feel comfortable to participate and to sharing their ideas. The teacher should provide support and encouragement to help students build confidence and engage fully in the learning process. By incorporating dynamic layouts, technology, active learning strategies, and a student-centered approach, teachers can enhance student participation, collaboration, and overall learning outcomes. Embracing these features not only makes the classroom more interactive, but it also supports a more effective and enriching educational experience for all students.

Examples of Interactive Strategies and Activities

Strategies for Promoting Classroom Interaction

According to Jia (2013), there are five strategies for promoting classroom interaction. They are as follows:

- **Improving Questioning Strategies**: The attention of the instructor to the learners can activate the instructor-learner interaction. The instructor should ask the questions that can be answered by the learners then the teacher adapt his questions to the levels or abilities of the learners.
- **Attending to Learners' Linguistic Level**: The activities should offer different language level to different learners. The used material reflects the unique needs of those learners at the level they have reached.
- **Implementing Cooperative Learning**: Working cooperatively can help in the development of learner's social skills. Cooperative learning means that every member of the group is included and differences among group members are resolved by the group members.
- **Building Positive Teacher-Learner Rapport:** Mutual respect between instructor and learners is essential part of education. The dynamic qualities of classroom learning need the responsible from both instructor and learner.

- **Reducing Classroom Anxiety:** The instructor helps the learners to boost their self-esteem and self-confidence and create comfortable and non-threating environment (Jia, 2013, p. 211).

Active Learning refers to instructional methods that engage students in the learning process by involving them actively in the construction of knowledge, rather than passively receiving information. It encompasses a broad range of teaching strategies designed to promote critical thinking, problem-solving, and the application of knowledge.

Key types of active learning strategies include:

- **Collaborative Learning:** Students work in groups to discuss concepts, solve problems, and complete projects. Examples include think-pair-share, jigsaw activities, and group projects.
- **Problem-Based Learning (PBL):** Students learn by solving complex, real-world problems. PBL encourages the application of knowledge and critical thinking skills.
- **Case-Based Learning:** Similar to PBL, this strategy involves analyzing real-life cases to apply theoretical knowledge to practical situations.
- **Inquiry-Based Learning:** Students formulate questions, investigate to find answers, and build new understandings. This approach fosters curiosity and independent learning.
- **Flipped Classroom:** Traditional lecture content is delivered outside of class (e.g., through videos), while in-class time is used for interactive activities, discussions, and hands-on learning.

- **Simulations and Role-Playing:** Students engage in simulations or role-playing activities to experience and understand complex concepts or scenarios.
- **Interactive Lectures:** Lectures are interspersed with activities that require student participation, such as polls, quizzes, or group discussions. Interactive activities are essential for creating a dynamic and engaging classroom environment.

These activities not only enhance student participation but also foster deeper learning and collaboration. This section provides a variety of interactive activities that can be implemented in the classroom to support active learning and student engagement. Interactive activity in the lessons involves the organization and development of dialogue communication, which leads to mutual understanding, interaction, to joint solution of common, but significant, for each participant tasks.

Examples of Interactive Activities

Think-Pair-Share

In this activity, students think individually about a question or topic given by the instructor, then pair up to discuss their thoughts with a partner, and finally share their insights with the larger group. The benefits of this activity are that it encourages individual reflection, peer discussion, and active sharing of ideas, enhancing understanding and communication skills. This activity allows students to first think and gather their thoughts about a certain topic and then share with a partner. They feel self-confident after this practice and are confident enough to speak in front of the class or in front of a larger group of students.

Materials: None

Procedure:

1. The instructor asks a question or presents a topic to the class. *Ex. Do you think social media has a positive or negative impact on society?*
2. Students individually think about their response for a couple of minutes.
3. They then pair up with a partner to discuss their thoughts.
4. Then, the instructor invites pairs to share their insights with the class.

Jigsaw

In this activity students are divided into small groups, with each group assigned a different segment of a topic to research and become experts on. They then come together to share their findings and piece together the complete topic. The benefits are that it promotes collaboration, fosters expert knowledge on specific parts of a topic, and encourages students to learn from each other.

Materials: Research materials (books, articles, internet access)

Procedure:

1. Students are divided into small groups. Each group is assigned a different segment of a topic to research (e.g., different aspects of climate change).
2. Groups work independently to become “experts” on their assigned segment.

3. Afterward, students come together in new groups, each containing one member from each original group, and share their findings.
4. The new groups work together to piece together the full picture of the topic.

Role-Playing

This activity has many options how to be conducted, and one way is to assign different roles to students related to a particular scenario and act out their roles to explore different perspectives and outcomes. The benefits are that it enhances empathy, encourages critical thinking, and allows students to engage with content in a practical and memorable way.

Materials: None (or props depending on the scenario)

Procedure:

1. The instructor presents a scenario (e.g., a school debate about a new policy).
2. Students are assigned different roles related to the scenario (e.g., students, instructors, administrators, parents).
3. Each student acts out their role, presenting arguments or responding to others based on their character's perspective.
4. Afterward, students discuss how they felt in their roles and reflect on the different viewpoints.

Case Studies

The case study activity present students with a real-world case or problem to analyze and solve. Students work in groups to discuss the case, develop solutions, and present their findings. The benefits are that it develops problem-solving skills, encourages analytical thinking, and connects theoretical knowledge to practical applications.

Materials: Case study materials (written case, videos, etc.)

Procedure:

1. The instructor presents a real-world case or problem (e.g., a city facing traffic congestion issues).
2. Students work in small groups to analyze the case, discuss possible solutions, and develop a plan of action.
3. Each group presents their findings and solutions to the class.

Interactive Quizzes and Polls

The interactive quizzes and polls are a way to use technology tools like clickers or online quiz platforms to conduct quizzes and polls during lessons more often. Students respond in real-time, and results are immediately shared. The benefits are that it provides instant feedback, keeps students engaged, and helps instructors assess understanding quickly. It also motivates the students to be engaged and focused.

Materials: Clickers or online quiz/poll platforms (e.g., Kahoot, Mentimeter)

Procedure:

1. The instructor prepares a set of questions related to the lesson (e.g., multiple-choice or true/false questions).
2. Students respond in real-time using clickers or an online platform.
3. Results are instantly shared with the class, sparking discussion or allowing for clarification.

Group Projects

The group projects require students to work in teams to research, create, and present a project on a given topic. Projects can include presentations, posters, or multimedia content. The instructor can assign a topic or students can choose by themselves in the groups. The benefits are that it encourages teamwork and collaboration, it enhances research and presentation skills, and allows creative expression.

Materials: Research materials, presentation tools (PowerPoint, poster supplies, etc.)

