

HANDBOOK OF TRAINING COURSES PREPARATION

Erasmus+ KA2 project: “REACT - Creation of a Collaborative Environment in e-classrooms”

Intellectual Output 2 “Creation of a set of innovative activities, tools and educational collaborative methods adapted to a virtual classroom curriculum”

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Module 1: INTRODUCTION TO COLLABORATIVE E-CLASSROOM ENVIRONMENTS

This module gives an introduction into collaborative learning. It provides an overview over the main concepts related to collaborative and inclusive e-classroom environments. The learner thereby acquires useful theoretical background as basis for the following modules. Module 1 investigates the differences between online and offline learning environments and presents benefits as well as common challenges that educators face when applying collaborative learning online. Finally, the module provides an insight into the importance and role of the instructor.

MODULE PLAN

- UNIT 1: What is Collaborative Learning?
- UNIT 2: Online Collaborative Learning (OCL) vs. the regular classroom
- UNIT 3: Challenges and Benefits
- UNIT 4: Role of the Instructor

AIMS AND GOALS of MODULE 1

- Give an overview over the main concepts and characteristics of the collaborative and inclusive e-classroom environment.
- Introduce the theoretical and pedagogical backgrounds of collaborative learning in the regular classroom as compared to the online environment.
- Create understanding of the value in using OCL.
- Explain the challenges that educators face when applying online learning methods in their lessons.
- Raise awareness on the importance of teaching presence and ways of instruction in OCL.

LEARNING OBJECTIVES of MODULE 1:

After completion of this module, the learner will:

- Obtain insights into the concepts and central theories behind collaborative learning.
- Understand the differences between traditional and online collaborative learning environments.
- Be able to identify challenges and benefits of online collaborative learning environments and to apply the knowledge to the own teaching context.
- Understand the role of the instructor in the OCLE and be able to reflect upon their own role as teacher in e-learning environments.

KEYWORDS of MODULE 1

Online Collaborative Learning Environment, E-Learning, Teaching presence, Constructivism
Instructor, Facilitator, Cooperation, Teamwork

Topic and Instruction Method	Timing (minutes)	Materials and Equipment required	Assessment/Evaluation
UNIT 1: What is Collaborative Learning? Concepts and characteristics of collaborative e-classrooms, theoretical backgrounds of collaborative learning.	30 min	Power point presentations, video lessons, text	The activity is going to be evaluated through exercises (questionnaire and quiz)
UNIT 2: Online Collaborative Learning Introduction Describe the learning topics on which you concentrate on Unit 2 of the Module and shortly present the methods/activities undertaken	30 min	Power point presentations, video lessons, text	The activity is going to be evaluated through exercises (questionnaire and quiz)
UNIT 3: Challenges and Benefits Introduction Describe the learning topics on which you concentrate on Unit 3 of the Module and shortly present the methods/activities undertaken	30 min	Power point presentations, video lessons, text	The activity is going to be evaluated through exercises (questionnaire and quiz)
UNIT 4: Role of the Instructor Introduction Describe the learning topics on which you concentrate on Unit 3 of the Module and shortly present the methods/activities undertaken	30 min	Power point presentations, video lessons, text	The activity is going to be evaluated through exercises (questionnaire and quiz)

UNIT 1: What is Collaborative Learning?

Collaborative learning is a commonly accepted pedagogical principle and is used in most formal and non-formal learning environments in recent years. Collaborative learning can be defined as “an educational approach to teaching and learning that involves groups of learners working together to solve a problem, complete a task, or create a product” (Laal & Laal, 2012). It is a suitable approach for group learning as it encourages students to become aware of individual abilities of the group members, and to respect differences in personality and contributions.

An important aspect of collaborative learning is not only the engagement with the direct content, but it is explicitly about growing through social and emotional challenges. Students must overcome competitive and individualistic behavior to find their strengths as a team through collaboration. The group members must share and accept responsibility for the actions of the entire group to reach their common goal. Collaborative learning is thus a highly social and interactive process.

Theory of Social Constructivism

Collaborative learning is closely related to theories of social constructivism. This concept has been coined by psychologist Vygotsky already in the 1970s. It builds on the idea that knowledge is constructed and negotiated through social interaction. When peers work together on collaborative tasks, they share and internalize new information in their interaction. “This interaction between experience and ideas creates knowledge, through discovery and exploration of problems and confronting them” (Myburgh & Tammaro, 2013). The learners are thus themselves in the center of knowledge construction.

Each learner has their personal background and experience which influences the way the new information is understood. Social constructivism puts emphasis on the social forces behind learning rather than purely rational methods (Detel, 2001).

According to Learning according to Social Constructivism happens through:

- a constant activity;
- a search for meaning;
- understanding the whole as well as parts;
- understanding mental models of students and other knowledge creators (suggesting customised curricula);
- assessment as part of the learning process;
- learning undertaken collaboratively and through conversations.

(Myburgh & Tammaro, 2013)

Examples of collaborative learning

Project based and entrepreneurship learning:

Learners work together on a common problem and combine their different skills to define their own team strategy and arrive at viable solutions.

Group discussions:

Students learn to take different perspectives and to express their views. They learn to respect other opinions and find common solutions.

Peer-to-peer learning:

Students facilitate each other's learning through their own knowledge and talents.

Role-play activities:

Learners immerse themselves in a character and develop understanding for different emotions and viewpoints. They practice interaction in hypothetical situations which helps them empathize with others.

Games (with competitive elements):

Students learn to take turns and negotiate with other teams.

Information exchange, for example through Jigsaw method:

Different groups read and become an expert in their assigned subject to then share their knowledge with their peers, who are experts on different topics. Students learn to ask the right questions and develop listening skills. By having to explain a new topic to their peers, they also become aware of what they themselves have learned about the topic that they became an "expert" in.

For more explanation and inspiration, see video: "Examples of Collaborative Learning"
https://www.youtube.com/watch?v=fgx_R847UAs

How collaboration benefits the learner

The examples above already gave an idea on the types of collaborative learning that can be used with groups of learners.

The reason why collaborative learning is so widely used in today's educational setting is because of its considerable benefits. No matter if used in online or offline contexts, many sources confirm that the positive impact on the learning process is evident for example Laal & Ghodsi, 2012; Scager et al. (2016); Falcione et al. (2019).

Collaboration...

- Strengthens learners' ability to deal with people and situations of potential conflict.
- Facilitates student's understanding of diverse viewpoints.
- Respects and highlights individual's abilities and contributions
- Trains learners in sharing of authority and acceptance of responsibility for group actions
- Facilitates problem-solving skills.
- Helps students grow from social and emotional challenges.
- Enables students to apply their own experiences and internalize knowledge on a deeper level.
- Enables learners to accomplish tasks that would be too challenging or complex for the individual.
- Provides a richer approach than competitive or individualistic learning.
- Enables learners to reach higher achievement and greater productivity.
- Promotes more caring, supportive and committed relationships.
- Benefits psychological health.
- Strengthens social competences.
- Promotes learners' self esteem.
- Can lead to a more positive attitude towards teachers as the students' self-esteem is strengthened and personal skills are being valued.

Features of collaborative learning

Already in the 1980s when the uptake of collaborative learning strategies was becoming more and more popular in the education field, Wiener summarized seven central features of collaborative learning. These main features can give useful guidance for applying and evaluating collaborative learning.

1. the nature and quality of the task statement.

For collaboration to work within the team, the task given to the students is crucial. It should be formulated in a way to encourage different viewpoints and discussion between group members. The task will set the condition for the group to reach consensus through productive communication. It should therefore be challenging and open, not asking for pre-defined or straightforward answers. At the same time, the task should be clearly worded and understandable.

2. the social setting of the collaborative activity and the behavior of students during the execution of the task.

When working on the given task it is not enough for the group to simply divide the workload and contribute to the solution individually. This is not what is meant by collaboration. The focus lies on the way the students come up with their answer through negotiation and consensus rather than on the final solution itself. Students must be aware that it is not the “right answer” that they are looking for, but a respectful and constructive process.

3. the teacher's behavior during the execution of the task.

The teacher has the responsibility to set the right structures for the collaborative working process. Questions asked or problems given should be open to more than one answer and multiple solutions. The teacher also needs to make sure to define common rules for the working process and execution of the task. Ideally, the students themselves will be involved in defining main questions or concerns that should be answered through the task so that they find importance in their collaborative work.

During the group work, teachers can support the collaborative process by asking further questions, guiding responses where necessary, or challenging the group towards new solutions. The teacher's support should promote students' confidence and authority to make use of their own knowledge.

4. the teacher's role in group composition and management.

For successful collaboration, teachers must manage the groups in a way that they have the space, time, and conditions for their discussions. The teacher should monitor the group work to make sure the aim for collaboration is reached in each team, that tasks are understood, and that proper recording of the process is kept. They should be aware of group composition and dynamics and make sure each student gets the chance to contribute.

5. the nature and quality of the reports made by each group.

In tasks where the main goal is the discussion and negotiation within working groups, it is important to define common processes of record keeping. Each group should record the way they arrived at their solution so that they are able to present their results in the end.

6. the teacher's performance as synthesizer and as representative of the academic learning community.

The role of synthesizer refers to the stage when the tasks have been completed. The solutions presented by the different groups should be discussed and similarities and contradictions should be reflected on. Reflections on the learning process and outcomes by the groups themselves are also useful to summarize what the students have gained through the process.

7. the relation of the collaborative activity to the design of the course.

Collaborative activities work best when they are logically related within the wider framework of a course and build up to reach the overall learning objective.

8. the teacher's knowledge of and commitment to the rationale of collaborative learning.

To facilitate successful collaborative learning, the teacher needs the necessary knowledge about its basic principles. Only a teacher who believes in knowledge as a social construct will be able to create social collaborative interaction in their classes and support their students in their learning.

EXERCISES UNIT

Exercise 1

TRUE and FALSE

1. Collaborative Learning is a new concept that has recently been developed.
TRUE
FALSE
2. Collaborative learning is less suitable for formal education and is used more in non-formal settings.
TRUE
FALSE
3. According to Social Constructivism, knowledge is built through social interaction and based on the learner's own experience.
TRUE
FALSE
4. The role of the teacher becomes less important in collaborative learning.
TRUE
FALSE
5. Group communication is a central feature of collaborative learning.
TRUE
FALSE

Exercise 2

Please choose the right answers for the following question.

Among the benefits of collaborative learning are the following:

- Respects and highlights individual's abilities and contributions (**YES**)
- Enables learners to accomplish tasks that would be too challenging or complex for the individual (**YES**)
- Emphasizes students' competitiveness (**NO**)
- Promotes more caring, supportive, and committed relationships (**YES**)
- Helps students to avoid conflict because of the teachers' close support (**NO**)
- Enables students to apply their own experiences and internalize knowledge on a deeper level (**YES**)
- Strengthens learners' ability to deal with people and situations of potential conflict (**YES**)

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Additional materials and further reading:

Video: Collaboration vs. cooperation. Shortly introducing to the concept of constructivism.
<https://www.youtube.com/watch?v=uwvtfYa169k>

This can be used as additional (more visual) explanation of the concepts from the literature

Video: “Good Collaboration” <https://www.youtube.com/watch?v=KT2TQGFWcko>

Video: “The 7 Keys to Creative Collaboration”
<https://www.youtube.com/watch?v=2DmFFS0dqQc>

Video: “Simon Sinek: flash summary on trust and collaboration”
<https://www.youtube.com/watch?v=TUmX53H9PKs>

<http://images.pearsonassessments.com/images/tmrs/collaboration-review.pdf>

<https://www.sciencedirect.com/science/article/pii/S1877042811030217>

(Online) Collaborative Learning and its main concepts explained (summary article):
<https://opentextbc.ca/teachinginadigitalage/chapter/6-5-online-collaborative-learning/>

Trietiak, A. (2020). Online Collaborative Learning in Higher Education: A Review of the Literature. <https://edspace.american.edu/amytrietiak/2020/05/07/online-collaborative-learning-in-higher-education/>

Evaluation of Collaborative Learning as a tool: <https://evidenceforlearning.org.au/the-toolkits/the-teaching-and-learning-toolkit/all-approaches/collaborative-learning/>

UNIT 2: Online Collaborative Learning vs. the regular classroom

Regarding the main pedagogical principles, e-classrooms are very similar to the traditional classroom. For collaborative learning, whether practiced in online or traditional environments, the same central features apply. The use of technology should be seen as a support of the social-constructivist features and should enable students to actively participate, to collaborate in teams, to work on complex tasks, to keep constructive communication within the group, to apply reflective practices and to understand the context of their learning tasks.

Commonly used terms

To describe online educational activities with collaborative features, the terms Online Collaborative Learning (OCL) and Computer Supported Collaborative Learning (CSCL) are often used interchangeably. Online Collaborative Learning Environment (OCLE) is then the space where the learning happens. Resta and Leferriere (2007) define CSCL as “situations in which interactions take place among students using computer networks to enhance the learning environment”.

Technical dimension of online learning

Nowadays there are numerous possibilities to facilitate learning in the online environment. Virtually all educational providers in different fields are making use of digital tools to boost their competitiveness and increase attractiveness towards their learners. However, simply using the newest available tools does not yet make a successful online learning experience. If new digital tools are used, educators must make sure they are useful for the learning environment they want to create and for the outcomes they want their students to reach. A good online educational tool is one that is easy to use by the learners and that ensures a positive experience in the learning process.

As a facilitator of online learning, first define at the objectives you want to reach. What kind of learning are you providing? Which knowledge, skills and attitudes do you want your learners to develop? Which kind of environment do you want to create for the learners and how should they interact with it?

After having a clear picture of the strategy, look at the offer of digital tools that can support your aims. Make sure to choose tools that support the features necessary for the student interaction and completion of the envisioned tasks. The features should allow the teams to use the tools in different ways.

Wide range of digital tools

The range of available digital collaboration tools is broad. There are solutions for communication, file sharing, game-based learning, project management and peer review. Some popular examples of collaboration software in education are (mentioned on www.teachthought.com):

Zoom – a tool for video communication that facilitates learning, collaboration, and administration.

Reddit – Reddit is a source for what’s new and popular on the Internet. Users like you provide all the content and decide, through voting, what’s good and what’s not. Reddit is made up of many individual communities, also known as subreddits. Each community has its own page, subject matter, users, and moderators. Users post stories, links, and media to these communities, and other users vote and comment on the posts. Through voting, users determine what posts rise to the top of community pages and, by extension, the public home page of the site.

Microsoft Teams – is the hub for teamwork in Microsoft 365. The Teams service enables instant messaging, audio and video calling, rich online meetings, mobile experiences, and extensive web conferencing capabilities.

Trello – is a collaboration tool that organizes your projects into boards. In one glance, Trello tells you what’s being worked on, who’s working on what, and where something is in a process. Imagine a white board, filled with lists of sticky notes, with each note as a task for you and your team.

Agenda Note Taking - Agenda is a date-focused note-taking app for both planning and documenting your projects. From business professionals and technical users to students and artists, Agenda is for anyone wanting well organized and easily navigable notes that help drive your projects forward.

Padlet – is a multimodal group collaboration tool. Here, students can collect videos, articles, or images and post them to a virtual corkboard. Students can also comment on posts in a threaded discussion format.

Social dimension

An obvious difference between online collaborative learning and the regular classroom environment is surely the social dimension. Whereas traditional collaborative learning depends on direct and physical interaction between groups, in the online environment such interaction must take different forms.

For collaborative learning to work, students need to feel related and have a good level of communication with each other. Seeing each other as real people with shared interests and goals will not only facilitate meaningful social interaction but also increases learners' satisfaction and overall learning experiences. Collaborative learning is based on students' interaction and the use of learners' own experiences and knowledge. The online learning environment must provide sufficient opportunities for such exchange to take place and encourage active engagement.

Synchronous and asynchronous communication

When choosing the right communication channels between learners and instructor, and among groups of learners, two main categories are usually applied in online learning: synchronous and asynchronous communication.

Synchronous communication like video conferences, webinars or live chats facilitate direct discussions and can be a good way to create social interaction between learners. Especially when video tools are involved, this may give learners a stronger feeling of classroom context and teacher presence. The instructor can more directly respond to the learners' questions and inputs and can guide the group dynamics towards effective collaborative behaviors. Synchronous video communication is especially useful for diverse groups of learners from different socio-cultural backgrounds as it facilitates interpretation of meaning in speech as compared to written communication, and thus reducing potential misunderstandings.

Asynchronous communication is often used in the form of forums, wikis, text chats or file sharing platforms that do not require learners to be present at fixed times. This form of interaction is very suitable for self-directed learning as the students can engage in the tasks at any time that is convenient for them. More quiet or shy learners might feel more comfortable commenting through asynchronous communication as it gives them time to reflect and prepare their answers. This form of communication also works well for international courses with participants in different time zones.

Ensuring learners' satisfaction in online environments

For the success of online learning environments, learners' satisfaction is an important factor, as has been confirmed by many authors (Brindley, Walti & Blaschke, 2009; Zareie & Navimipour 2015; Ng & Baharom 2018). Satisfaction influences learners' acceptance of e-learning technologies and, ultimately, the effectiveness of the online learning. Online courses with elements of collaborative learning and community building are likely to increase learners' satisfaction in the course (Chatterjee & Correia, 2020).

To design a good online learning environment that satisfies the learners' needs, seven factors should be considered (see Ng & Baharom, 2018):

(1) Learning content

Providing learners with engaging, meaningful, and diverse materials (such as articles, games, maps, videos). Learners are more motivated to engage with materials if the content is related to solving real problems. The instructor should make sure to select the most suitable and relevant information according to the course topic and learning objectives.

(2) Knowledge acquisition

When appropriate and relevant content has been chosen, it needs to be presented or delivered in the right way to online learner. Only through meaningful engagement with the online course content will students effectively acquire new knowledge.

(3) Instruction

Clear and specific instructions are a central element in completing any course design. Especially in the online context where instructor and students do not meet personally, learners need to be able to understand the tasks and pathways to take during the course. For example, this can take the form of a navigation through different course sections, by including checklists or reminders, or monitoring the steps already accomplished.

(4) Learning platform

A well-designed course builds on a good e-learning platform to provide a meaningful learning environment. This entails providing suitable technological features that support the course activities and enable learners to reach the envisioned learning outcomes. User-friendliness and ease of use are important factors.

(5) Course design

The course design is where course objectives and pedagogical needs come together to form a suitable arrangement of contents. Courses should be designed in a well-organized way, easy to navigate and be interesting and engaging to the learners.

(6) Ability to transfer

An important education goal is that students will be able to apply the gained knowledge to different contexts and future situations. The course material and learning activities should facilitate this ability.

(7) Instructor presence and social support

Finally, the support received from the instructor in the online learning environment is an important factor for learners' satisfaction. Feeling that the instructor is available to respond questions will increase students' motivation and readiness to engage in the course.