Procedure:

1. The instructor assigns or allows students to choose a topic related to culture (e.g., traditional festivals around the world).
2. Students work in teams to research, create, and design their project (presentation, poster, or multimedia).
3. Groups present their findings to the class, showcasing their research and creativity.

Debates

The debates enable students to research and argue different sides of a given statement or topic. The debates can be organized so that students debate individually or in teams. The students research and prepare well and present arguments and facts when debating. The benefits are that debates develop critical thinking, public speaking skills, and the ability to construct and defend arguments.

Materials: Controversial statements (written or on slides or the board)

Procedure:

1. The instructor presents a statement (e.g., "Social media does more harm than good").
2. The instructor divides the students in 2 groups. One group prepares arguments to defend the statement standing point and the other group provides counter arguments. The students have around 20 minutes to prepare arguments in their groups. The students can use online resources to research.
3. The students take turns to present their arguments and counterarguments

Peer Teaching

In the peer-teaching approach students teach their peers, thus providing a collaborative and interactive learning experience for the students. It promotes a dynamic and effective learning environment, and it enables students to learn from one another. Peer teaching is an instructional strategy in which students are responsible for teaching their peers, thereby facilitating learning in a collaborative, non-hierarchical environment. A major benefit of peer teaching is that it allows learners of English to practice their language skills in an authentic context, thus helping peer instructors and learners to develop fluency and confidence in speaking English. This approach enables the students to put into practice all the theory that they have learnt throughout the years of study and to implement their knowledge in the classroom.

Materials: None (or materials relevant to the topic being taught)

Procedure:

1. The instructor assigns what a student should teach (e.g., explaining grammar rules or teaching a specific vocabulary).
2. Students take turns teaching their peers about the topic.
3. After each peer teaching session, students give each other feedback.

Gallery Walks

The gallery walks enable students to create visual displays or posters on different topics and set them up around the classroom. Students then walk around to view and discuss the displays. They can present their posters to the classmates and the teacher or to a broader audience. The benefits are that it encourages active participation, allows for diverse presentation styles, and facilitates peer feedback.

Materials: Poster paper, markers, or digital tools for creating visual displays

Procedure:

1. The instructor assigns topics to students or groups (e.g., different cultural customs around the world).
2. Students create visual displays or posters showcasing their research.
3. Once the displays are set up around the classroom, students walk around to view each other's work, discussing the content.
4. Students can present their posters to the class or receive feedback from peers.

Benefits of Interactivity in the Classroom

Maximizing interactive learning has many well-researched benefits and is essential for creating a dynamic and effective learning environment in the classroom. By interacting with peers and the instructor, students can learn to express themselves, receive immediate feedback, and build confidence in

developing their knowledge and skills in the relevant field. Interactive classrooms provide numerous benefits to both students and teachers. Some of the benefits include:

a. **Increased Engagement**: The student engagement is increased, because learning is more interactive. Interactive activities encourage students to actively participate in the class activities. The interactive strategies stimulate student interaction, reduce passive learning and increase classroom engagement. Interactive activities help them grasp complex concepts more effectively by allowing them to apply and explore ideas actively.

b. **Enhanced Collaboration and Better Preparation for the Real World**: With an interactive classroom, students are able to work together more effectively on projects and assignments. This promotes teamwork and collaborative skills that are essential for success in the real world. Working together on tasks helps students develop communication, problem-solving, and interpersonal skills essential for academic and professional success. Interactive classrooms better prepare students for the real world by teaching them essential skills such as teamwork and collaboration. These skills are essential for success in any field.

c. **Higher Achievement Levels**: Students achieve higher achievement levels in the interactive classrooms compared to the traditional classrooms, due to the increased engagement and collaboration that takes place in an interactive classroom.

d. **Greater enjoyment of learning**: Students in interactive classrooms generally enjoy learning more than those in

traditional classrooms. This is likely due to the increased engagement and overall more positive learning experience in an interactive classroom (Yuldashevna, 2019).

e. **Critical Thinking and Problem-Solving:** Interactive strategies that involve real-world scenarios and case studies encourage students to think critically and develop problem-solving abilities. Analyzing and discussing various viewpoints during interactive activities helps students enhance their analytical and evaluative skills.

f. **Enhanced Retention:** Active participation and repeated engagement with the content improve information retention and recall. Interactive methods, such as quizzes and peer teaching, reinforce learning and help students retain knowledge over time.

g. **Increased Student Confidence:** Providing opportunities for students to actively participate and share their ideas can boost their confidence and self-efficacy. Interactive activities that encourage student contributions create a more inclusive and supportive classroom atmosphere.

h. **Enhanced Teacher-Student Relationship:** Engaging with students through interactive methods fosters stronger relationships between instructors and students. A more interactive classroom environment allows instructors to better understand students' needs, interests, and learning styles.

Conclusion

Interactivity in the classroom is more than a teaching strategy; it is a transformative approach that enhances the learning experience by actively engaging students. Implementing interactive methods can lead to numerous benefits, fostering a more effective and stimulating educational environment.

Incorporating interactive activities into the classroom creates a more engaging and participatory learning environment. These activities not only enhance student involvement but also support the development of critical skills such as collaboration, communication, and problem-solving. By integrating a variety of interactive activities, instructors can make learning more dynamic and effective, fostering a richer educational experience for all students.

The benefits of interactivity in the classroom are manifold, impacting student engagement, learning outcomes, and the development of essential skills. By incorporating interactive strategies into teaching practices, instructors can create a more dynamic and effective learning environment that supports student success and fosters a positive educational experience. Embracing interactivity not only enhances the learning process but also prepares students for the collaborative and problem-solving demands of the future.

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CHAPTER 3

SUMMARIZING ACTIVITIES

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Introduction

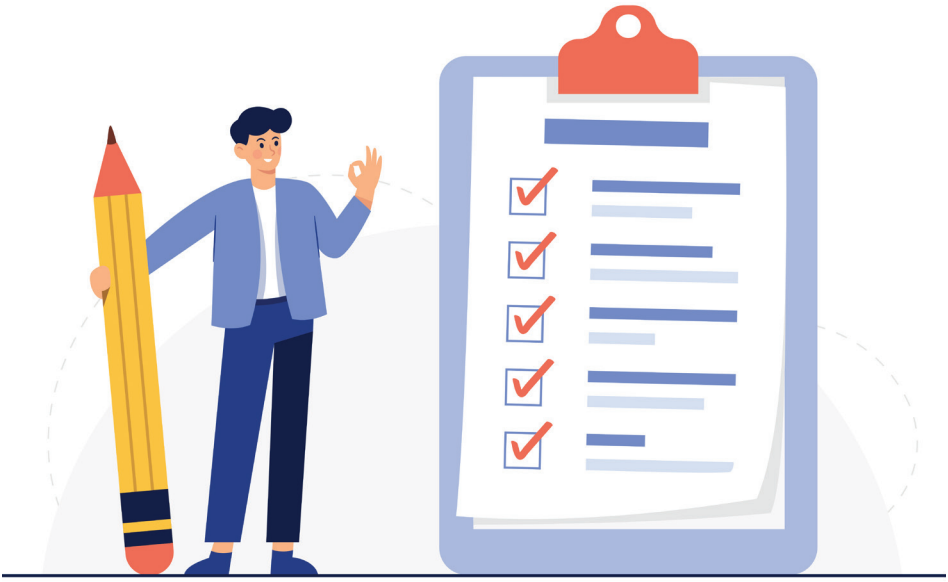
In the flow of the instruction process, the introduction and the main part are followed by the ending of the lesson or the closure. Closure refers to the conclusion of the lesson, signaling that all activities have been completed, thus providing a sense of completion.

The term closure refers to "those actions or statements by teachers that are designed to help students bring things together in their own minds, to make sense out of what has been going on during the course of the lesson" (Shostak, 2011, p. 98).

During the lesson, the teacher presents lots of information and may employ different activities. From the instructor's perspective, they are related and make sense to the instructor, but the same does not necessarily apply to the students. For this reason, the instructor should consciously plan and use activities that will help the students to understand how all presented information is related and to tie up all components together in one whole, like connecting the pieces of a puzzle into one big picture.

The closure of the lesson is important for the process of learning and has the following purposes:

- **Drawing attention to the end of a lesson segment** – focusing students' attention on the fact that the class approached to its end.



- **Reinforcing key concepts learned in the lesson** – the purpose is to focus students' attention on the main ideas presented in the class. This helps students retain important information and increases the possibility of this information being recalled and used later.
- **Understanding relations between presented information** – helping students to get deeper insight into how key concepts and main ideas are related.
- **Consolidating the learned material** – connecting all components covered through the lecture in one meaningful whole and integrating it into the existing knowledge base.

These purposes of closure as a stage in the instruction process can be effectively achieved through summarization and appropriately designed summarizing activities.

Summarizing

In the instruction process summarizing can be done by the instructor or by the learner.

When used by the instructor, its purpose is to provide the students with a framework of the topic covered in the lecture and to underline the key points. When this is done by the student, it can be seen as a learning strategy that includes complex cognitive processes and requires significant intellectual effort by the learner.

When summarizing, the learner needs to find the main ideas in the presented material (lecture, text of instructional video), decide on which information is important, exclude unnecessary details, and organize everything into one coherent whole (Pearson, 2000). Through summarization, students learn the practice of extracting and rephrasing the most important information from a text or lecture.

From here, the main aim of summarizing is:

- to help students organize the presented information
- to understand relationships between information.

In the flow of instructional activities, summarization can be carried out as a requirement for students at the end of the lecture to summarize into one paragraph the idea or concept that was discussed or to give a brief explanation of the key term that was explained.

In this way, the output of summarization would usually be a brief statement in which the key points of the material are presented in condensed form, expressed by using own words to

present the main idea of the topic or concept. Performed in this manner, summarization helps in the organization of information and processing it on a deeper level, which helps to remember it better (Santrock, 2018).

Cognitive Processes and Summarization

Summarization enhances learning and comprehension by involving various cognitive processes:

- Learners engage in both analytical thinking (focusing on key points and details) and holistic thinking (emphasis on understanding the overall context and seeing the big picture);
- Is a key metacognitive strategy where students "think about their thinking". This occurs while students monitor their understanding and identify areas they have understood or areas that need more exploration in order to grasp the main points fully (Santrock, 2018);
- Has a comprehension-fostering function that leads to deeper processing and, thus, better understanding of the content;
- Contributes to the retention of the information in long-term memory and
- It is much more effective compared to passive listening in which learners don't make a significant effort to manipulate the information.

Once the students have organized the new information, they should be guided to connect it to their prior knowledge. This integration into their existing knowledge base helps create a

larger conceptual network. As a result, recalling this information when needed becomes much easier and more effective. This network becomes stronger with rehearsal and revision, so "the more one rehearses and reviews information, the stronger the interconnections become" (Rosenshine, 2012, p.8).

Benefits of Summarizing

The following are the benefits of using summarization for the learning process:

- Identification of key points in the learning content
- Distinguishing important information from irrelevant details
- Integration of central ideas in a meaningful way
- Expressing the contents in own words and deeper comprehension
- More efficient retention of information

In addition to summarizing, there are several other ways to convey information briefly and concisely. They include:

- **Retelling** - recounts the story with more details.
- **Paraphrasing** - involves restating information in own words while keeping the original meaning.
- **Synthesizing** – combines information from multiple sources to create a new understanding or interpretation.

The main differences between all these are in the detail level and how the information is interpreted.

Generative Learning Activities

When done effectively, summarizing is a generative process (Wittrock & Alesandrini, 1990), which means that learners create (generate) new sentences by using their own words and experiences. These new sentences do not appear in the original material and help to connect the newly presented concepts to learners' prior knowledge and experiences. By summarizing in their own words, learners automatically build connections between the new material and their existing knowledge, as these words are linked to information that is already stored in the learner's memory.

This describes the process of generative learning, which involves "making sense" of provided learning material by actively organizing and integrating it with one's existing knowledge

(Wittrock, 1989; Fiorella, 2023). Three primary modes help learners actively make sense of new information: explaining, visualizing, and enacting. By engaging in visualizing and enacting, learners mentally organize and simulate the learning material, and through explaining, they articulate and generalize it (Fiorella, 2023, p.1).

In their studies, Fiorella and Mayer (2015) identified and analyzed generative learning activities (GLAs) that explain what learners do to try to make sense of what they are learning. They identified eight GLAs: summarizing, mapping, drawing, imagining, self-testing, self-explaining, teaching, and enacting. They suggest that how effective these GLAs will be will depend on learner characteristics, characteristics of the material, and the support learners receive in their application, which underlines the need for appropriate guidance in their application.