When facilitating collaborative online learning, practitioners should remain aware that different learners can have different learning needs. With their diverse and distinct characteristics, each group of learners can show different learning outcomes after following the same course. Collaborative online learning should therefore provide enough flexibility to adapt.

EXERCISES UNIT

Exercise 1

TRUE and FALSE

1. The concept of Collaborative Learning must be rethought completely for the online environment because the main pedagogical principles do not apply any longer.
TRUE
FALSE
2. Forums, wikis, and text chats are examples of asynchronous communication.
TRUE
FALSE
3. A good online educational tool is one that is easy to use by the learners and that ensures a positive experience in the learning process.
TRUE
FALSE
4. It is easy to create collaborative online learning by simply adding a digital communication tool to the course.
TRUE
FALSE
5. Instructor presence is less important in online environments than in the physical classroom.
TRUE
FALSE

Exercise 2

MULTIPLE CHOICE

Please choose the right answers for the following question.

1. The term Online Collaborative Learning (OCL) can be understood as a synonym of
 - a. Asynchronous learning
 - b. Computer Supported Collaborative Learning (CSCL)**
 - c. Online Collaboration Tool
2. Why is the social dimension important for online collaborative learning?
 - a. Because collaborative learning depends on students' interaction and the use of learners' own experiences and knowledge.**
 - b. Because students nowadays have too little opportunities to form social relations.
 - c. The social dimension is less important in online learning because learning is more self-directed.
3. Which of the following is NOT a benefit of asynchronous communication?
 - a. Suitable for self-directed learning
 - b. Reduces misunderstandings in diverse groups of learners.**
 - c. Enables more quiet or shy learners to engage in communication.
4. The factors of learners' satisfaction according to Ng & Baharom are the following:
 - a. Instructional strategy, students' personal learning style, attractiveness of content
 - b. Technological dimension, social dimension, pedagogical dimension
 - c. Learning content, knowledge acquisition, instruction, learning platform, course design, ability to transfer, instructor presence and social support.**
5. What is a central educational goal in online collaborative learning?
 - a. Building new professional networks.
 - b. To motivate learners to self-study.
 - c. Ability of learners to apply the knowledge to new contexts.**

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Additional materials and further reading

European Stories Toolbox: A collection of tools for creative digital work and storytelling
<https://eurostories.eu/toolbox/>

UNIT 3: Challenges and Benefits

As we have seen in previous units, much of the knowledge on collaborative learning can be transferred to the online environment. Goals, pedagogical strategies and need for interactions are central elements no matter through which medium the collaborative learning is transmitted.

Additionally, to the benefits of collaborative learning that were discussed before, the use of technology and digital learning environments brings several advantages for learners and instructors (Resta & Leferriere, 2007).

1. the preparation of students for the knowledge society
2. enhancing of student cognitive performance and deepening understanding
3. increasing learners' flexibility of collaboration in terms of time and space
4. and the creation of better opportunities for teachers to track students' engagement and collaborative learning progress.

Technologies provide opportunities for diverse forms of collaboration including synchronous and asynchronous methods and many forms of peer-to-peer collaboration. Digital collaboration tools encourage students to share, engage, reflect and to actively participate in group work. When used in appropriate ways, learning technologies can foster the learners' sense of connectedness and facilitate the building of learning communities (Beldarrain, 2006). Students thereby gain a deeper understanding of what it means to contribute to knowledge construction. With increased learner engagement the educational achievement will be increased at the same time.

Furthermore, online collaborative learning does not depend on classes that are held during fixed hours and allow learners from different geographical areas to join the course. The reach of potential learners thus becomes much wider as compared to traditional classroom settings.

Challenges in online collaborative learning

Despite the many benefits that technological tools offer, the translation of existing pedagogical concepts to the online environment poses certain challenges for practitioners. Even when instructors are open to adapt to new educational settings, they might not be able to achieve the intended level of interaction in their online courses because their tested strategies do not show the same results as in the traditional classroom (Su et al. 2005).

Every learner who has worked on team assignments before will know that there are many potential sources of frustration when collaboration does not work as intended. Among the most common frustrations are (Capdeferro and Romero (2012)

- Imbalance in the level of commitment, responsibility, and effort
- unshared goals and difficulties in organization
- difficulties in communication/dialogue in terms of frequency
- problems with negotiation skills
- imbalance in quality of individual contributions
- excess of time spent and workload.
- conflict and problems in reaching consensus.
- imbalance between individual expected mark and group mark
- misunderstandings
- lack of instructor's support/orientation

Collaborative learning being centered around the dynamics within the team, group composition is an important factor to consider. It will have considerable impact on interaction between learners and will influence the learning experience and results. Factors in group composition can be gender, range of ability levels and students' status characteristics. A better understanding of common learners' frustrations with collaborative learning and with group dynamics can help educators improve students' learning experiences and ensure effective collaborative processes.

Barriers to e-learning – the TIPEC framework

The TIPEC framework (developed by Ali, Uppal and Gulliver, 2018) identifies the barriers for successful implementation of e-learning. The framework includes a total of 68 barriers that are categorized into four main concepts: Technical barriers, individual barriers, pedagogical barriers and enabling conditions. The framework supports practitioners in putting their activities into context and more easily identify and address current or future issues in e-learning implementation.

1. Technological factors

These barriers relate to the technological components in the online course. Factors that play a role here include technological infrastructure in the educational institution, quality of devices and connectivity, technical support, digital security, and software and interface design.

Many institutions are aware of the lacking technological infrastructures which can hinder the successful implementation of their online courses. Group dynamics and class climate in live courses for example can suffer easily from slow video transmission or poor audio quality, making it hard for learners to keep up concentration and motivation.

Both learners and instructors should also be well literate in the use of technologies applied in the course. The teacher needs to be able to monitor learning processes and guide students in their tasks. A good course design requires the teacher's full understanding of how the applied technologies will be used by students. Only then will the collaborative assignments be usefully supported by the digital tools. The same goes for the learners. Students need to understand well how to use the proposed tools to engage and collaborate well during assignments. It is recommended to take time at the beginning of a new course to instruct the learners in the technologies to be used so that no one is left out due to technical barriers.

2. Individual factors

Individual factors relate directly to the learners involved in the course. The students' motivation, commitment and individual priorities are for example important indicators for the level of involvement they will show in the course. High levels of motivation and commitment will likely result in constructive collaboration, whereas uncommitted individuals can hinder the learning process of the entire group.

Learners' prior knowledge and experience also play a role in the learning environment since the collaborative work aims at sharing and building on what each student brings into the course. Similarly, personal characteristics of the learners will influence the group dynamics and working environment. Social and cultural differences between learners can more easily result in misunderstandings and limitations in communication. An efficient use of available communication channels should be ensured to reduce this barrier in the online learning context.

Students' attitudes towards online learning and use of technology play a role as well as students' adaptability to new environments. Many teachers in online environments struggle with the fact that students hide behind technical problems or refuse to use video during live sessions. This can make the relations between students more impersonal and reduce collaboration.

3. Pedagogical barriers

The pedagogical dimension is related to factors including the teaching methodology, faculty, supporting staff, and course content. Although technology supported learning has become a common form of education, many educators and institutions still fail to recognize the pedagogical potentials behind digitalization. If digitalization is not made a priority in the wider organizational context, the responsibility for developing the necessary digital conditions is left to the individual instructors. Teachers willing to develop their proficiency in online collaborative teaching strategies might find themselves lacking the time and resources to do so. Teachers' readiness and capability to use collaborative technologies is thus also an important factor that determines successful online learning. To create productive environments online, it is also crucial that diverse suitable learning materials are available, and the right tools to support the learning. The course content must be designed in a way to integrate engaging materials in formats suitable for the digital learning space. Tools that are incompatible with the chosen learning materials or strategies will hinder the implementation of the course.

A frequent challenge that instructors face is related to pedagogical strategies. Many teachers still struggle to facilitate cohesive and collaborative online learning environment where all students are equally involved. For future improvement of courses, instructors depend on feedback and evaluation from the learners. Measuring the learning outcomes to verify the course reached its objectives is of course important. But also, qualitative feedback on the learner's satisfaction and personal experiences during the course will provide crucial input for future improvements.

Other factors under the category of pedagogical barriers include flexibility in delivery mode, weak learning management systems, lack of commitment, lack of teacher's knowledge, insufficient pre-course orientation, tutor support.

4. Enabling conditions

Enabling conditions refer to the overarching factors that impact the three previous dimensions of technology, learners, and pedagogy. These include rules and regulations in the online educational context, security considerations and ethical issues, administrative support, and financial matters. Such conditions need to be addressed in the wider institutional context to guarantee successful implementation of collaborative online learning. Important for enabling conditions is the good cooperation between teachers – who probably have the best understanding of the educational needs in their class context – and higher-level decision makers who are responsible for establishing institutional rules and designating funding areas.

EXERCISES UNIT

Exercise 1

TRUE and FALSE

1. The use of digital technologies during online learning enables teachers to better track students' engagement.
TRUE
FALSE
2. Individual learner backgrounds have less impact on the group dynamics in the online environment.
TRUE
FALSE
3. Difficulties in communication are a major cause of frustration among learners in collaborative online learning.
TRUE
FALSE
4. Learner's previous experience is not relevant for learning process.
TRUE
FALSE
5. "Enabling conditions" refers to students' individual backgrounds and characteristics.
TRUE
FALSE

Exercise 2

Please choose the right answers for the following question.

Pedagogical barriers to online collaborative learning:

1. Educators fail to recognize the pedagogical potential in digitalization (**YES**)
2. Lacking ability to engage all students in the online class (**YES**)
3. Lack of institutional funding (**NO**)
4. Insufficient levels of motivation by the students (**NO**)
5. Unsuitable learning materials (**YES**)
6. Weak data security (**NO**)
7. Lacking commitment of the teacher (**YES**)

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Additional materials

Video: “Cultivating Collaboration: Don't Be So Defensive! | Jim Tamm | TEDxSantaCruz”
<https://www.youtube.com/watch?v=vjSTNv4gyMM>

Insights into constructive vs. destructive behaviors. Ideas on creating healthy environments for positive and successful collaboration

Video: “Effective Collaboration” <https://www.youtube.com/watch?v=8Amu3UBj-gw>

Collaborative problem solving and its challenges on “Friends”

Effective Collaboration is the alignment on complex factors and the ability to live with the team process.

Video: “Leadership and effective collaboration.”
<https://www.youtube.com/watch?v=Znjpa1LBOY>

Examples of the benefits of team work (comical)

UNIT 4: Role of the Instructor

One central issue that is much discussed in the literature is the role of the instructor in online collaborative learning environments. Simply assigning students into groups, telling them to collaborate and expecting them to have productive conversation likely will not show the desired learning effects. As Wiener already emphasized in his 1986 article, “The effective collaborative learning teacher is one who understands the basis and structure of collaborative learning and who knows how to lead students to work productively within it.”

A cornerstone of Vygotsky’s theory of social constructivism as discussed in unit 1 is the role of the instructor in the student’s learning process. Although the learning happens with the learner at the center, some tasks require the support of an instructor and cannot be done by the student alone. A good instructor thus enables the learner to develop new skills and gain a higher level of independency in their learning (Davis et al., 2017). For the successful learning process, the instructor must ensure the right support and environment.

Vygotsky’s concept of “zone of proximal development” describes a condition where students are challenged within a safe environment where they are not overwhelmed, which makes it possible for them to have a positive experience and learn from it. The teacher in this sense will be the facilitator of such an environment rather than a knowledge provider.

Dimensions of educational experience

Community of Inquiry (Garrison, Anderson & Archer, 1999) is a concept often related to collaborative learning. It defines the educational experience as an interaction between three central dimensions: social presence, cognitive presence, and teaching presence. Social presence refers to the idea that learners are present as real people with their different characteristics and previous experiences, cognitive presence describes. Cognitive presence describes the learner’s capacity to construct meaning through the social interaction with other students and is thus a central component of collaborative learning.

Establishing Teaching Presence

For instructors to fulfill their role as facilitators in the collaborative environment, the concept of teaching presence is of great importance. Teaching presence entails factors of structure and process, including course design and facilitation. These factors determine to a high degree how the other dimensions of social and cognitive presence will be experienced by the learners in the educational environment. Establishing the teaching presence spans the entire lifetime of the course, starting from its preparation and development of instructional plan, over the preview period and throughout the actual running of the course with its participants.

Teaching presence in online learning environments essentially aims at engaging students and inspire their intellectual curiosity. But how can this practice now be established? Orcutt and Dringus (2017) point out that to create a productive intellectual climate, an inclusive and equitable learning environment is needed. Learner should feel comfortable to contribute ideas and bring up new perspectives and opinions. Even controversial ideas should be given space for discussion. For such an environment to work, responsibilities must be shared between learners and instructor. Students must feel ownership of the processes and have a say in defining common learning goals. This means that the teaching presence already starts when students are invited and introduced to the course, for example with a welcome email setting a personal tone. The instructor must find the right balance between showing presence and guiding the learning process on the one hand and giving the stage to the learners themselves to take responsibility on the other hand. This can be a difficult line to establish, especially for the less experienced instructor. But with adequate preparation, a reflective attitude and openness to adaptation to the individual teaching environment, both students and facilitators will benefit through more engaging and rewarding experiences.

Engagement strategies

Engagement of students within the online collaborative learning environment can happen on different levels. For meaningful learning to happen it is important for learners to collaborate with their peers, to engage with the learning contents provided, and to interact with the instructor for necessary support and guidance (Martin & Bolliger, 2018).

Learner-to-learner engagement:

The interaction between students is a cornerstone of collaborative learning. Especially in the online environment learner-to-learner engagement is important to avoid boredom or disconnection of students from the course. Instead, students should feel connected and establish a sense of community. This can be achieved using collaborative online tools that facilitate communication and rich exchange of ideas, materials, and personal stories. Both synchronous and asynchronous solutions can be suitable tools.

Learner-to-content engagement:

The aim of learner-to-content strategies is to change the learner's understanding and perspective through intellectual engagement. Relevant contents can be instructional videos, multimedia items or the search for information by students themselves. Integrating real cases can also be an effective method to engage learners with course content. Technologies can be used to make the content richer and more engaging. Learning activities should dynamically integrate the content instead of simply being presented as a list of materials.

Learner-to-instructor engagement:

Good communication between learners and instructor is important for a constructive teaching presence in online courses. The use of multiple student-instructor communication channels can increase student engagement. Instructors must be available for questions and queries, they need to provide timely feedback on the students' work, and they must actively work to engage the learners in the course.

When investigating students' perceptions on engagement strategies, Martin and Bolliger (2018) found that learner-to-instructor strategies were valued above learner-to-learner and learner-to-content strategies. This confirms the importance of the role of the instructor for positive learning experiences. Students feel reassured when they receive timely feedback from the instructor and learning outcomes increase as students can improve their learning process with the feedback received.

Modules 3 and 4 will go in deeper on instructional strategies and how to apply collaborative learning in the classroom.

Reflective instructors

It cannot be highlighted enough how important it is for instructors to be aware of the impact their teaching strategies have on their learners' behavior and learning experience within their specific teaching context. Among all the pedagogical, social, and technological factors, the job of the instructor is certainly quite complex.

As it was mentioned in unit 3 of this module, a common challenge for teachers in online environments is that their tested collaborative teaching strategies are difficult to translate directly to the e-classroom. It is crucial for the instructor to be aware of the reasons why their strategies are lacking and how their courses can reach higher engagement and outcomes. Next to preparing course designs, leading lessons, and evaluating students' performance, instructors should make it a priority to take enough time to reflect on their own role. Also, as a facilitator for the learning of others, the own learning process never stops. Each challenge in the teaching environment is an opportunity to learn from it and evolve as an instructor. Such opportunities must be recognized and utilized. Formal evaluations from the learners can be just as valuable as personal feedback received from informal interaction with students. The instructor should make sure to develop a personal strategy for recording and processing such feedback and personal reflections.

Inspiring instructors

It should have become clear through the past units that collaborative learning is a highly social process that depends to a large degree on the relation not only among the learners but also between learners and instructor. Throughout the educational lifetime, many people would only remember a fraction of the knowledge they learned in school, college, or other courses they followed. But they probably remember meaningful experiences they shared with peers or moments of personal growth they went through.

There is a saying that a student cannot be taught, they can only be guided into making their own experiences. A teacher who knows to inspire students to find meaning and purpose in their work within the learning environment will surely leave a more positive and lasting impact than a highly qualified instructor with profound knowledge but who does not manage to engage the learners.

Look at the following inspirational speakers giving examples of how teachers can create a lasting positive impact on their students.

https://www.youtube.com/watch?v=4p5286T_kn0

EXERCISES UNIT

Exercise 1

Multiple Choice

1. What does the “zone of proximal development” describe?
 - a. A comfort zone where learners develop their skills.
 - b. A close relationship between instructor and learner.
 - c. A condition where students are challenged within a safe environment without overwhelming them.**

2. What are the 3 dimensions of educational experience (according to the concept Community of Inquiry)?
 - a. Social Presence, Cognitive Presence, Teaching Presence**
 - b. Teacher, student, content
 - c. Knowledge, skills, attitude

3. How does the role of the instructor in collaborative learning differ from other forms of teaching?
 - a. The teaching is more time intensive.
 - b. The instructor is more a spectator who lets the students for independently.
 - c. The instructor is a facilitator rather than a knowledge provider.**

4. Although the 3 strategies are all important for collaborative learning, which of the following did students perceive to be most engaging?
 - a. Learner-to-learner engagement
 - b. Learner-to-instructor engagement**
 - c. Learner-to-content engagement

5. What makes Mr. Jensen an inspiring instructor?
 - a. He valued his student’s individual characteristics.**
 - b. He believed in his student.**
 - c. He made his student discover his own strengths.**

Exercise 2

TRUE and FALSE

1. The role of the instructor is the same in collaborative learning as in any other learning environment.
TRUE
FALSE
2. Teaching presence determines how the social and cognitive dimensions will be experienced by the learners.
TRUE
FALSE
3. Instructors should make sure that student contributions to a discussion are not too divergent.
TRUE
FALSE
4. Focusing on one main communication channel between learner and instructor increases student engagement.
TRUE
FALSE
5. Instructors should establish regular moments of reflection to remain aware of their own impact on learners' behavior and learning experience.
TRUE
FALSE

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Additional Materials

Video: “Collaborative Learning Builds Deeper Understanding”
https://www.youtube.com/watch?v=rWEwv_qobpU

Examples of supportive collaborative environments for students

Video: Teaching Methods for Inspiring the Students of the Future – Joe Ruhl
<https://www.youtube.com/watch?v=UCFg9bcW7Bk>

Video: Chris Emdin: <https://www.youtube.com/watch?v=H3ddtbeduoo>

Module 2: WHAT ARE THE LEARNING STYLES IN A COLLABORATIVE AND INCLUSIVE E-CLASSROOM ENVIRONMENTS?