One framework which explains the sense-making process is the interactive-constructive-active–passive (ICAP) framework (Chi & Wylie, 2014). It distinguishes four types of cognitive engagement based on learners' observable behaviors during learning. Passive engagement involves no active behavior, like following a lecture or watching an instructional video. Active engagement involves behavior that shows selective attention to parts of the learning material, such as paraphrasing and summarizing. Constructive engagement involves constructing meaning of the material by making inferences, like generating self-explanations or creating concept maps, and Interactive engagement involves behaviors that show an effort to co-construct meaning across other learners, as in peer tutoring or

collaborative learning environments. According to this framework, higher levels of engagement result in better learning outcomes. This framework is presented as an example of how various activities can be used to make sense of the material presented during lectures.

Recommendations for Practice

When summarization and other strategies are applied, it is beneficial to explain to students how these techniques can support the learning process. By using the strategies actively on a regular level during classes, students benefit by learning how to apply and use them later in the process of self-regulated learning (Pressley & Harris, 2008). This not only enhances the teaching process but also contributes to improving students' metacognitive regulation skills.

Another useful practice is visualization. Asking students to generate their visual representation of the contents, which will show connections between information, helps in better conceptual organization and understanding of inferences (Ainsworth & Loizou, 2003) and facilitates internal self-explanation. All these processes ensure deeper comprehension and better learning outcomes, but only when both visual presentation and self-explanation are included in the process (Bobek & Tversky, 2016).

Examples of Summarizing Activities

Exit Ticket

Materials: Pen and paper or pre-prepared cards

Description: At the end of the lecture, students are asked to summarize in one paragraph the most important thing presented during the class. Students hand in the exit ticket before leaving the classroom.

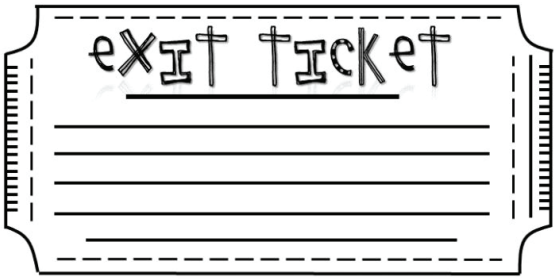


Image 1: Example of exit ticket card

Why to use it:

This activity helps the students to extract the key points of the lesson and helps them to condense the material. Other benefits are:

- Retention of contents is reinforced by asking the students to condense/summarize the most important points of the lecture;

- Students are required to reflect on their learning and assess one's self-efficacy, thus ensuring accountability.
- Instructors receive valuable feedback on students' comprehension of the topic from two aspects (if students can determine the key idea/topic of the lecture successfully; if they have understood it correctly or whether there are some misconceptions).

Alternatives

- Alternative 1: Students can be required to explain a specific key concept, theory, or procedure explained during the lecture.
- Alternative 2: Students can be required to think about how the contents learned in the class are relevant and can be used in everyday life. This encourages the applicability of learned content.

Tip: provide the students with a handout with the question they are required to answer. In this way, the exit ticket can be used for monitoring students' class activity and for formative assessment.

One-Minute Paper

Materials: Pen and paper or pre-prepared cards

Description: Students are required to answer instructor-posed questions related to the lecture. They have one minute to answer the question.

Note: In the one-minute paper, the focus is on a specific lesson content which is determined as the most important by the

instructor, whereas in the exit ticket students are required to recognize the key lesson content.

Why to use it: This is a laser-focused strategy, which focuses students' attention on one lesson segment. It is result-oriented and encourages producing the correct answer.

Alternatives: Students can be required to give one example of application of learned content in practice, to offer solution to a problem, to list strengths or weaknesses of one theory.

Why to use it: These alternatives enhance creativity, higher-order and problem-solving thinking.

Tip: One minute paper can start as an individual activity where every student should offer one solution or creative idea and continue as a group work where more ideas are brainstormed and shared.

Three-Two-One Exit Slips

Materials: Handout or pen and paper

Description: This activity requires students to:

- Recall 3 things they have learned;
- Ask/Inquire 2 questions they still have related to the lesson content;
- Choose/name 1 thing from the lesson content that interested them the most.

Why to use it:

- By focusing on things students have learned, the retention of content is encouraged;

- Asking additional questions helps students delve into the content and supports curiosity;
- Outlining topics that interest students helps instructors to get to know the students better and serves for further differentiation according to students' interests.

Tip: Provide the students with a handout for this activity. The handout can be used for monitoring class activity and formative assessment.

3	Things I learned today	
2	Questions I still have	
1	Thing that interested me	

Image 2: Example three-two-one exit slip card

One Sentence Summary

Materials: Pen and paper

Description: Students are required to summarize the lesson content in one sentence that will incorporate answers to What/When/Where/Why/How questions in a creative way.

Why to use it: This activity asks students to consider and focus on the most important points of the lesson and encourages creativity.

Tip: Provide the students with cards with the topic written. Later, the cards with the one-sentence summary can be used for course review.

Alternatives:

Haiku poem: Students can be required to write a Haiku poem on the lesson content.

This poem consists of 17 syllables, organized in three lines. The first and third lines contain 5 syllables each, while the middle line contains 7. This activity requires students to be familiarized with the content and forces them to summarize it creatively.

Tabloid titles: Students should write a tabloid-style headline that will present the discussed concept. The title can be written in a manner that will raise a dilemma among the audience and/ or encourage critical thinking.

Application to Major

Materials: Pen and paper

Description: Students are required to write how the content they have learned applies to their area of study.

Why to use it: Helps students to understand how the contents from the common course relate to their field of study, by emphasizing applicability of knowledge, which in turn motivates the students to learn.

Benefit: This is useful for common courses and large groups of students

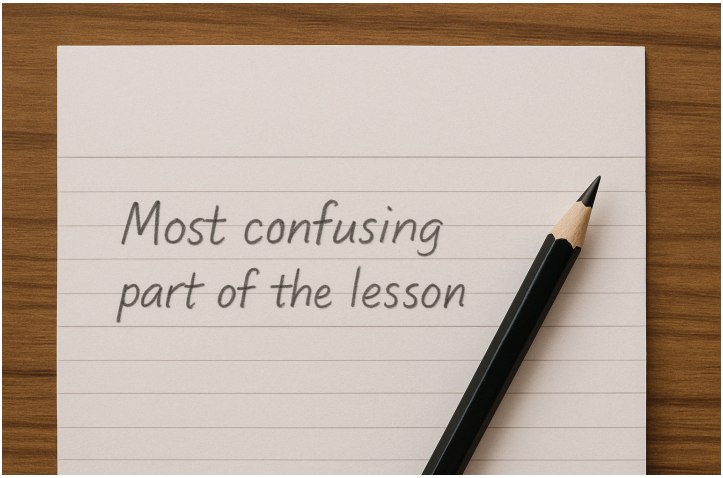
Muddiest Point

Materials: Pen and paper

Description: Students are asked to think about and write which part of the lesson was most confusing for them. After this, when students share the "muddiest point" instructor clarifies their questions.

Why to use it: This activity helps the instructor to diagnose which contents need to be explained more or for which different approaches should be used. It also supports reflective teaching enabling the instructor to adapt his/her teaching approaches to students' needs and requests.

Tip: When sharing, the instructor can encourage other students to explain the confusing part. Through explaining, students who understood the topic strengthen their knowledge. This also supports peer learning and enables the instructor to detect possible misconceptions.



Word Journal

Materials: Pen and paper or pre-prepared cards

Description: At the end of the class, the instructor requires students to reflect on lesson contents and choose one new term/word that was covered. Students need to explain the meaning of the term, using their own words.

Why to use it: When students need to explain the meaning of the term in their own way, comprehension of the learned topic is encouraged.

Benefits: Words that students have chosen to explain can provide valuable insights for the instructor in helping to understand which explanations and examples used in the lecture were good and effective and which should be modified.

Tip: Word journals can be kept throughout the whole semester and used for the review.

Alternative: Course journal

After every class, the instructor can request students to make a short summary of the covered topic. This should include one paragraph in which the student will summarize the most important contents of the lecture, ensuring that this summary is not only a listing of mentioned topics/issues but rather an explanation of one key concept learned during the class. Writing a summary supports the comprehensive-fostering function and can serve as a good resource for course review.

One-Two-Three

Materials: Pen and paper or pre-prepared cards

Description: At the end of the lecture, students are required to make a summary of the lecture contents, following 3 steps:

1. To explain one key idea or concept that was explained during the lecture
2. To write 2 keywords for the lesson contents covered that day
3. To share this content with a group of 3 students.

Why to use it:

- This activity encourages knowledge at the level of comprehension because students need to explain the main idea of the discussed topic.
- Sharing the contents in a group with other students supports peer learning. Additionally, when the student is sharing what he/she has learned, their knowledge of the topic becomes better, and they develop mastery.
- In this process, self-evaluation is supported, enabling students to evaluate the quality of what they have learned and detect possible gaps, which in turn can be overcome with the knowledge of other group members.

Benefits: The time allocated for sharing can be used by the instructor to explain any additional questions or clarify unclear issues.

Tip: At the end of the activity, the whole class can summarize their cards and create lecture notes which students can use for reviewing the material.

Four Square Summary

Materials: Pre-prepared cards

Description: Students are given 4 key terms related to the lecture. They are required to make one sentence that will summarize the lesson contents, including all 4 terms.

Why to use it: This activity encourages condensed thinking on the topic, helping the students to "Wrap-up" the whole lecture and improving their summarization skills.

Tip: Students should be provided with a template for this activity

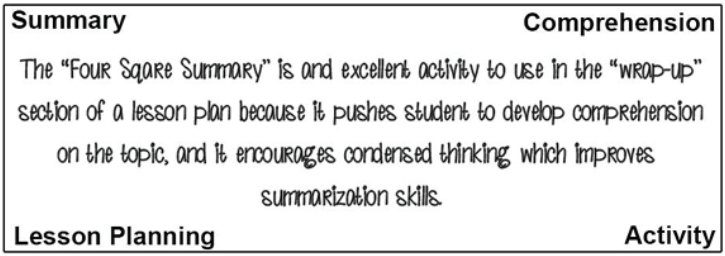


Image 3: Example of four-square summary

Concept Map

Materials: Pen and paper or pre-prepared cards

Description: This activity is organized through the following steps:

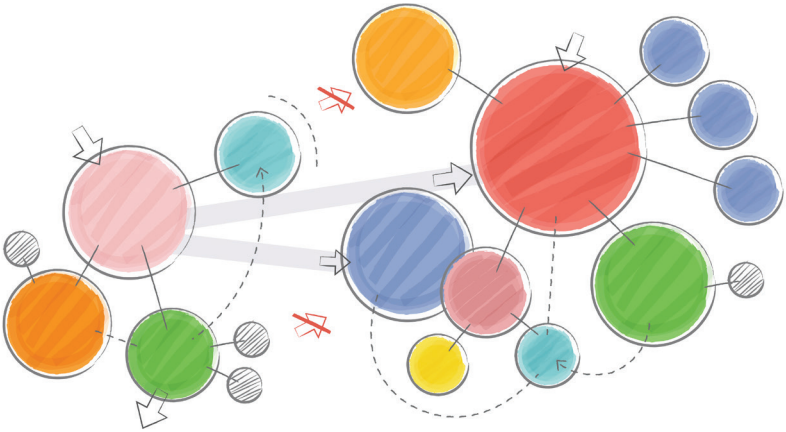
1. At the beginning of the lecture, students are required to make a concept map related to the lesson content, based on their previous knowledge.

2. The instructor continues with the lecture and explains the contents using the usual teaching approach.
3. Students are required to upgrade their concept map by adding the new contents they have learned during the lecture, indicating the relations between them.

Why to use it:

- students can visually see how their knowledge is enlarged;
- connecting old with new knowledge is encouraged;
- cause-and-effect relations are easily understood;
- potential misconceptions or wrong cause-and-effect relations can be detected.

Tip: Concept maps can be used for fast review and summarization of the course contents.



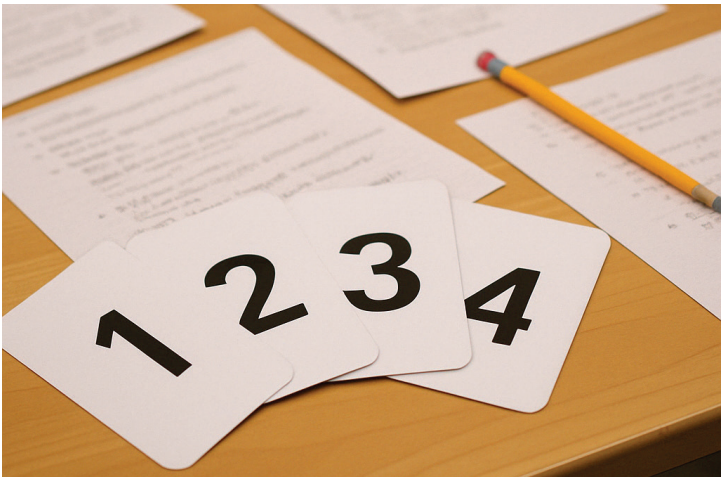
Extra Activities for Review

Numbered Heads Together

Materials: Pen and paper or pre-prepared cards

Description: This activity is organized through the following steps:

1. During the review class, the instructor lists key topics, terms, or concepts covered in the course / or pre-prepared cards are distributed to the students;
2. Every student writes the explanation individually. Students should be given more time, depending on the complexity of the given topics;
3. Groups (3-5 students) are formed, and each student is assigned a number;



4. Group members discuss their explanations and are expected to come to a mutual agreement and explanation that is acceptable to every member. They also need to ensure that every student in the group can give the correct answer.
5. The instructor calls a number and the member of the group who is assigned that number should explain one term.
6. The instructor continues to call other numbers until all listed contents are explained. While sharing the answers, it should be ensured that all groups have understood the contents correctly.