The module provides the understanding of different learning styles and assists to identify the individual styles of the learners and the implicit change of the methodological approach. It sheds light on the learning styles' application in online collaborative learning and the continuous adaptation of styles during the learning process. The module also takes the specific needs of disadvantaged and multicultural learners into account when transferring the knowledge to achieve their satisfaction and motivation. Furthermore, a data analysis system for easy identification of the learning style based on AI or machine learning to facilitate changes in course design is also considered in this module.

MODULE PLAN

UNIT 1: Learner Centred Learning Styles

UNIT 2: Kolb's Learning Concept and Felder Silverman Framework

UNIT 3: Digital Literacy Learning Style

UNIT 4: Course Design for Identification of Learning Styles

AIMS AND GOALS of MODULE 2

- Providing deep understanding of the learning styles
- Providing the skill implementation knowledge according to every learner
- Introducing Kolb's Learning Style and Felder Silverman Framework for collaborative e-classrooms.
- Creating sufficient understanding of a digital literacy learning style
- Developing the course design for easy identification of the learners' learning styles.
- To develop an understanding of the use of learning styles differentiated by inclusive and multi-cultural groups.

LEARNING OBJECTIVES of MODULE 2

After this module's epistemology,

- The learner/trainer will be skilled to apply several learning styles according to the needs of the group.
- The learner/trainer easily identifies the need of the group for a respective learning style and applies it with agility.
- The learner/trainer understands how Moodle's platform course design can be considered for the identification of learning styles through machine learning or AI.
- The learner/trainer will be able to understand factors of learners' motivation and satisfaction and use instructive strategies accordingly.

KEYWORDS of MODULE 2

Learning Styles, Online Collaborative Learning Styles (OCLS), Kolb’s Learning Style, Felder Silverman Framework, Instructive Strategies, Instructive Media, Inclusive Learning, Multi-Cultural Learning Styles.

Topic and Instruction Method	Timing (min)	Materials and Equipment	Assessment/ Evaluation
<p>UNIT 1: Introduction</p> <p>The importance of a learner-centred learning style will be discussed. Key elements to transfer knowledge catering to every learner for best outcomes are projected. The main objective of the unit is to help activate the sense of responsibility and improve cognitive, affective, and psychometric dimensions in learners</p>	30 min	Videos, Blogs, text, and Questionnaires	The activity is going to be evaluated through exercises (questionnaire ‘multiple choice questions and quizzes)
<p>UNIT 2: Introduction</p> <p>In this unit, Kolb’s learning style and Felder Silverman model are introduced in detail as well as approaches on how the KLS collaborative learning and Felder Silverman could assist learner’s motivation for better perception in collaborative E-classrooms</p>	30 min	Videos, Blogs, text, and Questionnaires	The activity is going to be evaluated through exercises (questionnaire ‘multiple choice questions and quizzes)
<p>UNIT 3: Digital Literacy learning style</p> <p>In this unit, digital literacy in online classrooms has been portrayed, and the influence of the elements changing the learning style are discussed including meta-cognitive strategies and enhancing learners’ engagement for grasping success in learning outcomes</p>	30 min	Videos, Blogs, text, and Questionnaires	The activity is going to be evaluated through exercises (questionnaire ‘multiple choice questions and quizzes)
<p>UNIT 4:</p> <p>In this unit, the change in system design has been considered for easy identification of the learner’s style. Due to the development of big data and continuous learning, the unit initiates the discussion of the continuous course design through machine learning or artificial intelligence. Hence, the unit introduces the data of the learners for the teaching methodology to be customised according to the learners’ motivation and satisfaction with learning</p>	30 min	Videos and Pictures	The activity is going to be evaluated through exercises (questionnaire ‘multiple choice questions and quizzes)

UNIT 1: Learner Centred Learning Styles

Introduction to learning styles

The concept of learning style is an active constructive search for meaning which is perceived and learned by every individual in different knowledge forms.

Keefe (1979) cited in Shahabadi & Uplane (2015) defined learning styles as “composite of characteristic cognitive, affective, and physiological factors that serve as relatively stable indicators of how a learner perceives, interacts with, and responds to the learning environment”.

Two major classifications, objectivism, and constructivism, are provided in learning styles:

Objectivism:

It is an objective reality, and the goal of learning is to understand this reality and change behaviors accordingly. It is referred to as memorization and regurgitation, the knowledge in objectivism exists outside of the individual learners. The focus is on teaching sequences of skills. The success of the student is evaluated based on the completion of the syllabus, in contrast to the discussion of the observation made by the students.

This method is standardized because of its effectiveness, and hence the classroom is mainly teacher-based.

Constructivism:

It is founded on the notion that the only important reality is in the learner’s mind, and the goal of learning is to construct in the learner’s mind its own, unique conception of events. The role of the instructor is to provide activities and help generate students' understandings. The focus mainly is on problem-solving and critical thinking. Students reflect upon learning and are actively engaged. The experience of the learner is more personalized, and the learning is through relationships.

Video available at [Objectivism vs. Constructivism - YouTube](#)

Preparation for online collaborative learning:

In online learning, the preferred learning style is the major criteria to be identified for recognizing any individual differences in the learning process that facilitates customizing of the e-classroom environments. In other cases, learners are not ready for online lectures. Considering this, the experience of the whole process shapes the learners' views on collaborative online learning and affects their level of satisfaction making them receptive to the knowledge. Hence, it is important to change the readiness of the universities from offline classes and shift to online lectures. Moodle is a successful choice because of its ability to create a flexible and engaging learning experience. Moodle is a free open-source learning management platform that is attractive to learners.

Online Collaborative Learning

Three existing phases of knowledge construction: -

1. Idea Generation
2. Idea Organization
3. Intellectual Convergence

Article link to study in-depth:- <https://www.lindaharasim.com/online-collaborative-learning>
[Online Collaborative Learning in Higher Education: A Review of the Literature \(american.edu\)](https://www.american.edu)

Video available at: [Online Collaborative Learning Theory - YouTube](#)

Many measurement tools have been designed to understand the different ways of an individual's interaction with new information following their personal and cultural experience as well as their style of learning.

Self-directed Learning Style

The learner's style is highly influenced by the individual's style on how to grasp the learning.

Constructive and Collaborative Learning: -

The constructivist model identifies the collaborative model, which is the interaction of one learner to another resulting in exercising, verifying, and improving the knowledge through discussions and information transmission.

The model considers the learning:

- To co-construct the knowledge,
- To encourage learners to develop new ideas through the creation of both individual and group products,

The knowledge is built through the active production of meanings, different forms of interaction, and social collaboration between the different contexts.

Video available for Collaborative Learning at: [Collaborative Learning at Maastricht University - YouTube](#)

Video available for Constructive Learning at: [Constructive Learning at Maastricht University - YouTube](#)

The learner-orientated instruction standalone is more popular than the four foci which includes knowledge-oriented, learner-oriented, assessment-oriented, and community-oriented. Learners' preference is denoted by their self-functioning mode which the learner shows by interpretation and intellectual activities.

Goal Orientated Learning: - Helps to activate the sense of undertaking in the tasks because the tasks are related to the adaptation in real-life requirements.

Tasks conducted via focused groups:

The learners interacting in focused groups tend to perform –

- 1) Better Cognitive Challenges
- 2) Get Exposure to Higher Quality Thinking

For rich learning, students should be able to independently explore an information space to obtain content, higher level concepts, and skills of how to learn. It is to be noted that the learners continuously build knowledge to make sense of their world by extracting the meaning of their knowledge and the experiences of the people around them to conjunct the knowledge as knowledge is subjective.

A constructive theory is used to activate the reflective, critical, and active thinking of the learner. Hence, incorporating the social-cultural model, which is a meaningful event, context-based, related to learner’s background and personal knowledge assists reflection on one’s thoughts, practical experiences, and own generated ideas.

Students actively engage and discuss the social environment context by learning how’s and why’s to build the skill of collaboratively solving issues.

The concept of designing and effectively using instructive strategies

Rasmitadila et al. (2019, pp. 1756) state: “An effective instructional strategy is a series of activities that are expected to be carried out by teachers and students to achieve instructional objectives”.

Effective instructional methods and strategies must be designed following all the characteristics of the students including the students of special needs (SSN). Instructional media acts as an online facilitator by organizing the objectives, rules, and timesheets for the experience of learning, socializing by fostering a friendly environment, and playing the intellectual role for students' understanding.

The instructor should be able to build learners' knowledge through the technique of improvisation of the material and innovation.

Creative teaching strategies:

- (a) student-centered learning,
- (b) varied teaching strategies,
- (c) classroom management that facilitates diversity and potential of students,
- (d) teaching that is contextual to everyday life, and
- (e) accustom students to think critically through question and answer as well as discussion (Suyudi et al., 2022, pp.116).

Hence, self-directed learning borrows concepts from the situational model, it also depends upon the “readiness” of the learner. It is the combination of ability and motivation that ranges from “notable” and “not willing or motivated” to do a specific task at hand, to “able and willing” in the task at hand.

Self-directed learning goes by the principle of adult learning. It is to be noted that the lack of teacher's understanding of student's characteristics will impact the teacher's way of handling and intervention that must be given to the students. In contrast, if the teacher is well versed with the student's characteristics, it will be unchallenging to provide correct treatment in academic (Cognitive) as well as non-academic areas (affective, psychomotor).

Blog available at: [Self-Directed Learning: Meaning And Examples - Harappa.](#)

Video available at: [Self-Directed Learning at Maastricht University - YouTube](#)

High self-directed learners: -

1. Perspective learners: Goal or Task-oriented, quick decision-making, and problem-solving skills.
2. Imaginative learners: Natural Insightfulness, inquisitiveness, and imagination along with that the need to find meaning in what they learn or discover the best alternative solutions to problems

Less self-directed learners: -

1. Analytical learners: Learn systematically by focusing on details, they must achieve a sense of mastery at every level and need adequate time to process all information.
2. Competitive learners: Generally, desire a teacher-centered learning environment, rewards, and appreciation but their aspirations fuel them to find inner satisfaction from setting goals, taking control of what and how they must learn, and exploring other opportunities. (Yield to acquire high SDL)

Self-Directed Learning: Motivation

All the learners of the class will be on the different stages of self-directed learning. The learners will rarely be linear, and learners will be either dependent, intermediate, or more self-directed. The need may arise for the provision of motivation.

Hence the motivation will be provided by the instructor by shifting on the mode of inspiration, encouragement, lecturing, and supervision.

Video Available at: [Levels of Self directed Learning - YouTube](#)

Strategy: The online learning process is based upon an attitude of 'shared inquiry' in which the teacher is a partner in a collaborative relationship with the student. This concept is widely known as the Community of Inquiry.



In this concept, learning takes place when the three vital components interact with each other. The three components are: social presence, cognitive presence, and teaching presence.

Social presence: Learner is interjecting elements of their personality.

Cognitive Presence: Learner is able to develop high order thinking skills.

Teaching Presence: 1) Course design and 2) Facilitation

Hence, the role of the instructor is to facilitate teaching as well as the social presence within the group.

Online collaborative learning and Community of Inquiry are complementary to each other.

Detailed blog available at: [The Community of Inquiry](#)

Video Available at: [Community of Inquiry Model Simply Explained | Inquiry-Based Learning - YouTube](#)

Learners may have combinations of dominant learning styles defining the best approach suitable rather than focusing on a single learning style. In leadership management, a good manager selects a mix of directiveness and personal interaction to accomplish the employee's readiness, so the task is accomplished, and it also helps the employee become more self-managing.

Relatively, to shift the learners to adapt more self-directed learning styles, the association of learning styles with self-directed learning concludes that the students who optimally use their five senses adapt better.

It is also found that “low engagers” presence in the online environment is dominant, and the need to encourage learners' participation with teachers can facilitate the Co-design of a learning experience. Individuals pace learning environments need to be selected where the information flow, pace of learning and selection of learning activities, and time management are controlled by the learners. Hence, this learning environment satisfies learners' diverse requirements.

In Moodle platform, a few personalised systems have been developed, where the system uses Learning Orientation Theory and categorises learners as ‘transforming’, ‘performing’, ‘conforming’ and ‘resistant’. Based on this categorisation, the system presents different learning experiences to each learner (Coole & Watts, pp.16).

Learning style adjustment differentiated by inclusive groups

The role of the learner is the major component to understand for any learning process, in another word, individual differences are effective on the process of learning among learners (Shahabadi & Uplane, 2015, pp.130).

The learning style of a person could be analyzed through their age, level of achievement, culture, global versus analytical, processing preferences, and gender.

Learning styles are also classified into three linguists’ teaching styles:

- 1) Visual where learners learn through their eyes,
- 2) Auditory learn with their ears and
- 3) Kinesthetic learners learn by experience.

However, learners preferred tactile and kinesthetic learning styles over audio and visual learning styles.

The diversification in inclusive learning also requires the teacher to be more creative in developing instructional media. Often the teachers find it difficult to provide instructional media as a tool suitable for all the student's characteristics. Hence, instructional media remains restricted to textbooks and worksheets that are not interesting for the students.

Community of Inquiry:

The use of this concept helps different cultures, gender, age, background share their ideas, work in a team, identify each other’s strengths and weaknesses and initiate productivity in assignments.

EXERCISES UNIT

True and False

1. In Constructivism, the success of the student is evaluated based on the completion of the syllabus, in contrast to the discussion of the observation made by the students.
TRUE
FALSE
2. The learner's style is highly influenced by the individual's style on how to grasp the learning.
TRUE
FALSE
3. An effective instructional strategy is a series of activities that are expected to be carried out by teachers and students to achieve instructional objectives.
TRUE
FALSE
4. The constructive and collaborative model encourages the learner to memorize existing ideas through the creation of both individual and group products.
TRUE
FALSE
5. The three important components of Community of Inquiry are social presence, cognitive presence, and facilitation.
TRUE
FALSE

Exercise 2

Select Missing Words Questions in Moodle

1. A constructive theory is used to activate the reflective, critical, and _____ of the learner
 - Experienced learning
 - **Active learning**
 - Subjective learning
 - Fast-paced learning
2. The three existing phases of knowledge construction are _____, Idea organization, and Intellectual convergence.
 - Gather information.
 - Skillset enhancement
 - Collaboration
 - **Idea generation**

3. Goal Orientated Learning helps to activate the sense of undertaking in the tasks because the tasks are related to the adaptation in _____ requirements.
 - **Real-life**
 - Visual
 - Situational
 - Online

4. The two types of high self-directed learners are perspective learners and _____ learners.
 - Competitive
 - Analytical
 - **Imaginative**
 - Motivated

5. Self-directed learning is the combination of ability and motivation that ranges from “notable” and “not willing or motivated” to do a specific task at hand, to _____ in the task at hand.
 - **Able and willing**
 - Not able
 - Not willing

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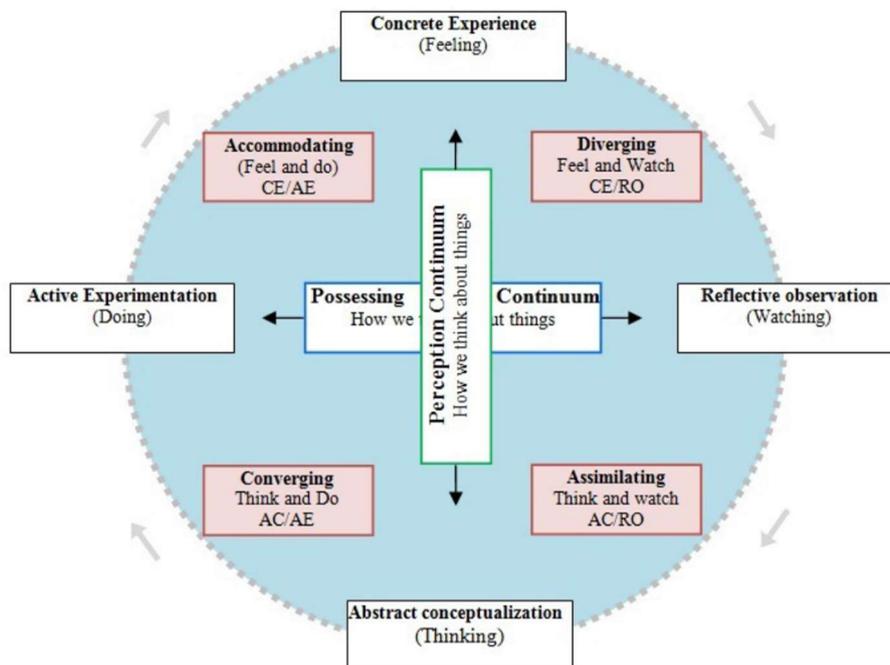
UNIT 2: Understanding Kolb's learning style of Collaborative and Inclusive E- Classrooms

There are different learning styles applicable for e-learning, which can be described as a set of characteristics and behaviours that indicate the specific method of learning. Different learning styles affect the learner differently, the outcome can be identified through the way the learner interacts with the styles. The contribution made by learning style is improving teaching as well as a learning process, with the aim that learning styles not only affect the knowledge transfer but also affect the student emotionally. Thence, the course is likable amongst the learners and comfortable emotionally.

Furthermore, two learning style models have been included to understand and navigate the learning styles of the learner: Kolbs Learning Style and Felder Silverman Learning Style.

The four dimensions of Kolb's learning styles:

1. Concrete Experience (CE) is peer-oriented and maximises advantages with more discussion,
2. Reflective Observation (RO) observation in making judgments,
3. Abstract Conceptualization (AC) learnt best with authority-directed and emphasized on theory and systematic analysis, and
4. Active Experimentation (AE) learnt by doing heavy experimentation (Lu et al., 2007).



The two continuums reflect into four types of learners: Think and Do (Converging), Feel and Do (Accommodating), Think and watch (Assimilating), and Feel and Watch (Diverging). The following learning styles are created to understand the learner's learning preference with dimensions based on how the learner perceives and processes information (Shahabadi & Uplane 2015).

Online collaborative use of Kolb's Learning style

The preferred styles of learners in asynchronous learning are the Converging (Think and Do) and assimilating (Think and Watch) styles. It is to be noted that the two styles are influenced by the abstract conceptualization i.e. the learner values scientific approaches more than artistic approaches of concrete dimension. This implies that the learner must be trained to make decisions by giving the meaning behind the content, theories, and ideas. Asynchronous learners prefer to get involved in technical issues rather than social or interpersonal issues.

In accordance with this, other authors suggest that different styles have different reading times.

For instance, Convergers and Assimilators spend more time reading online than Divergers and Accommodators, while Divergers and Accommodators spend more time on online discussions than Convergers and Assimilators (Lu et al., 2007).

Hence Convergers and Assimilators consist of abstract experience characters whilst Divergers and Accommodators possessed the characters of Concrete Experience. In this case, learning style does not affect learning outcomes (Lu et al., 2007, pp. 194). Moreover, the authors' study did not find any effect on total observation time and total designing time.

Shahabadi & Uplane (2015, pp. 137) suggest that “Individualized learning projects that allow for practical applications, online laboratory, listservs to provide information in various formats including text, video, graphic & sound, experimenting new, ideas, simulations, labs, and practical application and doing individual assignment are some preferred and suitable methods of learning among asynchronous e-learners”.