Why to use it: This activity reinforces better comprehension of the contents and supports peer learning.

Tip: Numbered Heads Together can also be organized as a competition, with groups collecting points for giving the correct answers.

One Slide Review

Materials: Slide or image

Description: At the end of the semester, the instructor prepares one slide in which the key topics, terms, and contents covered in the course are presented, and relations between them are indicated. The focus should be on summarizing how course contents are related, thus enabling the students to consolidate and put all the pieces/contents of the course together. Here the use of graphic organizers and visual prompts can be useful in helping the students to comprehend better the connection between the topics and ideas.

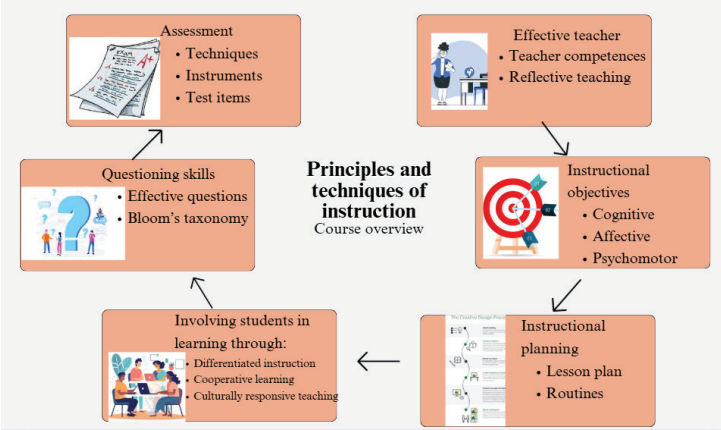


Image 4: Example of course overview

Alternative: Students can be requested to make this summary by themselves.

Why to use it: By presenting the key topics in one slide, students will be able to easily understand how course contents are related, and how each topic upgrades and supports the network of knowledge related to the specific course.

Order in Chaos

Material: Pre-prepared cards

Description:

- Give the students the key concepts and terms covered throughout the semester written in separate cards;
- Ask students to organize the cards in a coherent structure that will represent the connection between the key concepts. This will engage the students in re-considering the

interconnectedness of the key topics and will enhance a deeper understanding of the material.

- Then require students to write brief explanations for each of the concepts on the cards. This will reinforce the recalling of information, encourage better comprehension, and enable self-assessment, providing the students with the opportunity to assess how well they have learned the material.
- Ask students to share their explanations with other students and provide positive feedback when deserved.

Why to use it: This activity strengthens the knowledge network related to the course contents and provides an opportunity for self-assessment.

Benefits of Summarizing Activities for the Assessment Process

Besides ensuring effective teaching and active learning during the instruction process, the benefits of summarizing activities for assessment should also be emphasized.

Various summarizing activities applied throughout the semester can be used for summative assessment because they will provide evidence of students' overall active participation in class activities.

Analyzed individually, they support the formative assessment, since they provide information on the process of learning of the individual student, in terms of the level of acquired knowledge or any shortcomings or misconceptions. These activities can also serve as a basis for giving quality feedback to the students, which will enable improvement in the process of learning.

Conclusion

The activities presented in this chapter offer a plethora of ideas for instructors to use during the closure part of their lectures. These summarizing activities help students organize and consolidate the information presented, thereby enhancing retention and recall. One of the main advantages of these activities is their simplicity. They require no additional materials and take only a few minutes of instruction time. Despite their simplicity, they significantly enhance deeper comprehension and understanding, leading to better learning outcomes. When used creatively, these activities can also create a positive classroom atmosphere and provide students with enriching learning experiences.

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CHAPTER 4

TECHNOLOGY-ENHANCED ACTIVE LEARNING

Ozlem Kurt

Introduction

Along with globalization, technological advancements have significantly transformed teaching and learning environments, making them more dynamic and interconnected than ever before. The rapid advancement of technology has not only transformed the landscape of education but has also reshaped the way students interact with course content, instructors, and peers. Traditional, lecture-based teaching methods are increasingly being supplemented or even replaced by interactive, technology-enhanced approaches that foster student-centered learning. These approaches leverage digital tools and online platforms to create more engaging, collaborative, and personalized learning experiences. Technology-enhanced learning does not merely involve the use of digital tools; rather, it represents a pedagogical shift where technology is integrated strategically to promote active participation, critical thinking, and knowledge construction. When used effectively, technology facilitates deeper student engagement by providing real-time feedback, encouraging collaboration beyond the classroom, and offering multiple modes of content delivery to accommodate diverse learning styles.

The integration of technology into teaching processes is becoming increasingly important due to the enriching learning environment it creates. Research indicates that technology enhances the quality of education by linking learning to real-life situations (Lowther et al., 2008). Additionally, it makes learning environments more practical (Dwyer et al., 1991; Sheingold & Hadley, 1990; Warschauer, 2000). Recognizing the

diverse learning abilities and environments of individuals, educators utilize technology to foster more effective learning experiences (Dickinson & Bass, 2020). In learning environments prepared in a virtual environment, students can progress according to their characteristics, and feedback can motivate students to learn and provide teachers with information about students (Melo et al., 2020).

The benefits of using technology in learning and teaching activities can be listed as follows:

- An appropriate learning environment is designed by considering the individual differences of the students and learning is supported.
- It offers interactive and dynamic content to the students.
- It creates common working environments by providing students with the opportunity to collaborate.
- It ensures the active participation of the students in the lesson and motivates them.
- It provides alternative learning methods and provides more objective evaluation opportunities.

Pedagogical Foundations of Technology-Enhanced Active Learning

The changing social life and educational environment significantly affect the determination of 21st-century educator skills. In addition to pedagogical expectations, the intense feeling of the impact of technology on the learning environment has made it important for educators to closely follow technology and related changes. When it comes to the skills that instructors need to acquire in the 21st century, critical thinking, problem-solving, communication, collaboration, creativity, and leadership are among the top skills, while some concepts, such as effective guidance, character development, and professional ethics, also stand out (Gümüş, 2019). Recent studies have shown that if instructors have good problem-solving skills in a technologically rich environment, students' problem-solving skills are also good (OECD, 2019).

In the 21st century, educational institutions need to be prepared to train students who can compete in the dynamic global market. In the global classrooms of the 21st century, it should be aimed to transform the pedagogical skills of instructors with innovative strategies. Instructors and students should use digital technologies and digital learning environments. 21st-century instructors need to be open to technological developments. If the instructor is not up to date, he/she cannot establish a strong bond with the student and cannot understand him/her. Instructors should work efficiently for the digital native generation so that future generations can be

better educated. Digital immigrant instructors should be more proficient in technology to close this gap. Thus, instructors will be able to work efficiently in the profession for a long time. It is not enough to just know teaching techniques and follow technology to prepare students for the future. The important thing is to be successful in integrating technology into the curriculum.

Integration is not putting computers in the classroom without instructor training or aimlessly introducing application software such as electronic encyclopedias, spreadsheets, databases, etc. Technology integration is using computers effectively and efficiently to enable students to learn how to apply computer skills in meaningful ways. Integration is integrating technology in ways that enhance student learning. Reasons for integrating technology into education include: greater depth in content-area curriculum; the need for more technological learning in the information age; students are motivated by technology;

students can move beyond information (application and analysis); students are in an information-rich world; and students can develop computer literacy by applying various computer skills as part of the learning process (Dockstader, 1999).

The effective integration of technology in teaching and learning requires a deep understanding of the evolution of learning theories and how contemporary interpretations of learning within a technological context manifest. The fundamentals of educational learning theories, as described by Zhou and Brown (2015), establish a foundation for educational pedagogy that considers the evolution of technology over three generations. These generations include cognitive behaviorists, social constructivists, and connectivity (Anderson, 2009).

Behaviorists view learning as the acquisition of new behaviors through stimuli and responses, emphasizing a highly structured, teacher-led approach often associated with some form of reward (Pavlov, 1927; Skinner, 1938). This theory provides limited opportunities for student-led activities and active learning. In contrast, the work of Bruner (1960) and Vygotsky (1978) on learning theories highlights how technology can foster an active learning environment through discovery and problem-solving. Bruner's social constructivism and Vygotsky's sociocultural theory assert that knowledge is constructed within a social context through interaction with a community of knowledge. Nowadays, this community interaction heavily relies on technology, as evident in various social media platforms and applications.

Constructivism focuses on learning as an active process where the learner discovers and explores while the teacher facilitates.

Knowledge is not merely a commodity to be transmitted, encoded, retained, and re-applied, but a personal experience to be constructed through a process of cumulative and iterative learning (Papert, 1980). Technology does not change this knowledge creation but enables and enhances the process.

Technology plays a crucial role in facilitating active learning. Internet technologies are essential for the work of Siemens and Downes, as they are based on the concept of connectivity. This concept, which is central to connectivism learning theory (Downes, 2012; Siemens, 2005a, 2005b), emphasizes the importance of fostering connections through student networks, collaboration, and participation. These technologies provide learners with the opportunity to create and share content across various platforms, including web browsers, blogs, social media, and virtual learning environments. Instead of focusing solely on memorization or comprehension, learners are encouraged to develop skills for finding, filtering, and applying knowledge.

The TPACK Framework (Technological Pedagogical Content Knowledge)

The effective integration of technology in education depends on factors such as the purpose and method of technology integration. According to Koehler & Mishra (2005), there are three core components in the heart of good teaching with technology: content, pedagogy, and technology, plus the relationships among and between them. The interactions between and among the three components, playing out differently across diverse contexts, account for the wide variations seen in the extent and quality of educational technology integration (p. 62).

Based on this, they proposed the TPACK framework, which emphasizes the interplay between three key components in technology-integrated teaching:

- Technological Knowledge (TK) – Understanding how to use digital tools effectively.
- Pedagogical Knowledge (PK) – Knowing the best teaching methods to facilitate learning.
- Content Knowledge (CK) – Mastery of the subject matter being taught (Koehler & Mishra, 2005, p. 63).

For successful technology integration, instructors must balance these three components, ensuring that technology enhances learning rather than simply replacing traditional methods.

Examples of Technology-Enhanced Active Learning Activities

Collaborative Concept Mapping

Digital Tools and Materials: Padlet, Miro, Jamboard, MindMeister, a device (smartphone, tablet, or computer), Internet access, a shared document, or an interactive board

Description: The instructor provides students with a central concept or topic related to the course. Students, working individually or in groups, use Padlet or Miro to create a concept map that illustrates relationships between different subtopics. They add text, images, links, and videos to enrich their maps. Each group presented their map, explaining their connections and thought processes. The class collaboratively refines and expands the concept maps.

Why to Use: Enhances critical thinking by encouraging students to analyze and synthesize information. Supports collaborative learning and encourages discussion. Helps visual learners by presenting concepts in an organized manner.

Whent to Use: It can be used as a preliminary organizer at the beginning of the course, as a teaching material in the development part of the course, and for both summary and evaluation in the conclusion part of the course.

Alternative: Instead of Padlet/Miro, students can also use Google Docs (text-based mind maps).

Real-Time Class Polls and Quizzes

Digital Tools and Materials: Mentimeter, Slido, Kahoot, Poll Everywhere, Nearpod, devices (smartphone, tablet, or computer), Internet access

Description: The instructor prepares a set of questions on the course topic using Mentimeter/Kahoot/Nearpod. Students access the poll via a QR code or link and respond in real time. The instructor displays live responses, facilitating a discussion on the results. Incorrect answers lead to further explanation and concept reinforcement.

Why to Use: Encourages active participation in large classes. Provides instant feedback on students' understanding. Creates a fun, competitive learning environment.

When to Use: It can be used in the introduction of a course to assess students' readiness levels or to activate their prior knowledge. It can also be used in the conclusion of a course to determine the level of students' achievement of their learning objectives before moving on to the next stage of the course and to review the topics covered in the conclusion of the course to improve students' learning levels.

Alternative: For open-ended discussions, one can use Slido instead of Kahoot. Google Forms can be used for self-paced quizzes.

Video-Based Discussions

Digital Tools and Materials: Flipgrid, Edpuzzle, YouTube, pre-selected video content, and student devices with cameras (optional)

Description: The instructor assigns a short video related to the lesson (e.g., a case study, TED Talk). Students watch the video and post video responses on Flipgrid discussing their insights. Students are required to comment on at least two peers' responses. The instructor provides summary feedback and highlights key takeaways.

Why to Use: Enhances critical thinking through reflection. Supports asynchronous participation, giving students more time to formulate responses. Encourages oral communication skills.