In addition to this, Abstract Conceptualization needs abundant electronic documents for satisfying their online learning requirements. On the other hand, Concrete Experience might lead to efficient learning in communicative learning classrooms (Lu et al., 2007). Therefore, to maximize the learning outcome instructors need to encourage to participate in online discussion activities. However online reading is a major component in students learning outcomes. So, providing many electronic documents and giving enough time to let students absorb knowledge by online reading might also be effective methods to improve the quality of online courses (Lu, et al., 2007, pp. 195). Kolb's learning style is widely used for improving and refining its psychometric properties (Lu et al., 2007).

Therefore, Information and Communication Technologies (ICT) and Massive Online Courses (MOOC) provide the learners with an opportunity to work online with their peers, receive feedback from teachers, complete tasks, and submit their work with a click (Nguyen & Tran, 2022). The use of ICT under the novel approach of managing emotions and motivational processes contributes to meaningful learning in learners (Sayaf et al., 2022).

Recommendation: Kolb's central idea is not to teach each student according to his or her style preferences but rather to teach around the cycle, sequentially addressing the preferences of students with different styles.

To understand Kolb's learning style application in E-classroom here is a blog at: [Using Kolb's Learning Styles To Create Engaging Custom eLearning Courses - eLearning \(adobe.com\)](#)

Video Available At: [Kolb's Cycle Experiential Learning - YouTube](#)

Felder Silverman learning style model:
Dimensions of Learning and Teaching Styles

<i>Preferred Learning Style</i>		<i>Corresponding Teaching Style</i>	
sensory } intuitive }	perception	concrete } abstract }	content
visual } auditory }	input	visual } verbal }	presentation
inductive } deductive }	organization	inductive } deductive }	organization
active } reflective }	processing	active } passive }	student participation
sequential } global }	understanding	sequential } global }	perspective

Figure 1: Felder & Silverman, 1988

Before learning more about the detailed learning styles of the Framework. The questionnaire test is recommended: [Index of Learning Styles Questionnaire \(ncsu.edu\)](https://www.ncsu.edu/learning-styles/questionnaire/) This questionnaire gives a general idea about the individual's learning style.

There are 32 (2^5) learning styles in the Felder Silverman framework.

In the theory of psychological types, the learner's perception of the world is in two ways:

1. Sensing: Involves observation, gathering data through senses
2. Intuition: Involves indirect perception by way of the unconscious (speculation, imagination, hunches).

Learning style: - Concrete and Abstract

Sensors: Understand data and experimentation. They like solving problems by standard methods and dislike surprises. They comprise patience with details but do not like complications. Good at monitoring, quick but maybe careless. They have the disadvantage in Timed Tests as they require to read questions several times before beginning to answer them.

Intuitors: Understand principles and theories. They like innovation and dislike repetition. They are often bored by details but welcome complicated problems. They are good at grasping new concepts. They are careful but may be slow. Intuitors may also do badly in the Timed Tests but due to different reasons as they are very impatient with details.

Blend concrete information (facts, data, observable phenomena) and abstract concepts (principles, theories, mathematical models).

It is also to be noted that Concrete experience and abstract conceptualization are also included in the learning style dimension in Kolb's experimental learning model that is closely related to sensing and intuition.

Learners receive information into three linguists' modalities:

Visual – Sights, pictures, diagrams, symbols, flow charts, timelines, films, demonstrations. Any information provided to them in auditory form is easily forgotten by them.

Verbal – Encompassing both spoken and written words. Verbal learners remember more of what they hear than they say.

They learn a lot from discussions or podcasts. They prefer verbal explanation over visual demonstration. They learn better by explaining to others.

Kinesthetic – Information perception by touching, tasting, or smelling and information processing (moving, relating, doing something active while learning).

It is to be noted that most people of college-age and older are visual learners. In contrast, the learning information produced in colleges is predominated by verbal lectures.

Hence online collaborative learning gives a benefit to reinforce presentations in a visual and verbal form as well as activities and case studies conducted to stimulate the kinesthetic learners.

The form of information learner is most comfortable with:

Induction- It is the reasoning progression that proceeds from particulars (observations measurements, data) to generalities (governing rules, laws, theories). Induction is a natural human learning style. The advantage of this learning style is increased academic achievements, enhanced abstract reasoning skills, longer retention of information, improved ability to apply principles, confidence in problem-solving abilities, and increased capabilities for inventive thought.

Deduction- They are in opposite direction, learners deduce consequences. This constitutes to natural teaching style. For example, stating the governing principles and working down to the applications efficiently and elegantly to organize and present material that is already understood. This style gives emphasis on beginning with the fundamentals.

Misleading impression: The problem with deductive teaching style is that the learner is under the impression that derivation of the perfectly ordered and concise exposition of a relatively complex problem would be beyond their abilities. Hence, the learner is never able to see the real process of false starts, trial, and error efforts, and eventually neatly leading to the material.

How to teach both?

To follow the scientific method in classroom presentations: first induction, then deduction. Homework- about some present phenomena and ask underlining rules. This helps in playing to the inductive learner's strength and helps deductive learners develop facilities with less preferred mode.

It is to be noted that inductive/deductive dimensions have been deleted:

It is believed that below school graduate level- induction is the best teaching style. Although the traditional college teaching method is deduction, starting from the fundamentals and proceeding to applications. The problem with inductive is that cannot be concise or prescriptive. Most of the students prefer deductive presentations- “Just tell me what exactly I need to know for the test, not one word or less” and so the dimension had to be dropped from the model.

The complex mental process by which the perceived information is converted into knowledge can be converted into two categories: Active learners and Reflective learners

Active Learners: Do something in the external world with the information. For example, discussing, explaining, and testing. These learners do not learn in situations that require them to be passive. They work better in groups and are also known as experimentalists.

Reflective Learners: These learners learn by examining and manipulating the information introspectively. They do not learn much in an environment that does not provide any opportunities to think about the information being presented. These learners work better by themselves and are better theoreticians.

How to teach them?

Instructors should alternate lectures with occasional pauses for thought for reflective learners and brief discussions or problem-solving activities for active learners. Instructors should present material that emphasis on both problems solving and fundamental understanding.

Sequential and Global Learners:

Most formal education involves the presentation of material in a logically ordered progression, with the pace of learning dictated by the clock and the calendar. When all the material is covered with the learners. The learners are tested with their mastery and then instructors move on to the next stage.

Sequential learners:

They are comfortable with mastering the material presented in formal education, they follow the linear reasoning process when solving problems. Sequential learners work with the material even when they understand it partially or superficially. Strong convergent thinking analysis is seen in them. Sequential learners learn best with the material presented with a steady progression of complexity or difficulty.

It is to be noted that application to problems that leave sequential learners baffled is well understood by global learners.

Global learners: The learners learn in fits and starts; they are maybe lost for days. They are unable to solve the simplest problem. These learners show rudimentary understanding until they “get it”. The light bulb flashes or the jigsaw puzzle comes together.

These learners make intuitive leaps, cannot explain how they came up with the solutions. They have divergent thinking synthesis. Do not learn steadily or predictably they tend to feel out-of-step with their fellow students and incapable of meeting the expectations of their teachers. They may feel stupid when they are struggling to master material with which most of their contemporaries seem to have a little trouble. Fortunately, in contrast, global learners are the synthesizers, the multidisciplinary researchers, the systems thinkers, and the one who sees the connections no one else sees.

How to teach global learners?

Instructors should provide the big picture or goal of a lesson before presenting the steps, doing as much as possible to establish the content and relevance of the subject matter and relate it to the student's experience.

Global learners should be given the freedom to devise their methods of solving problems rather than being forced to adopt the professor's strategy, and they should be exposed periodically to advanced concepts before these concepts would normally be introduced.

Recommendation: The idea is to not adopt all the techniques recommended for balancing among different learning style preferences. It is rather to pick a few that can look reasonable to the instructor and give them a fair try. The teaching style techniques should be comfortable for both instructors and effective for their students. The process can evolve naturally and be relatively painless.

Blog Available At: [Felder-Silverman Learning Style Model \(thepeakperformancecenter.com\)](http://thepeakperformancecenter.com)

Recommendation: With the help of Kolb's learning style or Felder Silverman framework, the instructor gets an insight into the learning preference of the Collaborative e-classrooms. The instructor needs to provide 5-dimensional activities for the active participation to take place in the e-classroom: -

1. Create a safe space for the learners to learn about each other's backgrounds and converse about what experiences have been important in shaping up their lives.
 - Share stories or life-changing experiences to whatever extent they feel comfortable
 - Thank each of them to share their valuable experience,
 - Ask them to write about the learnings from this task.

2. Ask learners about how they feel, knowing learners and encouraging them to feel comfortable builds a sense of inclusion.
 - Kick-off small group meetings and set the tone for openness and vulnerability, talking about challenges faced by the instructors can allow bringing up their challenges too.

3. This particular inclusion activity suggested by MIT is a great way to break down misconceptions and stereotypes by giving people a chance to self-identify, while also addressing the stereotypes that can accompany these identifying factors.

Here are the steps for “I Am, But I am Not”

- Each participant folds a piece of paper in half to create two separate columns.
 - In the first column, they write “I Am”.
 - In the second column, they write “I Am Not”.
 - In between these two columns, write the word “But”.
 - The final phrase will read “I am _____, but I am not _____.”
 - Participants fill in the first blank with some kind of common identifier, such as their gender, race, religion, or age, and the second with a common stereotype about that group which is not true of them (whether the stereotype is positive or negative).
 - Make sure there are no questions and have everyone write at least 5 statements.
 - Allow participants to share their statements with the team and have an open and respectful discourse on stereotypes.
4. Perspective-taking: - To mentally walk into someone else’s shoes.
These exercises produce more empathetic teams and will build more positive attitudes towards minorities group.
 - To group learners with different backgrounds that are different from their own for a group task
 - Encourage them to write the challenges the different backgrounds could encounter.
 - Share and discuss in small groups.
 5. Bring bias to the front: - The instructor should talk about the biases existing in the classroom. Encourage learners to call out on biasness and non-inclusive language openly, whosoever calls out must submit a Euro. Further, have a quick discussion about the types of bias in the classroom, the learners resonate. Therefore, this practice will help reduce bias a bit every day by bringing it up to the surface and the euros collected can be used to do some fun activities after the course is completed.

These diversity and inclusion activities in collaborative e-classrooms can foster communication among learners being most honest and transparent, bring positive effects in learning together, the feeling of counting on their peers when in need of help, and can bring more satisfaction in their learning environment. The assumption should be tested that the learners, after becoming comfortable with their peers, do not hide behind the cameras. Therefore, for effective learning outcomes, factors like hiding behaviour, the need to increase the variety in communication and tools and provision of a multicultural/diverse course content as well as safe environment should be solved. The correlation analysis was conducted in IO1 which showcases the significant level of dependence of these factors in students' motivation and students' attention.

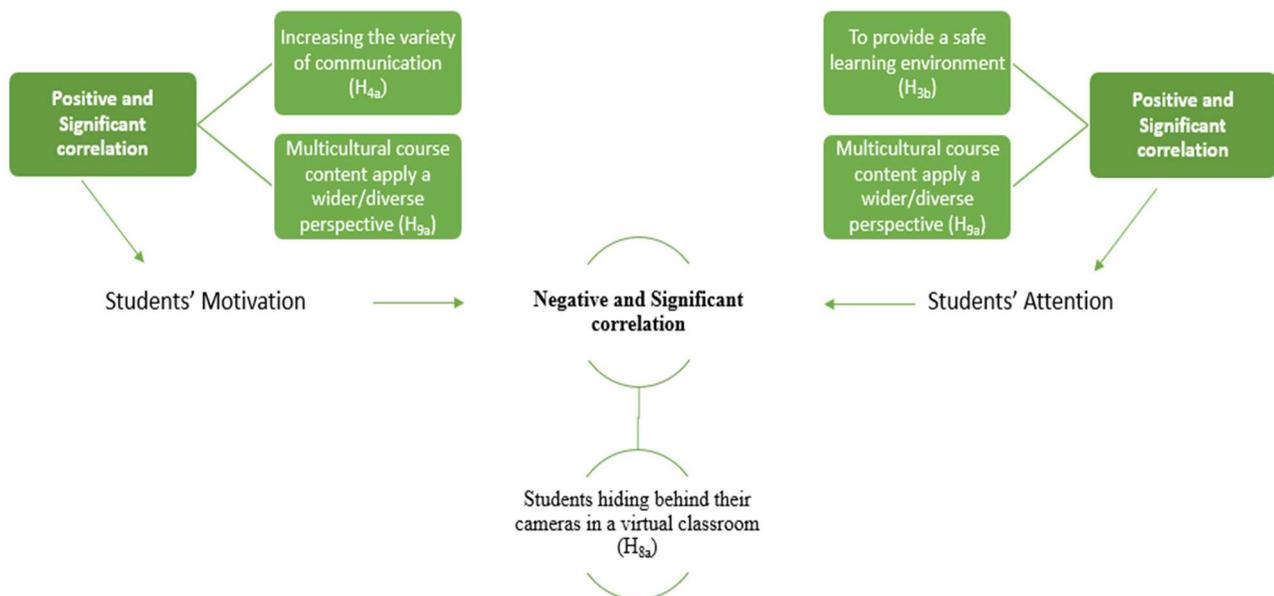


Figura 3: Intellectual Output 1 Correlation Analysis

EXERCISES UNIT

Exercise 1

Matching questions provide a list of sub-questions along with a list of answers. The respondent must "match" the correct answers with each question.

<ul style="list-style-type: none"> Learners learning in fits and starts, these learners show rudimentary understanding until they “get it”. The light bulb flashes or the jigsaw puzzle comes together. 	Concrete Experience (5)
<ul style="list-style-type: none"> Information perception by touching, tasting, or smelling and information processing 	Sensors (3)
<ul style="list-style-type: none"> These Learners like solving problems by standard methods dislikes surprises, and do not like complications 	Reflective learners (4)
<ul style="list-style-type: none"> These Learners learn better by manipulating the information introspectively, they work better themselves and are better theoreticians 	Kinesthetic Learners (2)
<ul style="list-style-type: none"> Effective learning takes place with communication and online discussions 	Global Learners (1)

Exercise 2

We can use Multiple Choice Exercises:

How to teach global learners?

- Instructor should provide the big picture before presenting the steps, doing as much as possible to establish the content and relevance of the subject matter and relate it to the student's experience.**
- Create a safe space for the learners to learn about each other’s backgrounds
- Instructors should provide the presentation of material in a logically ordered progression, with the pace of learning dictated by the clock and the calendar.
- Instructors should present material that emphasizes both problems solving and fundamental understanding.

Which learning style has the four dimensions of concrete experience, reflective observation, abstract conceptualization, and active experimentation?

- Felder Silverman learning style.
- Digital learning style
- Kolb’s learning style**
- Community of Inquiry

What are the concrete and abstract learning style for sensors and intuitors?

- By mentally walking into the learner's shoes.
- **Blend information (facts, data, observable phenomena) and concepts (principles, theories, mathematical models).**
- Create a space for the learners to share their experiences.
- Provide homework about some present phenomena and ask underlining rules.

4. Diverges and Accommodators spend more spend on _____ than Convergents and Assimilators.

- Reading online
- On case studies
- Interpreting figures
- **Online discussion**

5. Which behaviours can be solved after applying 5- dimensional activities for the active participation to take place in the e-classroom?

- **Hiding behind the camera**
- Better interpretation of figures and facts
- Instructors' communication
- Submit their work with a click.

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UNIT 3: Digital literacy learning style

Digital literacy is an important component in online classrooms. Digital literacy and students learning styles towards listening meta-cognitive strategies will determine student grasping success (Arono et al. 2022).

Digital literacy is a sophisticated and interconnected structure between the subbranches of skills, ethics, knowledge, and creative output. It is a combination of power and skill that cannot be quantified, but it is more flexible in analysing, selecting information, and critically evaluating data, while raising awareness of individual responsibility and mutual respect for rights and obligations.

Deep learning and digital literacy

One of the vital concepts of digital literacy when it comes to the field of pedagogy is deep learning. Deep learning entails six core skills: -

- Collaboration: The ability to showcase strong interpersonal and team-related skills and work collaboratively with others.
- Creativity: The ability to be able to measure opportunities in an entrepreneurial manner and ask the correct questions to generate new ideas.
- Critical thinking: The ability to evaluate information, identify patterns and construct meaningful knowledge for application in the real world.
- Citizenship: The ability to consider diverse issues and solve complex problems based upon deep learning of diverse values.
- Character: Traits such as grit, tenacity, perseverance, and resilience; alongside a desire to make learning an integral part of living.
- Communication: An ability to communicate effectively through a variety of methods and techniques to a range of audiences.

Blog Available at [Digital literacy in the classroom. How important is it? | Promethean Blog \(prometheanworld.com\)](https://www.prometheanworld.com/digital-literacy-in-the-classroom-how-important-is-it/)

It is also evident that the teachers need to design the material and activities with a more 'social context' in learning for an authentic and appropriate approach for creative independent thinkers than passive knowledge receivers. (Ruey, 2010).

Key Elements of Meta-cognitive strategies

Met-cognitive strategies play a significant role in the development of instructional media according to the learners.

The crucial part of using the instructional media is the listening ability through audio and listening ability through audio-visual. Also, how the students' listening strategies result in good listening comprehension so that learning is best achieved.

The best outcome of the instructor-learner relationship is when the efficient learning outcome has been achieved. Since ICT is mediating the instructor-learner relationship and learners' attitude towards ICT. This influence can be incorporated with instructional practices as students learning attitude is also influenced by the technology as well as resources/ material used (Sayaf, et al., 2022).

To ensure the inclusive, diversity, and equitability of the learning styles in the course design, it is very crucial to understand the way the instructor interacts with the learners and the way the instructor plan and create course content.

A few of the questions can be considered before creating an online course for the learners:

1. What is required to enroll in the course?
 - Are the varied socioeconomic backgrounds are considered?
 - Do all learners have access to the resources needed to complete the course?

2. Are the instructors providing diverse course content?
 - Does the instructor's course content accommodate all learning styles?
 - Are the instructors using content references from a diverse range of people, groups, and perspectives?
 - What opportunities do learners have to demonstrate their knowledge in different ways?

3. Does the instructor's online course content provide web accessibility for each learner?
 - Does the online course content meet web accessibility compliance standards?
 - Are instructors providing accommodations for each learner?
 - Do the assistive technologies used in the course integrate?

Detailed Blog Available At: [What Are The Metacognitive Strategies? - daitips.com](https://daitips.com/what-are-the-metacognitive-strategies/)

Video Available At: [Introducing Metacognitive Learning Strategies - YouTube](#)

How does the metacognitive strategy increase the learner's grasping power?

Arono, et al., (2022, pp. 532) formulated the meta-cognitive listening strategies: -

1. "Planning (Preparing mentally and emotionally for the listening task): reviewing the content and practicing potential words.
2. Attention directed (attention monitoring and avoiding distraction): concentrate fully and continue listening despite difficulties.
3. Selective attention (determine listening in advance for certain aspects of the input) Determine in advance to listen to familiar content words; notice how information is structured (e.g., discourse markers); pay attention to repetition; notice intonation features (e.g., stopping or weakening and increasing pitch).
4. Monitoring (checking/ensuring understanding while listening): confirm the understanding that has occurred; identify words or ideas not understood; check the current interpretation with the context of the message; check recent interpretations with prior knowledge.
5. Evaluation (interpretation fits accuracy, completeness, and acceptability after listening): check interpretation against external sources; check interpretation using prior knowledge; according to interpretation according to the context of the message".

Videos and images do not require the teacher to talk throughout the lesson and help the student to stimulate a sense of observation resulting in the development of critical thinking and self-instruction. Arono et al., (2022) stated the importance of gender in online learning as women show a dominant presence in auditory learning styles.

Instructor's support to the learner's digital literacy for effective learning outcome:

Instructors should also understand the digital generation gap in e- classrooms and must stay on the same level as the learners while using the new technology and prudently use it to effectively support learning outcomes and facilitate a learning community that supports each other's individual learning styles.

The three steps instructor should take to encounter the digital literacy barriers:

1. Instructors must be willing to embrace the use of all types of Web 2.0 tools and integrate those that facilitate learning in the e-classrooms. However, the emphasis should be on the tools which enhance the learning experience.
2. Learners should be surveyed for their digital literacy, background, and previous coursework with the technology. This gives necessary information of each learners digital learning style and technology skill level. For example, the data can be collected through the welcome email before the beginning of the class.
3. When a learner encounter problem, meet them at the problem with the assistance and tools that help them move forward and re-engage with the course content or lessons. Furthermore, utilize open discussion forums between the learners that allow all participants to ask questions and support each other.

“Whether it’s being on camera, speaking, using the chat, or just listening in, you want them to have every opportunity to interact in different ways when they’re ready,”

- Patrick DeLapp, VA Special Olympics Board Member and Coach

The instructor should make sure the module is providing different ways for the learners to interact with their peers as well as with the instructor. For example, technology-related, communication methods, or group tasks, the learners should be exposed to various options of communication.

One main factor in the “creation of a collaborative environment in e-classroom” is learner engagement. Hence collaborative technology should be effectively used for achieving learners’ engagement with each other and the course.

Collaborative Technologies for Sense-Making:

The instructor can accelerate learner engagement by using technology for sense-making in social settings. The collaborative documents, discussion boards, slides, notes, whiteboards, and other file types not only provide a way for collaborative notetaking but also offer learners and instructors a view of the process and the output of all groups participating in an instructional activity.

For example, learners interacting in the group for a group activity may use discussion boards to post responses and obtain each other's review and feedback. This activity becomes the strong point for students who are reticent to speak publicly as well as learners who have difficulty formulating spoken thoughts in a second language. The response posted could be individual or in a group, however, this results in maintaining engagement among learners from a communal cultural perspective. Instructors can spectate the whole activity and take necessary actions to enhance understanding and increase engagement.

Three vital student engagement objectives that are embraced by digital collaborative technologies:

- Connecting learners with the content, with the instructor, and with one another, within and across groups.
- Formulating, sharing, and getting feedback on responses benefits all learners by increasing the exchange of ideas and approaches to the given prompt, helping learners develop critical thinking skills through thoughtful peer review and analysis, and engaging them with timely feedback from expert instructors.
- Retaining these "blended learning" practices and additional affordances post-pandemic is worthwhile as we move to the next normal.

Improve instructors' interaction with the learners in e-classrooms:

1. Make yourself Human

- Know your audience
- Used their preferred name
- Understand learners' expectation
- Learn about learners' background
- Inform learners about instructors' background
- Be genuine and don't overthink

2. Use Inclusive Language

Use language which is considered in all communication whether it's a live discussion, email, syllabus language, and even test questions - be inclusive.

- Don't make assumptions or use stereotypes.
- Focus on strengths and abilities instead of anything considered negative.
- Be sensitive to backgrounds, experiences, and perspectives.
- Stay up to date on terminology and avoid slang
For example the expressions "peanut gallery" or "long time no see" is used without realising that they're both rooted in racism and mockery of marginalized groups.
- Avoid generalising For example:
Do not use: "You guys should complete the assignment by Friday."
Use: "Everyone should complete the assignment by Friday."

3. Encourage open communication

Instructors should foster open communication whether it is answering questions, engaging discussions, asking for help, providing feedback, or learner chiming in during lectures their perspective. Hence, the narrative should be that learners feel that they have a voice in the e-classroom and that they belong.

4. Be consistent

Online classes will constantly change but it's crucial that the instructor consistently provide what learners require to feel included and supported in the e-classroom.

5. Gather feedback and information

Use periodic surveys or quizzes to gather feedback and information from the learners. It helps to learn about the learners and helps to identify the improvement in their learning experience. You can use an introduction survey at the beginning of the class to gather information about them and anonymous course feedback surveys to monitor student progress and areas of improvement.

A questionnaire is presented for instructors to reflect on the provision of the course offering to all students including underrepresented and minority students and if they are well served in the e-classroom: [Equity-for-Online-Classes_GB-Wisconsin.pdf \(whitesforracialequity.org\)](#)

Digital literacy learning style adjusted according to the inclusive groups

Students with learning disabilities show better learning outcomes when taught in differentiated small groups with predominant instructional model strategies. Hence, the instructor's instructional decision-making can be mediated by collective formative assessment data (Nagro et al., 2016).

Learning disabilities require additional help understanding how to assess their level of comprehension as well as how to approach active engagement in learning (Nagro, et al., 2016, pp. 243). As students with learning disabilities suffer in participation and peer interactions, the teachers should incorporate a continuum of strategies like engagement to reactive strategies to motivate the students who become disengaged, by promoting students to participate through verbal, gestural, written, or digital modes of responding (Nagro et al., 2016).

Consider a situation:

You're teaching an online class with 30 students with several students that have one or more of the following conditions:

1. Deaf
2. Blind
3. Colorblind
4. Unable to type or use a mouse
5. Unable to afford a webcam

How will the instructor accommodate with these students and provide them equal opportunity to learn and show what they know?

Using Multimedia- Using multimedia can help learners engage with course content in different ways that work for them.

All multimedia used in your online class must meet web accessibility standards and best practices which cover:

- Captioning, subtitles, and transcriptions
- Alternative-text and descriptions
- Appropriate color contrast
- Font sizes and types
- Organization and structure

Allowing Assistive Technology- Any item, product, equipment that is used to increase or improve functional capabilities for students with disabilities, according to the Individuals with Disabilities Education Act (IDEA) law.

For example, Learners with blindness or color blindness can use a screen reader to convey text and images into speech or touch (Braille). Learners who cannot type can use assistive technology that can help learners with motor function impairments.

Recommendation: Courses may be flexible with the usage of assistive technology to engage and interact with online class content. The technology should be compatible with LMS, video conferencing, and any other multimedia for all-inclusive groups.

Video Available At: [Assistive Technologies - YouTube](#)

Blog Available at: [Remote Learning Technology & Assistive Technology Solutions \(honorlock.com\)](#)

EXERCISES UNIT

Exercise 1

Please allocate **(yes)** if you perceive the following statements to be **right** and **(no)** if you perceive the following statements to be **wrong**:

1. The six core skills of deep learning and digital literacy are Collaboration, Creativity, Critical thinking, citizenship, character, and Communication **(YES/NO)**.
2. To ensure the inclusive, diversity, and equitability of the learning styles in the course design, it is very crucial to understand the way the instructor interacts with the learner and the way the instructor helps the learner to learn the existing knowledge **(YES/NO)**.
3. To encourage open communication, instructors should foster open communication whether it is answering questions, engaging in discussions, asking for help, providing feedback, or learners chiming in during lectures with their perspective **(YES/NO)**.
4. Multimedia technology is Any item, product, equipment that is used to increase or improve functional capabilities for students with disabilities **(YES/NO)**.
5. Students with learning disabilities show better learning outcomes when taught in large homogenous groups with predominant instructional model strategies **(YES/NO)**.

Exercise 2

Crosswords Puzzles

1. What Multimedia tool can be used to teach colorblind learners? Colour Contrast
2. Which assistive technology can be used for blind learners? Braille
3. What is defined as “the ability to showcase strong interpersonal and team-related skills and work collaboratively with others”? Collaboration
4. What can help the learner stimulate a sense of observation resulting in the development of critical thinking and self-instruction? Videos
5. How can the instructors know about learners’ digital literacy, background, and previous coursework with the technology? Surveys

A	V	H	E	I	D	T	R	M	P	C	D	L	M	X	I	V	E	D
B	I	X	G	S	W	S	U	R	V	E	Y	S	T	B	W	Q	A	S
S	D	O	R	N	S	T	F	W	W	O	B	O	B	R	S	T	P	L
H	E	D	H	E	I	C	O	L	L	A	B	O	R	A	T	I	O	N
C	O	L	O	U	R	C	O	N	T	R	A	S	T	I	T	O	P	M
L	S	I	N	C	Z	I	V	E	J	I	G	C	G	L	I	C	U	O
E	T	I	X	G	S	W	Q	A	Z	T	F	V	J	L	Z	H	Y	K
W	O	B	O	R	N	S	T	P	L	B	M	U	L	E	P	K	F	N
E	D	M	F	H	E	I	D	T	R	M	P	C	E	O	X	C	R	F

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UNIT 4: Course design help in the identification of learning styles

The existing courses designed follow a “one fit for all” structure without any scope of making personalised changes according to the individual’s needs (Agarwal et al., 2022). Therefore, Coole & Watts (2009, pp.25) formulated the re-design of the modules: -

- 1) Co-design: The development of the system so that trainees can personalise their space (even temporarily) as they are working.
- 2) Co-instruct: Use knowledge and experience of trainees as a clear source of content and approach
- 3) Guided practice: To infuse case studies into this e-work
- 4) Assessment: Use the system for evaluating collaborative ventures, enabling peer-rated assessment.” (Coole & Watts, 2009).

In the learning environment, there are several ways to think, analyse the information, and solve the problem. Hence knowing the learning style of the learner helps the instructor to provide suitable learning content in an appropriate learning format that matches the learners learning style to help the learner have the best learning outcome.

Classification:

Classification is one type of Data Mining technique that processes the recognisable understandable patterns and provides meaningful information from the given data set of the learners. Therefore, the classification of the data can be done through different algorithm software.

Two classification types identified are: Supervised and Unsupervised

Supervised: The type which enables the user to select a training data set and perform the classification algorithm on it. Further, creates a model that can measure the performance and accuracy of the test dataset.

Unsupervised: The outcomes are based on the software analysis of the elements, without the user defining sample classes. The computer process techniques to determine which items are related and it must belong to actual features to group them into classes.

For supervised classification:

Pre-processing operation is the first step performed on raw data collection. While extraction of useful data, the sample rows that have no values and the attribute columns for which data is not found are discarded.

Sampling:-

After extraction from the raw data, the data set must be defined into training and test data set. The training data set will be used to practice the model and the test data set will be used to evaluate the performance.

Validation:-

It is popularly used to test different combinations of features selection, dimensionality reduction, and learning algorithms.

Normalisation:-

The technique is applied to make various compare and contrast attributes, especially, if the attributes are measured on different dimensions, and it is an essential requirement for machine learning algorithms.

The software which tries to identify the relationships between the characteristics that make it possible to predict the outcome is also used.

Types of software systems

Recommender systems:

It is one of the solutions suggested providing a more personalised experience and better course flow for the learners (Agarwal et al., 2022). With the increased users on MOOCs, an intelligent and adaptive recommendation system that keeps the learners engaged is a crucial aspect. The recommender systems recommend relevant material to the users based on different algorithms like content-based, collaborative filtering, social networking, knowledge-based, and group-based approaches.

Whilst multiple algorithms used in combination are known as Hybrid recommendation systems. (Agarwal et al., 2022).

Knowledge-based recommendation systems:

It engages the basic information or the knowledge of learners' behavior and interaction with the product knowledge, item, learners profile data, etc to make recommendations (Agarwal et al., 2022, pp.2). It is one of the most operating systems on MOOC platforms, the implementation of the system works on two domains: learner ontology and course ontology.

- Learners' ontology: A model of learners complete with concrete aspects such as grades and deadlines and a more abstract concept in learner's learning style.
- Course ontology: A model where the learners enroll in with its different elements such as video lectures, podcasts, quizzes, etc.

Recommendations of learners' course elements within a MOOC platform in relation to readings, quizzes, forums, etc. are provided based on a learner's learning style dynamically to make the learning experience more engaging. It is suggested that the course recommendation for learners on the MOOC platform needs conjunction of knowledge-based recommendation through hybrid recommendations with cluster-based collaborative filtering approach and rules written in the semantic web rule language.

Simultaneously, collaborative filtering based on item and learner understands the matrix to identify the target items of active learners based and accordingly selects the target items to other items, produce similar items of the target item, determine the neighbour learners of the active learners and according to the similarity of the neighbour learners, the active learners are provided with the generated similar targeted items (Agarwal et al., 2022).

In addition, Semantic Web Rule Language (SWRL) is used as a recommendation and filtering technique based on learning object relevance and weightage (Agarwal et al., 2022, pp.4). Semantic Web Rule Language is a proposed language for the Semantic Web that can be used to express rules as well as logic, combining OWL DL or OWL Lite with a subset of the Rule Markup Language (itself a subset of Datalog).

Another approach for an adaptive e-learning system named rule-based approach functions by changing the interface components dynamically throughout the course to provide a customised recommendation based on learner's learning styles. Hence, with the help of many defined semantic web language rules for identification of the approach can be applied to MOOC's environment for recommendations (Kolekar et al., 2019).

Providing a relevant recommendation to the learner means identifying the characteristics of the learner such as the age, level of attainment or maturation, ability, aptitude, and capability, should all be borne in mind to enable the instructor to select relevant materials for their needs, interest, and aspirations.

One of the most popular use models is the Decision tree classification Model: -

It is defined as a classifier in the form of a data structure to analyse, recognise, and decide a particular pattern. The decision tree starts the test from the root of the tree. Then, the test moves through the tree until the leaf node. Using the pruning process to stop tree splitting

and decide leaf nodes with a small number of points of error or some fixed percentage of the total training set.

Collaborative Filtering: -

The main idea behind the technique is that learners that have similar usage patterns in the past will behave similarly in the future. When a new learner (referred to as an active learner), is on the platform, a list of learners is drawn to search for similar learners. Different gauges of similarity such as cosine similarity, Pearson's coefficient, clusters, etc. have been considered to find the k nearest neighbors (kNN algorithm). The ratings of these nearest neighbours are then used to predict ratings for courses/course elements for the active learner.

Collaborative Heterogeneous groups formation for efficient learning outcomes

The e- classrooms are the web 2.0 environments that embrace participation, connection, and sharing of knowledge and ideas between the learners by dispensing tools designed for this purpose in synchronous and asynchronous teaching.

One of the basic vital factors that influence the success ratio of collaborative learning is student group formation.

Hence, the number and heterogeneity of the group are taken into account for this component. The groups with four or five members are the most effective.

For the improvement of social and cognitive performance of the group, especially for students with low motivation, the formation of the heterogeneity group must be conducted. The formation of heterogeneous groups can be done by selections made by the instructors based on pre-established characteristics.

The pre-established characteristics:-

1. Knowledge
2. Skills
3. Interests
4. Learning style

Machine learning is applied to the learning analytics extracted from Moodle platforms to create heterogeneous groups automatically.

- Some data is used from the online questionnaire.

- Some data is extracted from the interaction of students within the Moodle forum tool

One method to make an efficient learners group is Cluster algorithms for the creation of heterogeneous groups. The method can be conducted in two phases: The individual part and the Collaborative part.

Application of clustering algorithms to Moodle Learning Analytics is extracted at the end of the individual learning path for the creation of homogenous groupings. ‘Groupings are created based on similar platform analytics and student behaviors’ (Nalli et al. 2021 p.3). The verification of the group takes place through the online test and the result of the test helps in checking if the placement of the learner is in the right group.

Learning Analytics Video Available at: [Learning analytics in a nutshell - YouTube](#)

The creation of the heterogeneous groups is performed by bringing learners together from different homogenous groups. In this respect, a novel algorithm based on machine learning techniques allows the creation of the heterogeneous group that has been developed and tested. This moodle plugin allows the creation of heterogeneous groups of learners that are fundamental for the success of collaborative e-classrooms activities.

Machine learning:

In the individual learning part, where the learners are logging in the models, spending time on podcasts and videos, etc. The machine learning techniques apply learning analytics to the data produced by the learner during the individual learning part for group formation. Hence, the group formation is done by this unsupervised machine learning.

‘Machine Learning is a set of techniques developed in the field of artificial intelligence, which includes different complex statistical models and the corresponding optimization methods’.

The objective of the process is to build algorithms that allow the extraction of useful information from a large raw amount of available data and identify the correlations and patterns between them to provide the user with a model that allows accurate predictions in new contexts.

These models are built from the usage of artificial neural networks.

Video Available At: [Learning Analytics through Machine Learning: Project Inspire | Gavin Henrick at #MootIEUK17 - YouTube](#)

Machine learning can be used for several purposes:

1. Informing instructors about the progress of the learners in the course
2. To predict or built an understanding of the learner's final grade
3. If used with clustering algorithms, it helps to detect similar characteristics of the group of objects

In the formation of heterogeneous groups with unsupervised machine learning: For instance, the learners' final grade can be predicted from the frequency of access to Moodle platform.

Hence the following two indicates the correlation with the learners' final grade:

1. Use of learner tracking data
 - a. Time spent online
 - b. Number of logins
 - c. Number of files viewed
 - d. Weblinks
2. Exercises uploaded to the platform

Learning analytics that is related to the platforms, students' behaviour indicates the material is seen or not and how often the learner is seeing the material.

The features extracted from Moodle platform allow the calculation of different aspects of the learner learning process.

1. Presence Coefficient
2. Study Coefficient
3. Activity Coefficient

This coefficient permits the identification of the learner's behaviour with the help of clustering techniques. Selected features for identification of learners' behaviour:

1. Login frequency,
2. Last login,
3. Total time spent online,
4. Number of video tutorials viewed,
5. Frequency of video tutorials viewed,
6. Number of video experiments viewed,
7. Frequency of video experiments viewed,
8. Number of web pages viewed,
9. Number of pdf files downloaded,
10. Number of exercises performed.