When to Use: It is likely to be used at the beginning of the lesson to attract students' attention, provide motivation, and test their prior knowledge. It can also be used during the lesson to process the subject in more depth, generate ideas, and make analysis. On the other hand, it can be used at the end of the lesson to reinforce the information learned and for students

to express themselves. It is likely to be used to establish a relationship with previous topics and to measure students' holistic thinking skills.

Alternative: Use Edpuzzle to embed interactive quizzes within the video. Instead of Flipgrid, students can record audio responses on Vocaroo.

Peer-Reviewed Assignments Using Google Docs

Digital Tools and Materials: Google Docs, Microsoft OneDrive, Peergrade, rubrics for peer assessment

Description: Students write a short paper or essay and upload it to Google Docs. Each student is assigned two peer reviews, providing constructive feedback using comments. The instructor guides students on how to give high-quality feedback. Final submissions are revised based on peer feedback.

Why to Use: It develops analytical and feedback skills. Encourages active engagement with course material. Promotes a collaborative learning culture.

When to Use: It is used to evaluate students' products such as a project, presentation, written text, poster or drama activities.

Alternative: Moodle Workshops can automate the peer review process. Microsoft OneNote allows handwritten annotations.

Gamified Learning with Escape Room Challenges

Digital Tools and Materials: Genially, Breakout EDU, Google Forms, digital puzzles/questions

Description: The instructor creates a themed digital escape room using Genially or Google Forms. Students solve subject-related puzzles to progress. The challenge can be individual or team-based. The instructor facilitates reflection on problem-solving strategies.

Why to Use: Promotes active problem-solving and collaboration. Increase motivation through gamification. Strengthens time management skills.

When to Use: It can be used at the beginning of a lesson to attract students' attention and prepare them for the lesson. Also be used as an end-of-term review activity as it allows students to review a topic in a fun and interactive way.

Alternative: Use physical breakout kits for an in-person version. Kahoot Missions for interactive quizzes in a challenge format.

Interactive Case Study with Branching Scenarios

Digital Tools and Materials: H5P, Twine, Articulate Storyline, case study materials (text, video, images)

Description: The instructor creates a digital case study where students must make decisions at key points. Students explore multiple outcomes based on their choices, using interactive tools like H5P or Twine. Each choice leads to a different scenario, encouraging students to analyze the consequences. A class discussion follows to reflect on the best decision-making approaches.

Why to Use: Encourages problem-solving and critical thinking. Provides an engaging, real-world learning experience. Enhances decision-making skills through scenario-based learning.

When to Use: It can be used when students do long-term studies on a case that deepens and branches over time in their term projects or problem-based learning processes.

Alternative: Use Google Slides to create a clickable decision tree. Instead of H5P, present the case study using discussion boards as Google Classroom.

Digital Storytelling and Multimedia Presentations

Digital Tools and Materials: Canva, Adobe Spark, Microsoft Sway, Storybird, student-generated multimedia content

Description: Students create a digital story related to course content using Canva, Adobe Spark, or Storybird. They incorporate text, audio, video, and animations to narrate a concept. Presentations are shared with classmates, and peer feedback is provided. The instructor evaluates storytelling techniques and conceptual understanding.

Why to Use: Encourages creativity and narrative skills. Supports multimodal learning by integrating visuals, text, and sound. Develop presentation and digital literacy skills.

When to Use: By allowing students to create their own stories during the reinforcement and application stages of the course, their creative thinking and transferring skills can be developed.

Alternative: Use PowerPoint or Google Slides for simpler presentations. Allow students to create video documentaries instead of static stories.

Interactive Peer Teaching with Digital Whiteboards

Digital Tools and Materials: Miro, Microsoft Whiteboard, a device (laptop, tablet) for collaboration

Description: The instructor assigns different subtopics to small student groups. Each group creates an interactive lesson using a digital whiteboard (Microsoft Whiteboard, Miro). Students add diagrams, text, links, and images to explain their topic. Groups teach their topic to the rest of the class using their digital board. The instructor provides feedback and facilitates discussion.

Why to Use: Promotes peer teaching, which reinforces learning. Enhance collaboration and creativity. Allows students to visualize concepts in an interactive, digital format.

When to Use: It can be used at stages where students can explain the outcome they are planning to achieve or at stages where they give feedback to their classmates.

Alternative: Use Google Slides for structured presentations. Use Padlet instead of a whiteboard for more text-based collaboration.

Podcast-Based Learning and Reflection

Digital Tools and Materials: Audacity, Soundtrap, microphones or smartphones for recording

Description: Students work in pairs or small groups to research a topic. They write a script and record a short podcast episode discussing key concepts. The podcasts are shared

with classmates, who listen and provide feedback. The instructor holds a post-listening discussion where students reflect on what they learned.

Why to Use: Encourages deep learning through storytelling and discussion. Develop communication and research skills. Provides a creative alternative to traditional essays or presentations.

When to Use: It can be used in the pre-lesson phase of the courses where the Flipped Classroom will be implemented.

Alternative: Instead of podcasts, students can create short video explainers (TikTok, Instagram Reels format).

Collaborative Infographic Creation

Digital Tools and Materials: Canva, Piktochart, Venngage, Google Drive, or Microsoft OneDrive for collaboration, course-related data, statistics, or key concepts

Description: The instructor assigns students a complex topic or dataset related to the course. In small groups, students research and identify key points, statistics, and visual elements for their infographic. Using Canva, Piktochart, or Venngage, they collaboratively design an infographic that summarizes their findings. Each group presented their infographic to the class, explaining their design choices and the main takeaways. The infographics are shared on Google Drive or Padlet for future reference.

Why to Use: It develops visual literacy and information synthesis skills. Encourages teamwork and creativity. Provides a concise, visually appealing way to present complex concepts.

When to Use: It can be used during the lesson to structure newly learned concepts. It can also be used in the final phase of the lesson, after students have learned a topic, to summarize and present key information.

Alternative: Use PowerPoint or Google Slides to create static infographics. Instead of digital tools, have students design paper-based infographics and present them physically.

Conclusion

The integration of technology into active learning has significantly transformed teaching and learning experiences in higher education. By leveraging digital tools, educators can enhance student engagement, foster collaboration, and create more dynamic learning environments. As research suggests, technology is not merely an add-on but a powerful enabler that allows for personalized learning experiences, real-time feedback, and increased accessibility.

The structured activities presented in this chapter demonstrate practical ways to apply technology-enhanced active learning in various educational contexts. Whether through interactive case studies, video-based discussions, or collaborative infographic creation, these activities highlight the potential of technology to support deeper learning and critical thinking.

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