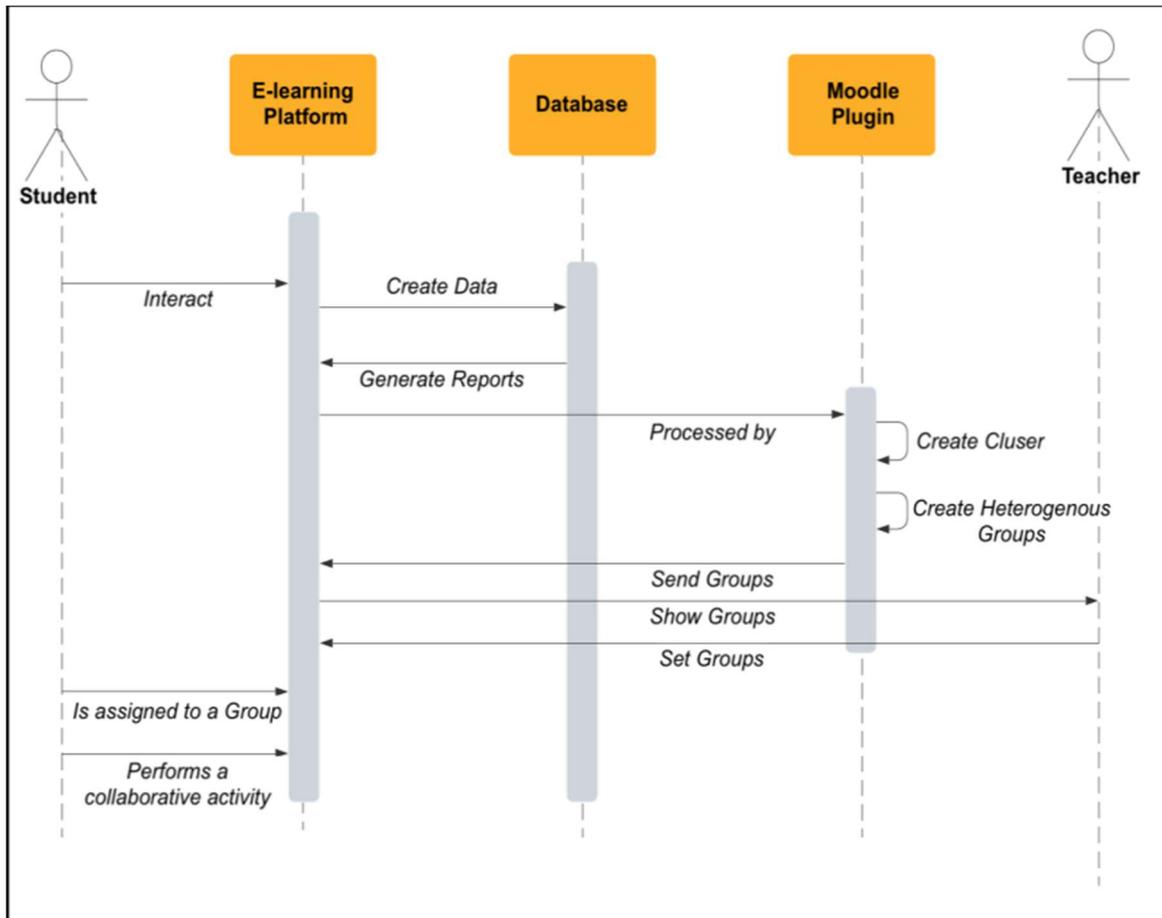


Figure 4: Sequencing diagram of the process of activities, research and software development (Nalli et al., 2021)

Many clustering algorithms e.g., k-means, mean-shift clustering, agglomerative clustering, density-based spatial clustering of applications with noise (DBSCAN), gaussian mixture models clustering, and self-organizing map (SOM) were tested by the authors. However, K-means was identified as the best algorithm for this purpose.

K-means Clustering:

It is defined as an unsupervised method. An iterative algorithm that divides according to the features into K number of predefined non-overlapping distinct clusters or subgroups and assigns a centroid to each cluster. The identification of the number of clusters can be done by the Elbow method.

“The steps in order to achieve clustering using K-means algorithm are described here:

1. Select the number of clusters(K) with Elbow Method in order to obtain the data points.
2. Insert the centroids c_1, c_2, c_k randomly.
3. Repeat 4 and 5 points, until convergence or the end of a fixed number of iterations.
4. for each data point x_i :
5. -find the nearest centroid (c_1, c_2, c_k).
6. -assign the point to that cluster.
7. for each cluster $j = 1, k$
8. -new centroid = mean of all points assigned to that cluster
9. End.” (Nalli et al. 2021 p.7)

The flowchart below shows how k-means clustering works:

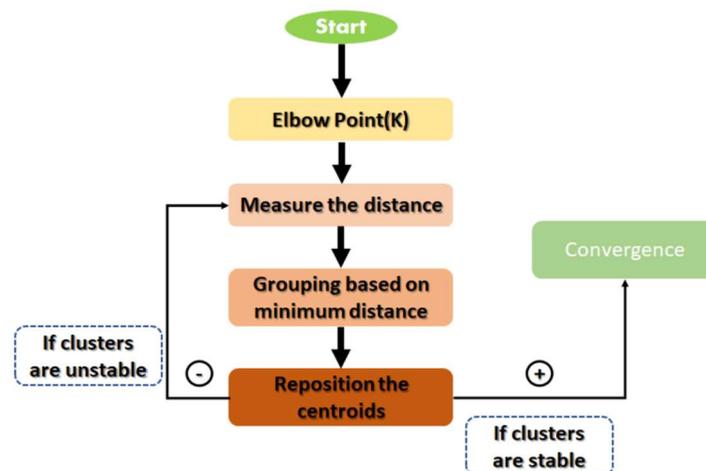


Figure 5: Source Kumar, n.d.

Video Available At: StatQuest: K-means clustering - YouTube

By applying these techniques to the collected data and verifying the efficiency of the techniques, it is possible to guarantee and maximise the heterogeneity of the students within each group. This increases the collaboration and the chances of success for all students in each group within the e-classroom.

EXERCISES UNIT

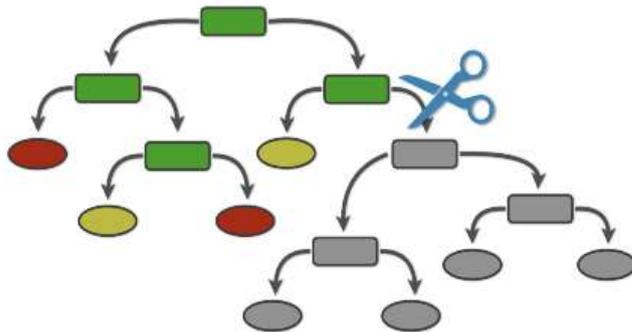
Exercise 1

Audio Questions (The questions will be in the voice recorded form where the learner will listen to the question and select the correct answer).

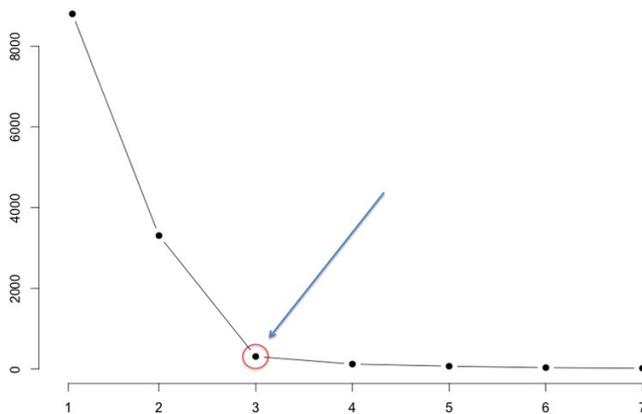
1. Which concept is known as a set of techniques developed in the field of artificial intelligence, which includes different complex statistical models and the corresponding optimization methods?
 - Big data
 - **Machine learning**
 - Deep learning
 - Artificial Intelligence
2. Which type of Data Mining technique processes the recognizable understandable patterns and provides meaningful information from the given data set of the learners?
 - Supervised
 - Cluster
 - Unsupervised
 - **Classification**
3. What are the two domains of knowledge-based recommendation systems?
 - Supervised and Unsupervised Ontology
 - Instructors and Learners Ontology
 - **Course and Learners Ontology**
 - Co-design and Co-construct Ontology
4. Which classification model starts the test from the root of the tree and then moves through the tree until the leaf node?
 - **Decision Tree**
 - Pruning Process
 - Flow Chart Model
 - Classification
5. The creation of which group takes place by bringing learners together from different homogenous groups?
 - Homogenous groups
 - Filtered groups.
 - **Heterogenous groups**
 - Collaborative groups

Exercise 2

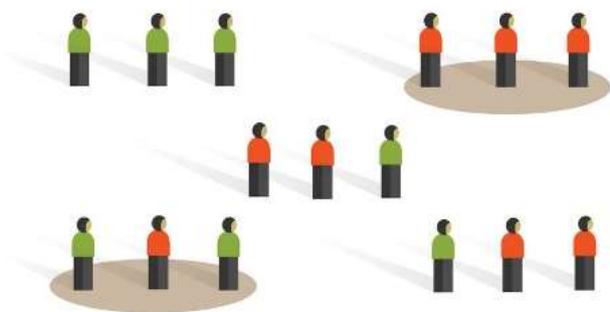
Identify the picture and find the related word from the crossword.



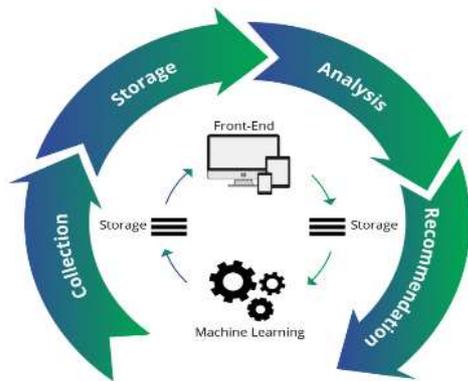
Answer a) Pruning



Answer B) Elbow Point



Answer C) Cluster Sampling



Answer D) Recommender system



Answer E) Moodle

Crossword :-

A	V	H	E	I	D	T	R	M	P	C	D	L	M	X	I	V	E	D
B	I	E	L	B	O	W	P	O	I	N	T	S	T	P	W	E	A	S
S	C	L	U	S	T	E	R	S	A	M	P	L	I	N	G	L	P	L
H	E	D	H	E	I	C	U	L	L	A	B	O	R	A	T	D	O	N
C	O	L	O	U	R	C	N	N	T	S	T	R	A	S	T	O	P	M
L	S	I	N	C	Z	I	I	E	J	I	G	C	I	K	I	O	U	O
R	E	C	O	M	M	E	N	D	E	R	S	Y	S	T	E	M	Y	K
W	O	B	O	R	N	S	G	P	L	B	M	U	L	X	P	K	F	N
E	D	M	F	H	E	I	D	T	R	M	P	C	E	O	X	C	R	F

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Module 3: STRATEGIES FOR COLLABORATIVE AND INCLUSIVE E-CLASSROOM ENVIRONMENTS

This module deals with the strategies for collaborative online learning. We show that this strategy is necessary and that the involvement of all stakeholders in the strategy is of great importance. In addition to a discussion and examination of the strengths and weaknesses of this form of learning, the aim is to overcome the challenges of collaborative online learning. The users of this module get to know the phases of the introduction and are given a checklist to introduce this learning in their own organization.

MODULE PLAN

- UNIT 1 Accepting and implementing challenges for collaborative online learning.
- UNIT 2 Identifying, optimizing, and using the strengths and weaknesses of digital pedagogy.
- UNIT 3 Implementation strategy
- UNIT 4 Collaborative Learning in the Online Classroom – Checklist for Successful Application

AIMS AND GOALS of MODULE 3

Unit 1:

- The learner can identify the concrete challenges that are based on this form of learning.
- The learner is aware of the solutions available to master the challenges.
- The learner can apply the concept of collaborative online learning using an example.

Unit 2:

- The learner can specifically identify the strengths and weaknesses of this type of learning.
- The learner can apply the concept of collaborative online learning precisely by balancing the weaknesses.
- The learner is aware that this form of learning is well applicable through a correct impulse setting.

Unit 3:

- The learner can name the individual components and phases of the learning process.
- The learner is aware that all phases must be planned in a structured and systematic manner and that the role of the actors must be clearly defined at the outset.
- The learner can independently apply the implementation process to a topic.

Unit 4:

- The learner can name the essential aspects for a successful application.
- The learner is aware that the provision of user-friendly technology is an essential building block for success.
- The learner can apply the presented checklist as an exemplary procedure in the implementation of collaborative online learning.

LEARNING OBJECTIVES of MODULE 3

Unit 1:

By the end of this module, learner will be able to:

- Getting to know the challenges of collaborative learning
- To know exactly which solutions enable collaborative online learning
- Applying this learning in everyday professional life
- Specifically name the benefits

Unit 2:

By the end of this module, learner will be able to:

- To know the meaning and the most important dimensions of strengths and weaknesses
- To know exactly what impulses can be used to reduce weaknesses
- Based on the tips mentioned, to implement successful strategies for the application of collaborative online learning

Unit 3:

By the end of this module, learner will be able to:

- To know the phases of the implementation process
- Present the objectives and necessities for each individual phase
- Assess the effectiveness of the implementation on the basis of the evaluation criteria
- To design and plan new learning content analogous to the approach

Unit 4:

By the end of this module, learner will be able to:

- To know the essential aspects for successful applications
- Use the checklist for the own training courses and develop own teaching units based on this
- To present and explain the importance of technology and qualification

KEYWORDS of MODULE 3

Challenges, Checklists, Competence Management, Continuous improvement process, Evaluation, Feedback meetings, Group work, learning style, Management system, Market analysis, Moderation, Motivation, Peer to Peer Activities, Processes, Resources, Staff development, Strengthen, Weaken.

Topic and Instruction Method	Timing (minutes)	Materials and Equipment required	Assessment/Evaluation
UNIT 1: Accepting and implementing challenges for collaborative online learning	75 min.	Presentation (ppp), Laptop Teachers, Laptop Learners, IT environment with practice-oriented tools that allow collaborative work in an online context, Access to Mentimeter, Wlan/ LAN access	The evaluation is based on a self-test with 6 questions. The participants thus can "review" the findings from Unit 1 and to secure the state of knowledge.
UNIT 2: Identifying, optimizing, and using the strengths and weaknesses of digital pedagogy	60 min.	Presentation (ppp), Laptop Teachers, Laptop Learners, IT environment with practice-oriented tools that allow collaborative work in an online context	The evaluation of this unit is carried out by the short presentation at the end. In this short lecture, the participants must reflect and reproduce the findings of the unit very quickly and in a focused manner.
UNIT 3: Implementation strategy	70 min.	Presentation (ppp), Laptop Teachers, Laptop Learners, IT environment with practice-oriented tools that allow collaborative work in an online context, Wlan/ LAN access	The evaluation is based on a partner quiz with 8 questions. Through the independent processing in a first step and the subsequent exchange with the partner in step 2, the learners can discuss and secure the learning content from Unit 3 again.
UNIT 4: Collaborative Learning in the Online Classroom – Checklist for Successful Application	65 min.	Presentation (ppp), Laptop Teachers, Laptop Learners, IT environment with practice-oriented tools that allow collaborative work in an online context, Wlan/ LAN access	Implementation of the evaluation based on the group work with presentation and evaluation.

UNIT 1: Accepting and implementing challenges for collaborative online learning

Unit 1 focuses on the challenges of collaborative online learning and overcoming the challenges. Concrete possible solutions are shown, the benefits of this form of learning are presented and an outlook is given based on 5 theses on the use of collaborative online learning in the context of the company.

Topic

1.1. Active introduction with questions for the participants

What does collaborative online learning mean to you?

Short, fast collecting via Mentimeter (5 minutes) + joint conversation (5 minutes)

What challenges does this learning pose to teachers and learners and how must this be taken into account in your strategy for imparting knowledge?

Online group work (15 minutes) followed by an exchange of all groups in the plenum (10 minutes)

Total Part 1: 30 minutes

1.2. Presentation (30 minutes)

1.3. Self-test with 6 questions on the contents of Unit 1 (10 minutes)

1.4. Methods, topics, evaluation and material in in the summary

Active introduction with questions for the participants I

What does collaborative online learning mean to you?

- Short, fast collecting via Mentimeter (5 minutes)
- Joint conversation (5 minutes)

Active introduction with questions for the participants II

What challenges does this learning pose to teachers and learners and how must this be considered in your strategy for imparting knowledge?

- a) Online group work (15 minutes)
- b) followed by an exchange of all groups in the plenum (10 minutes)

Collaborative learning versus cooperative learning¹

In collaborative work and learning, the work and learning process of a working group is in the foreground. The joint sharing and development of knowledge and the interaction of the individual members are emphasized here and lead to a holistic work result.

Cooperative work, on the other hand, is based on the result of a group's work and learning process. In this way of working, each individual in the group is responsible for a partial aspect of the result. The sum of all sub-aspects results in the work result of the entire group at the end of the process.

https://www.haufe.de/oeffentlicher-dienst/digitalisierung-transformation/kollaboratives-und-kooperatives-lernen-im-berufsalltag_524786_533050.html

Benefits of collaborative learning in an online school environment (Roberts, T. S. (2004).

- Quiet students can open up
- The asynchronous nature of discussions fosters deeper responses
- Students can use technology tools to access additional information
- Few disturbances in the students
- The contents of online discussions can be retrieved at a later time
- Discussions can span the entire time period
- Online learning creates an environment that supports the role of the trainer as a facilitator

Challenges for collaborative online learning at a glance

Collaborative learning and working (with digital media)

Technical infrastructure

- Efficiency
- Choice of end devices
- Wi-Fi coverage
- Digital presentation options

Consequences for the school management

- Ensuring a functioning technical infrastructure
- Establishment of support mechanisms for teachers and schoolchildren
- Implementation of regular training opportunities

Legal aspects

- General Data Protection Regulation
- Student Registrations

Software environment

- Cloud Services
- Basic stock of digital tools/apps
- Organization
- Communication

Spatial requirements

- Open spaces with retreats
- Presentation rooms
- Opportunities for group meetings

Requirements for/consequences for teachers

- Willingness to undergo (regular) further training
- Accompaniment and monitoring of the work steps
- Role change from teacher to moderator/ learning facilitator
- Acceptance of more student freedoms

Conditions for success in the classroom

- | | |
|---|--|
| <ul style="list-style-type: none"> - Clear agreements: <ul style="list-style-type: none"> o Responsibilities/areas of responsibility o Rules o Deadlines | <ul style="list-style-type: none"> - Alignment with learning requirements: <ul style="list-style-type: none"> o Time o Space o Complexity of the task o Group size |
|---|--|

(https://www.forumbd.de/app/uploads/2019/10/WEB_Kollaboration.pdf)

Overcoming the challenges²

Challenge	Approach
Group size	Recommended are 3-5 students per group
Group composition	Form groups in such a way that members with different perspectives and mixed skills come together
	Equal participation is important
Type of task/ learning task	Complex tasks
Interaction	The process of debating, explaining ideas to each other, and building on the ideas of others must be ensured

a) Infrastructural aspects

Challenge	Request	Approach
Internet	All applications for online collaborative work are browser-based. Therefore, a stable Internet connection is a necessary prerequisite.	Use, for example, of a separate connection that learners can also use at home as well as a stable data line
WIRELESS	In order to enable location-independent and mobile joint learning, a stable WLAN connection is necessary.	Installation of WLAN access points (school, university, home)
Devices	For collaborative work, learners ideally need mobile devices.	School's own devices for borrowing
Platform	The collaboratively created products should be stored in one place.	Use of a suitable platform such as Moodle, iServ, School cloud, ...

² Based on research results

b) Pedagogical aspects

Challenge	Request	Approach
Collaboration	The collaborative, joint creation of a text is very unusual for the learners.	Prior concrete introduction of the method of collaborative work by the teacher.
Abuse	Learners do not work constructively when they are used for the first time, but write messages.	Establishment of concrete rules.
	Learners intentionally revise or delete posts from classmates.	Establishment of concrete rules, individual discussions, regular self-protection of the work status.
Authorship	Learners believe they write anonymously when using collaborative tools.	Colour coding of the contributions (specific colour per person); Using the Timeline.
Moderation, roles and rights	The process of working together is not constantly moderated. This requires a high degree of self-organization on the part of learners.	Use collaborative tools in an age-appropriate way.
	Individual learners dominate the process in a group work and revise the contributions of other students without consultation.	Previous definition of roles and rights within a collaborative group.
Willingness to cooperate	There are isolated learners who have little willingness to work together and prefer to work individually.	Require regular, individual support of the learners, if necessary documentation of the activities carried out.

Initial stepping stones

Challenge	Request	Approach
Motivation	Teachers do not recognize the importance of collaborative ways of working.	School management conveys the importance of collaboration in today's world.
	The teachers shy away from the high workload of the first assignment.	Coaching by colleagues.
Media literacy	The teachers themselves have no experience with collaborative tools.	Use of collaborative tools between teachers.
	There are no institutionalized training opportunities.	Micro-training in the college.
	The teachers fear that they will not be able to cope with the technical effort.	Support and coaching by colleagues.
Role change	The teachers have problems with the change of role to become a moderator and learning companion.	Collegial internship.
Resistance	There are teachers in the college who in principle create a mood against the use of digital technology in the classroom.	On the part of the school management, the use of digital technology is not made mandatory, but takes place on a voluntary basis.
	There are fears among teachers that there is no longer enough writing and speaking.	Balanced ratio between digital and analogue proportions.

d) Implementation aspects

Challenge	Request	Approach
Working process	Accidental overwriting and deletion of foreign texts.	For first use: Setup of concrete fields and rooms in which individual learners/groups can edit.
	Agreements cannot be made if the authors are in different places.	Use of chat functions, fixing the agreements in a separate document.
	There is no regulation as to how a mutual revision should take place.	Agreement on the possibility of "direct overwriting" vs. "strikethrough and color-coded counterproposal".
End product	The final product contains an inappropriate mix of styles due to the multi-authorship.	Previously define a final editorial.
	The product is no longer found because the address is no longer known.	Distribute the code/address by e-mail. Even better: Embed in a platform.
Privacy	Text inputs and results could be read while working or subsequently by third parties.	Storage on a secure server (platform), access only with authorization (code or Internet address).
Accounts	For some tools, learners need either an account or an app (for which they need an account for the app store).	Use of free tools, ideally web-based without account or app.

Sources:

(<https://livetilesglobal.com/15-must-follow-teaching-strategies-digital-classroom/> and https://www.forumbd.de/app/uploads/2019/10/WEB_Kollaboration.pdf)

Future of Collaborative Online Learning in the Operational Aspect - Theses

- The previous personnel development will change to competence management.
- Self-organized online learning processes of employees will increase.
- As part of competence management, a digital enabling framework is developed from the corporate strategy and the value framework.
- Competence management is becoming a new management discipline.
- The enabling framework is a learning arrangement that arranges didactic, material and media elements in such a way that the probability of the learning processes is as high as possible.

Source:

<https://www.wernersauter.com/2020/07/21/kollaboratives-arbeiten-und-lernen-im-netz/>

EXERCISES UNIT

Exercise 1

Self-test

1. What is the difference between cooperative and collaborative learning?
2. What are the benefits of collaborative learning in an online environment?
3. Which aspects play a role here?
4. How can the challenges be overcome from a research perspective?
5. What should be taken into account when forming groups?
6. What are the challenges from a pedagogical point of view and which solutions are known?

References

Roberts, T. S. (2004). Online Collaborative Learning: Theorie und Praxis. Idea Group Inc (IGI)

Linklist:

<https://livetilesglobal.com/15-must-follow-teaching-strategies-digital-classroom/>

https://www.forumbd.de/app/uploads/2019/10/WEB_Kollaboration.pdf

https://www.haufe.de/oeffentlicher-dienst/digitalisierung-transformation/kollaboratives-und-kooperatives-lernen-im-berufsalltag_524786_533050.html

<https://www.wernersauter.com/2020/07/21/kollaboratives-arbeiten-und-lernen-im-netz/>

UNIT 2: Identifying, optimising, and using the strengths and weaknesses of digital pedagogy

Unit 2 focuses on identifying the strengths and weaknesses of this form of learning and teaching. In addition, it is about concrete help and tips on how weaknesses can be reduced, and strengths can be expanded.

The processing of the unit takes place both through a presentation of the teacher and an embedded group work to activate the participants and through the independent preparation of a "lecture" on the topic: Strengths of collaborative online work.

Topic

- 2.1. Presentation (25 Minutes)
- 2.2. Group work embedded in the presentation on the question of overcoming the weaknesses of learning in the online system, considering collaboration in learning
Group work in 2-4 small teams of 10 minutes each with subsequent presentation and discussion in the plenum (10 minutes)
- 2.3. Feedback – Task to complete
 - The first 5 minutes of a talk titled: The Strengths of Collaborative Learning in an Online Environment
 - Procedure
 - Individual work 5 minutes (all)
 - Presentation of 2 participants with 5 minutes each
 - Total duration: 60 minutes
- 2.4. Methods, topics, evaluation, and materials in the summary

Strengths of collaborative online learning

Content

- Better mastery of course content

Social affairs

- Support systems through group work
- Strengthening cooperation

Psychology

- Strengthening self-confidence
- Reduction of anxiety in the learner through joint work

Science

- Learning-oriented approach
- Strengthen problem-solving skills

Evaluation

- Use of a variety of assessment techniques

Weaknesses of collaborative online learning

- Connections are poor
 - Incorrect or missing equipment
 - Additional commitment to planning in terms of time
 - Teachers are not qualified
 - Learning impossible without a network
 - Possible depending on digital devices
 - Technical framework conditions are not optimal
 - Learning together without personal exchange
-
- Deterioration of the quality of learning
 - Pressure on teachers
 - Technical problems
 - Low-skilled teachers

Group work: Getting to know and tackling the weaknesses of collaborative learning

What are the biggest weaknesses of collaborative online learning?

- ...
- ...
- ...

Yes, they exist, but how do I meet them?

- ...
- ...
- ...

Balancing weaknesses

1. Which tasks are not suitable for processing: online and cooperative in a team?
 - Complexity
 - Time
 - Team composition
2. Why didn't it go well with the last projects/courses?
 - Lack of moderation
 - Lack of commitment on the part of all parties involved
 - Technical problems
 - Coordination problems
3. Do I know the reasons why learning didn't work the way I imagined?
 - Team
 - Task
 - Pressure
4. What have been the consequences of this?
 - Learning success has not been achieved
 - Projects could not be completed successfully

[\(https://karrierebibel.de/blinder-fleck/\)](https://karrierebibel.de/blinder-fleck/)

Expand strengths – reduce weaknesses – but how?

7 Tips:

vgl. <https://elearning.blogs.ruhr-uni-bochum.de/kollaboratives-arbeiten-in-digitalen-lehrszenerarien/>

Tip 1: Keep technical barriers and coordination effort low

Since collaborative work always requires a certain amount of coordination in the groups, the following applies all the more to digital implementation: Keep it simple! Your learners also have to familiarize themselves with new tools, may not always have a stable Internet connection or other difficulties that make collaborative work difficult.

Tip 2: Learning together instead of just distributing subtasks

Think about which tasks really encourage your students to work together and can benefit noticeably from it. For the learning effect, it is important that different perspectives are collected and integrated and not just finished puzzle pieces are put together. This can happen, for example, when students exchange individual experiences or when individuals in a learning group deal with different perspectives on a topic and then combine them for the common result. Regular joint exchange or forms of peer feedback are useful.

Tip 3: Give concrete hints

Due to the lack of presence, coordination within collaborative groups is even more difficult than it is face-to-face anyway. Therefore, think about how you can support your groups (e.g. through instructions such as "Determine in online meetings who moderates and who is leading the minutes.") and structure more complex tasks in a meaningful way.

Tip 4: Divide groups

With Moodle tools (e.g.), learners can choose a group or you can divide the learners into groups themselves.

Tip 5: Focus also on the work process

Learners often do not see collaborative work as helpful, but as a superfluous effort. This can happen if students focus on the result of these tasks (e.g. a common text) or if they simply divide the tasks among themselves and thus do not experience a productive exchange at all. Then they do not even notice the learning effect that this form of work has. You can counteract this by making it clear that students achieve added value through collaborative exchange.

Tip 6: Making work processes visible and supervising them

When e.g., Moodle tools are used when working on joint projects, all participants are always on the same page; they can benefit from each other's results, comment on them, exchange ideas and support each other. As a teacher, you can accompany the learners in their work process by providing them with content-related assistance (e.g. literature references) or support offers in writing (e.g. for the development of a research question, for dealing with research texts) - tailored to the progress of the processing.

Tip 7: Guiding the validation of results

For group work, specify which tools or in which medium or format the results of the joint work should be saved (e.g., text, podcast/audio file, graphic, table, PowerPoint presentation). Ideally, the results are later visible to all participants and, if necessary, commentable and supplementable.

EXERCISES UNIT

Exercise 1

Feedback Task

Get started with a talk titled: The Strengths of Collaborative Learning in an Online Environment

Expiration:

- Individual work 5 minutes
- Presentation in a group of 2 participants (2x5 minutes)

References

- Falcione, S., Campbell, E., McCollum, B., Chamberlain, J., Macias, M., Morsch, L., & Pinder, C. (2019). Emergence of different perspectives of success in collaborative learning. *Canadian Journal for the Scholarship of Teaching and Learning*, 10(2). <https://eric.ed.gov/?id=EJ1227390>
- Laal, M., & Ghodsi, S. M. (2012). Benefits of collaborative learning. *Procedia –Social and Behavioral Sciences*, 31, 486–490. <https://doi.org/10.1016/j.sbspro.2011.12.091>
- Scager, K., Boonstra, J., Peeters, T., Vulperhorst, J., & Wiegant, F. (2016). Collaborative learning in higher education: Evoking positive interdependence. *CBE Life Sciences Education*, 15(4). <https://doi.org/10.1187/cbe.16-07-0219>.

Further Reading Material

- <https://edspace.american.edu/amytrietiak/2020/05/07/online-collaborative-learning-in-higher-education/>
- <https://elearning.blogs.ruhr-uni-bochum.de/kollaboratives-arbeiten-in-digitalen-lehrszenarien/>
- <https://karrierebibel.de/blinder-fleck/>

UNIT 3: Implementation strategy

Unit 3 focuses on the essential phases and steps that are of great strategic importance in the introduction of this form of learning. Teachers and learners receive an overview of the phases and at the same time are asked with a variety of questions to actively deal with the implementation strategy and to compare it with their own reality. Unit 3 is processed in 3 steps (from the teacher's point of view):

1. An introduction with two questions, which are first dealt with in individual work and then in tandems and are presented and discussed in the plenum
2. Presentation by the teacher/trainer
3. A partner quiz to complete the unit

Topic

- 3.1. Active introduction with questions for the participants
 - In which steps should this form of learning be introduced into the organization/company?
 - Which aspects are of great importance?
 - Individual work (5 minutes)
 - Work in tandem (15 minutes)
 - Presentation in plenary (15 minutes)
- 3.2. Presentation (30 Minutes)
- 3.3. Partner exercise to reflect on what has been learned in the form of a quiz (10 Minutes)
- 3.4. Methods, topics, evaluation, and materials in the summary

Total duration: 75 minutes

Theses

see <https://karrierebibel.de/kollaboratives-arbeiten/>

- Introduction of collaborative online learning must be strategic and structured
- Clear steps of implementation, which are simply and clearly stated, promote efficiency
- Success only occurs when this new form of learning is consciously desired by the participating learners/actors
- Even the "best" technical equipment that this form of learning requires must be actively used and desired by the learners/teams

Phases of implementation



1. Need analysis

Context

- Where do we stand today?
- How is learning currently taking place?
- How important is learning in our organization?
- Why should collaborative online learning be introduced now?
- What will be better with this system?
- Where is the added value for everyone?

Target group

- Who are the participants?
- Why are they exactly these participants?
- Involvement of key stakeholders in learning in the company
- Integration of the target group into the strategy

Goal

- What is to be achieved with these trainings?
- Why is collaborative learning part of the training strategy?
- How do the company's goals harmonize with the learning goals?

Resources

- What time, money and effort has to be invested?
- Are the framework conditions suitable for learning in this way?
- Are all technical conditions available?

2. Roles and responsibilities

Role clarification

- Who is responsible for the content?
- Who is intended as a teacher?
- Are interfaces defined?

Responsibilities

- Have the responsibilities also been clarified formally and in writing?
- Who takes responsibility for the training series/learning modules?
- Are there regular arrangements with course leaders / school management?

Planning

- Is the training (series) clearly fixed in terms of schedule?
- Is there any planning from preparation to debriefing?
- Has a project management plan been created?

3. Pilot Training

Preparation

- Are the learning contents and goals set for the "pilot"?
- Didactic approach and learning medium defined?
- Technical requirements clarified?

Implementation

- Implementation of the trainings in the pilot area realized?
- Planned support during the pilot phase through regular feedback discussions with teachers and learners?
- Adaptation of content and concepts possible?

Evaluation

- Has an evaluation sheet been developed?
- Evaluation has been evaluated?
- Have the evaluation results been incorporated into the optimization of collaborative online learning?
- Has a final evaluation report been prepared?

4. Rollout

Transferability to other areas and to other topics

- Under what conditions is the transfer for other areas/topics possible?
- Can this form of learning be applied to all topics/target groups?
- How was the selection made for other topics/areas?
- Is a regular evaluation also ensured here?

Communication and motivation

- Are the findings from the trainings regularly reported (from a methodological/didactic point of view)?
- How are future learners motivated?
- Is this new form of learning integrated into personnel development and how is this communicated?

Exchange between teachers and learners

- Exchange of experiences with collaborative online learning between teachers and learners as well as between learners is planned!
- Workshops planned to discuss benefits and goals?
- Have online platforms been set up to enable mutual exchange?

Freedom and incentives

- Are there spaces for learning?
- Do learners need to be led/guided/trained in this way to learn?

5. Evaluation

Regular review of learning outcomes

- Are the learning units regularly evaluated?
- Are all learners and teachers involved in the evaluation process?

Development of an improvement management

- Is there a concept for a continuous improvement process?
- Which aspects are important here?
- Is it determined who will take care of it?
- Have all teachers and learners been informed accordingly?

Feedback system as part of the management system

- Is a feedback system set up with clear statements on: Who is asked for feedback, how and when?
- Is the feedback system part of the management system of the institute/educational institution/company?
- Is the feedback system checked by suitable institutions such as TÜV etc.?

Sources

<https://www.inside-online.de/2019/07/01/einfuehrung-von-e-learning/> <https://karrierebibel.de/kollaboratives-arbeiten/>

<https://dbs-lin.ruhr-uni-bochum.de/lehreladen/e-learning-technik-in-der-lehre/kollaboratives-arbeiten/>

EXERCISES UNIT

Exercise 1

Part 3: Partner exercise (tandem) to reflect on what has been learned in the form of a quiz (10 minutes)

The partners in tandem first work out the solutions to the given questions for themselves. This is followed by a survey of the respective tandem partner and a joint evaluation of the correct answers.

The quiz was deliberately not set up as a multiple-choice procedure but allows a free answer based on the content learned in the unit.

The Partner Quiz on the Strategy of Introducing Collaborative Online Learning

1. Which phases must be considered during the introduction?
2. Which topics are of great importance within the needs analysis?
3. How can it be ensured that teachers and learners are overwhelmed by the concept online and collaborative to learn?
4. Why is it so important to plan the teaching units in a structured and systematic way and to clearly define the roles of the actors?
5. Which aspects are important when it comes to evaluating the training courses on other groups or topics?
6. How and why is the evaluation important for the sustainable success of the training?
7. What does it mean to introduce a continuous improvement process for this form of learning?
8. What strategies are most important to you when introducing collaborative online learning?

References

<https://karrierebibel.de/kollaboratives-arbeiten/>

<https://dbs-lin.ruhr-uni-bochum.de/lehreladen/e-learning-technik-in-der-lehre/kollaboratives-arbeiten/>

<https://www.inside-online.de/2019/07/01/einfuehrung-von-e-learning/>

UNIT 4: Collaborative Learning in the Online Classroom – Checklist for Successful Application

The focus of Unit 4 is a checklist for the successful application of collaborative learning in the online classroom. In checklist form, the participants receive an overview of the essential aspects from ensuring the technology to concrete support for the learners and questions of the optimal organization of the lessons to the topic of further education and 6 concrete tips. All these points help to ensure that this form of learning mediation is effective. Preparing the aspects in the form of a checklist is practical and can therefore be implemented and applied quickly.

We have selected a form of learning in which the learners at the beginning work in the form of group work develop, name, and then discuss the aspects of success that are important from their point of view. The presentation afterwards gives an overview of the important aspects of the checklist. At the end of the module, a joint feedback round is planned - over the entire training module.

Topic

- 4.1. Active entry with group work: Which aspects must be taken into account so that learning in the form addressed remains valuable and sustainable?
 - Work in small teams (10 minutes each)
 - And subsequent presentation in plenary (10 minutes)
- 4.2. Presentation (30 minutes)
- 4.3. Joint feedback round in an open dialogue between teachers and learners. Capture the ideas on a whiteboard followed by clustering. Questions:
 - What has been valuable in the past 4 units?
 - What was not so good?
 - What do we have to pay particular attention to in the future?

Total duration of the feedback session: 15 minutes

 - Total duration: 65 minutes
- 4.4. Methods, topics, evaluation and materials in the summary

Active entry with group work

Which aspects must be taken into account so that learning in the form addressed remains valuable and sustainable?

- Work in small teams (10 minutes each)
- Subsequent presentation in plenary (10 minutes)

Checklist

Part 1: Ensuring technology

	available
Interface is good and easy to use	<input type="checkbox"/>
Good support offers from teachers, the university / school / the company / central offices	<input type="checkbox"/>
Digital media are available	<input type="checkbox"/>
Internet services are stable	<input type="checkbox"/>
Workspace allows digital collaborative work	<input type="checkbox"/>
Permanent support from experts to set up e.g., breakout rooms	<input type="checkbox"/>

Part 2: Flexibility in collaborative work

	available
Learners can be reached by teachers at any time	<input type="checkbox"/>
Collaborative work can be done remotely	<input type="checkbox"/>
Building a corporate/institution culture that allows and supports collaborative online learning	<input type="checkbox"/>
Allow enough time to implement collaborative online work	<input type="checkbox"/>

Part 3: Support of learners by the trainers/ lecturers

	available
Ensuring that the cooperation (e.g., regular evaluation meetings, coaching, training for the teachers) works	<input type="checkbox"/>
Permanent further training for teachers must be ensured (e.g. development and implementation of a qualification requirements plan / personnel development concepts)	<input type="checkbox"/>
Development of a management system of cooperation and interaction between teachers and learners	<input type="checkbox"/>
Ensure that each learner can contribute to the collaborative work in such a way that satisfaction is high (eventual use of regular surveys, teachers/learners feedback discussions, workshops within the collaborative teams)	<input type="checkbox"/>
Promotion of motivation including the aspects of cooperation and communication through joint work on the goals, feedback discussions, etc.	<input type="checkbox"/>

Part 4: Aligning teaching with the needs of collaborative online learning

	available
Optimisation of the management and organisation of training/teaching (all teachers must use the same systems; pedagogical skills must correspond to the type of collaborative work)	<input type="checkbox"/>
Recognition of the different learning styles in the learners through participatory observation, etc.	<input type="checkbox"/>
Ensure that groups that have many international participants have sufficient time for familiarization. Avoid tailoring the topics to specific cultures	<input type="checkbox"/>

Part 5: Regular further training of the trainers

	available
Gaining awareness of problems among learners	<input type="checkbox"/>
Development of pedagogical content that is tailored to collaborative online work in collaboration	<input type="checkbox"/>
Regular didactic and methodological training	<input type="checkbox"/>
Qualifications on the methods and techniques used	<input type="checkbox"/>
Participation in communication workshops	<input type="checkbox"/>
Peer to peer activities to reflect on trainer work	<input type="checkbox"/>

Part 6: Ensuring the user-friendliness of the technical tools used

	available
Implementation of usability tests before use in the learning context	<input type="checkbox"/>
Ensuring technical support	<input type="checkbox"/>
Connection speed test	<input type="checkbox"/>
Ensure the simplest entry scenarios (including tests in advance)	<input type="checkbox"/>
Rather use a "simple" technology that involves fewer possible applications than complex but difficult-to-use systems	<input type="checkbox"/>
Techniques/tools with easy-to-read interfaces	<input type="checkbox"/>
Development and implementation of an application and implementation plan	<input type="checkbox"/>
Development of an institute-related and practicable handbook for the use of the tools in collaborative online learning	<input type="checkbox"/>

Development of the checklist based on the survey REACT (196 participants) and the author's many years of experience as owner of d-ialogo (training and consulting company) and lecturer and trainer in various contexts for more than 30 years.

Tips for online learning

(<https://www.vedamo.com/knowledge/virtual-classroom-management-tips/>)

- Set your own rules and set expectations in advance
- Develop a routine in the learning process
- Involve everyone and force questioning
- Be friendly - but still decisive
- Praise the participants
- Be confident and positive

EXERCISES UNIT

Exercise 1

- Evaluation
- Joint feedback round in an open dialogue between teachers and learners. Capture the ideas on a whiteboard followed by clustering. Asks:
 - o What has been valuable in the past 4 units?
 - o What was not so good?
 - o What do we have to pay particular attention to in the future?
- Total duration of the feedback session: 15 minutes

References

Development of the checklist based on the survey REACT (196 participants) and the author's many years of experience as owner of d-ialogo (training and consulting company) and lecturer and trainer in various contexts for more than 30 years.

<https://www.vedamo.com/knowledge/virtual-classroom-management-tips/>

Module 4: HOW TO IMPLEMENT COLLABORATIVE LEARNING?

In this Module the different elements of collaborative teaching will be discussed, and learners will be able to identify the key elements of collaborative teaching and the useful steps that they can follow. Competitive and collaborative teaching methods will be presented and compared. The important advantages and disadvantages of competitive and collaborative teaching will be discussed, and learners will be able to cultivate a balance between the two teaching methods. Collaborative teaching strategies will be thoroughly presented. Moreover, educators will be presented with the essential collaboration skills that they can communicate to their students. Basic strategies and tips will be given.

MODULE PLAN

UNIT 1: Aspects of collaborative learning

UNIT 2: Competitive Versus Collaborative teaching

UNIT 3: Developing collaborative teaching strategies.

UNIT 4: How to teach collaboration skills to students in classroom?

UNIT 5: How to encourage teachers' collaboration to develop collaborative capabilities?

AIMS AND GOALS of MODULE 4

This module aims at developing the skills on how to Approach Collaborative Teaching, analyzing Competitive Versus Collaborative Teaching, developing Collaborative Teaching Strategies, supporting the teacher on how to promote collaboration skills in classroom, encouraging teachers' collaboration to develop collaborative capabilities. After the completion of this unit, teachers will be also able to identify the warning signs which implicate that collaboration isn't working in their classroom.

LEARNING OBJECTIVES MODULE 4

After this module's epistemology,

- The learner can apply collaborative and inclusive e-classroom environment methods to the classroom.
- The learner can develop collaborative capabilities with other teachers.
- The learner can understand the importance of collaborative teaching strategies.
- The learner can develop their own collaborative teaching strategies and to recognize the emerging challenges of this teaching method.

KEY WORDS MODULE 4

Collaborative Teaching, Collaborative Learning, Competitive VS Collaborative, Teaching strategies, Collaboration, Collaborative capabilities.

Topic and Instruction Method	Timing (min)	Materials and Equipment required	Assessment/ Evaluation
<p>UNIT 1: Aspects of collaborative learning: In this unit the different elements of collaborative teaching will be discussed, and learners will be able to identify the key elements of collaborative teaching and the useful steps that they can follow.</p>	60 min	PPP, video lessons, text	Exercises (questionnaire and quiz)
<p>UNIT 2: Competitive Versus Collaborative teaching: In this unit competitive and collaborative teaching methods will be presented and compared. The important advantages and disadvantages of competitive and collaborative teaching will be discussed, and learners will be able to cultivate a balance between the two teaching methods)</p>	60 min	PPP, video lessons, text	Exercises (questionnaire and quiz)
<p>UNIT 3: Developing collaborative teaching strategies: In this unit collaborative teaching strategies will be thoroughly presented. After the completion of this unit, individuals will be able to understand the importance of collaborative teaching strategies. Learners will be to develop their own collaborative teaching strategies and to recognize the emerging challenges of this teaching method.</p>	75 min	PPP, video lessons, text	Exercises (questionnaire and quiz)
<p>UNIT 4: How to teach collaboration skills to students in classroom? In this unit educators will be presented with the essential collaboration skills that they can communicate to their students. Basic strategies and tips will be given. After the completion of this unit, teachers will be also able to identify the warning signs which implicate that collaboration isn't working in their classroom.</p>	75 min	PPP, video lessons, text	Exercises (questionnaire and quiz)
<p>UNIT 5: How to encourage teachers' collaboration to develop collaborative capabilities? In this unit individuals will be able to understand the benefits of collaboration with other teachers and they will be adequately equipped with strategies and practical tips that will lead them to a successful collaboration.</p>	60 min	PPP, video lessons, text	Exercises (questionnaire and quiz)

UNIT 1: Aspects of collaborative learning

Key Description: In this unit the basic elements of collaborative teaching will be discussed, and learners will be able to identify the key elements of collaborative teaching and the useful steps that they can follow.

To start with, education is a sector that is ever-changing. Technology develops and the mindsets of students present a significant change over time. Hence, the different methods and ways of imparting education also change with time. The approach of task-based learning is slowly being replaced by other holistic, educational approaches. During a task-based learning approach, students can complete a task after a unit provided and the level of how much the students have understood is assessed from this task. This encourages a ‘learn and move on’ mentality. Nowadays, teaching methods are starting to alter since the understanding of a topic does not stop at a task or project implementing but it continues further into real-life situations. This process helps students understand their text-based solutions apply in real life.

In collaborative teaching, the development of interpersonal skills is just as important as the learning part itself. Students reflect on “why” they’re doing the work that they do, allowing more clarity and insight. This kind of approach can develop problem-solving abilities and enhancing the learning experience as well.

With its roots in constructivism, collaborative learning incorporates the idea that the best learning occurs when students are actively engaged in the learning process and working in collaboration with other students to accomplish a common goal. The focus of constructivism is personal experience and involvement and thus, collaborative learning utilizes the experiences of others to solidify knowledge and is not restricted to the student’s own experience. The collaborative learning theory has been mainly influenced by Lev Vygotsky’s theory regarding the zone of proximal development which highlighted the importance of communication and social interaction in learning. In his theory, learners depend on one another to complete tasks that they are not able to accomplish on their own. Additionally, collaborative learning is considered central for the adequate development of critical thinking skills, since learners can retain greater amount of information when working in smaller groups, exchanging ideas, and helping one another.

Collaborative teaching raises questions against the long followed traditional based system and involves role changes. When collaborative teaching is applied a closer communication between the teacher and student is apparent. This is a factor that is rarely seen in traditional cases and the lack of it significantly restricts the learning experience and the active interaction between a teacher and a student.

Collaborative teaching brings about a wide range of social skills that traditional methods do not offer and is considered one of the most effective teaching methods that is efficiently applied in a digital environment. The main goals of collaborative teaching include the development of inclusivity into the classroom and team-working, while it aims at the at the creation of an atmosphere of achievement. Another dominant and quite important feature of this method is that is mostly based on creation, analysis, and systematic application of structures (patterns for student interaction). It should be also noted that collaborative teaching provides opportunities for holistic education and assesses students in a variety of methods.

What exactly is Collaborative Teaching?

Cooperative learning refers to an educational method in which pairs or small groups of students work together to achieve a common goal. The aim of this collaboration is to maximize personal knowledge through interaction with other team members working for a common goal. By applying deliberate collaborative techniques, teachers aim to correct unintentional social and educational biases fostered by school competition.

The main idea behind collaborative teaching is that education extends beyond a book and a classroom. It is related to the approach that indicates that learning is also based on experiences and exchange of ideas such as shared thinking, thoughts, and opinions. The context of collaborative learning indicates that peer-to-peer learning cultivates a deeper understanding and enables the flourishing of communication and problem-solving skills inside a classroom. With this learning method, students can learn self-management, leadership skills and working as a group.

Key elements of collaborative teaching

Collaborative teaching is a group of teachers – not a teacher surrounded by students - taking responsibility for their ways of imparting education by establishing a common goal. As an outcome, ideas and perspectives are exchanged. When a group of teachers invests in a common goal of student learning, it benefits the student in many ways. When expertise, learning methods, and resources are exchanged, a student’s learning experience is enhanced.

A shift of thinking is required for collaborative teaching to start and be implemented. Students are actively involved in learning, rather than following instructions, in this method. A role shift takes place, where teachers and students become learners. This degree of involvement between students and teachers ends up questioning the traditional form of teaching. A lecture centred model would be preferred by institutions that favour limited engagement between students and teachers. So, collaborative teaching aims to dismiss the definition of a lecturer as someone who stands near a podium.

Collaborative teaching, sometimes also known as called cooperative teaching or team teaching, involves educators - two or more teachers teach - working together to lead, instruct and mentor groups of students. Collaboration most often occurs among professionals from various disciplines including core subjects, special education, elective courses, library science or guidance programs. On some occasions, teachers from the same department or grade level may team teach to target multiple levels of learning or provide a greater variety of supervised activities for students to practice skills. Collaboration can be implemented across all instructional levels and subject areas. By doing so, the students learn more and achieve more than they would if teachers work independently, and this is the reason that this approach is becoming more and more known and needed.

Collaborative teaching has been hypothesized as one of the most efficient and successful learning methods since it contributes significantly to the learning experience. Among its positive aspects, collaborative teaching develops interdependence, improves self-esteem and school appreciation, while it improves mental health and students’ motivation. Within the context of collaboration, students learn to see an issue from different angles and to use reflexive and metacognitive skills. Learners can form positive attitudes towards different subject areas and to build positive interactive relationships.

Having reviewed the core ideas of collaborative learning, it is equally essential to comprehend the main goals of this learning method, including positive interdependence, face-to-face interaction, personal and team responsibility, interpersonal and small group skills, and teamwork.

Positive interdependence:

Students realize that they are connected to each other in such a way that where one cannot succeed on their own, they do so with the help of others, and the success of each depends on the contribution of everyone in the group.

Promoting face-to-face interaction:

Students work together in such a way that they contribute to each other's success by helping each other, supporting each other, and inspiring each other. This framework includes verbal explanations of how to solve problems, spreading knowledge from one to another, checking understanding from one to another, discussing concepts learned, connecting current to previous learning.

Personal and team responsibility:

The team is responsible for achieving its goal. Everyone is responsible for his or her personal contribution to the team.

Interpersonal and small group skills:

Social skills are not automatically developed during group work; they are taught to students on a case-by-case basis by the teacher.

Teamwork:

It exists when team members discuss the ways in which they will achieve their goal and act to that end. It also includes a discussion of the effectiveness of industrial relations during the move towards the target and an evaluative discussion of the achievement of the target on the one hand and the personal contribution of everyone on the other.

Useful steps to follow for an effective collaborative teaching

The entire construct of collaborative learning is a step-by-step process. Small or large groups share learning outcomes, efforts, responsibility, and authority and form the infrastructure of learning outside the classroom when textbooks form infrastructure of knowledge within a classroom. If a teacher follows this approach to collaborative teaching for first time, it can be quite confusing and questions in regards how to start, which the milestones are and how to achieve the goals, will be addressed. Meaningful collaboration is the answer to most queries that might arise. If there is an understanding of the will to do better in the group, the progress proceeds. A mature way of looking at things allows a clearer stance on topics.

Here you are presented with a list of To Do's when it comes to approaching collaborative teaching is presented:

Develop a sense of community among members



The first step to forming a collaboration is to gather people and it involves to getting to know each other and building relationships. Within this context, ideas and views go around and trust is shared as well as a sense of respect is developed. However, this takes time to be developed as well as productivity and shared strength. Also, effective communication, respect, and having a mutual understanding are also elements that are gradually developed.

Set realistic goals and expectations



Collaboration can be quite hectic for some teachers. For some teachers who have not tried this method before, it could take some time to understand its core ideas and goals, while for others it could be theorized as a difficult learning method that requires a lot of energy. What is more, there are various challenges faced by people within the group, regardless of their experience.

However, despite its complexity, collaborative teaching method could be proven extremely beneficial for learners and teachers as well. In such cases, leadership within a group takes on an effective role. The leader must be mindful of the work, belief, and the common goal. Once roles and regulations are set, one can set goals and expectations. A respectable work environment is of utmost importance. Despite having rules and regulations, teachers thrive when mutual respect is present.

Work through conflicts



Discussion within a teacher's group can always lead to new ideas, but also it can open doors to conflict. In times of conflict, it is best to develop a plan that allows for ideas to be heard. A plan that leads to no ideas going unheard and a resolution to be decided is ideal.

Listening to ideas and conflict resolution with no bias leads to effective communication. There should be a willingness to believe in the goal and determination to work through hurdles. This type of positive interdependence leads to achieving goals.

Shift from teachers to learner



This system requires equal collaboration from teachers and students. In simple term, there is no one individual that sets the rules, needs the assignment submitted. Teachers and students alike, are learners in this scenario and are considered as equal members of the collaborative learning context.

This removes the barrier that exists between students and teachers. This allows for better information flow and resolution of queries. Such Interactive learning experiences brings about the importance of collaboration.

Continuously assess the results



Here, students and teachers alike, who used to work in their space are being brought out. Behind closed doors to a professional work ethic that depends on interaction.

Even though it takes time for a group to collaborate and learn, it is important to assess results at every stage. The end results are not the only results that matter. The effectiveness of communication and the manner that conflict is resolved are some things of great importance within collaborative teaching method. Moreover, continuous assessment leads to the identification of things that need to be worked on. In this way, the key points that need improvement are identified so that teachers can focus on each student's weaknesses and shortcomings.

EXERCISES UNIT 1

Exercise 1

TRUE and FALSE

6. The approach of task-based learning is slowing being replaced by other holistic, educational approaches.

TRUE

FALSE

7. Students neglect “why” they’re doing the work that they do, allowing more clarity and insight.

TRUE

FALSE

8. The best learning occurs when students are actively engaged in the learning process and working in collaboration with other students to accomplish a common goal.

TRUE

FALSE

9. Collaboration cannot be implemented across all instructional levels and subject areas

TRUE

FALSE

10. The first step to forming a collaboration is to gather people and it involves to getting to know each other and building relationships.

TRUE

FALSE

Exercise 2

Please choose the right answers for the following question.

Among the useful steps to follow for an effective collaborative teaching are the following:

- Develop a sense of community among members (**YES**)
- Set realistic goals and expectations (**YES**)
- Emphasizes students’ competitiveness (**NO**)
- Work through conflicts (**YES**)
- Helps students to avoid conflict (**NO**)
- Shift from teachers to learner (**YES**)
- Continuously assess the results (**YES**)

References: Unit 1. Aspects of collaborative learning

<https://eduvoice.in/beginners-guide-collaborative-teaching/#6-how-to-implement-collaborative-learning->

<https://teaching.cornell.edu/teaching-resources/active-collaborative-learning/collaborative-learning>

https://www.researchgate.net/publication/224766528_Collaborative_learning_What_is_it

<https://www.teachthought.com/pedagogy/collaborative-learning-tips/>

UNIT 2: Competitive Versus Collaborative teaching

The value of competition in the context of education has been the subject of immense debate in research on education over the last three decades. Advocates of “cooperative learning,” an approach that has become a major force in pedagogical research since the 1980s, dictate that competition is not beneficial since it side-lines social skills, provokes negative feelings among students, weakens self-esteem and changes the focus of the educational process from individual progress to a struggle for grades and the teacher’s approval. In contrast, cooperative teaching enhances learners’ interpersonal skills and self-esteem and endorses positive feelings and attitudes. Though competitive learning method has been labelled as individualistic, collaboration improves productivity and offers to the students a holistic understanding of the subjects studied.

Competitive teaching is a pattern of learning that has been frequently encountered and used almost exclusively in recent decades. However, with the integration of cooperative learning in the context of education, it is understood that the latter provides several privileges for the teacher and more resources for the learner when compared to competitive learning. However, competitive teaching method could not be completely dismissed, since it provides significant advantages for all parties involved in the educational system. On the other hand, the integration of active collaborative teaching has in turn a plethora of advantages.

A **balance** between the two methods can be seen as essential, so that the strengths of both methods can be integrated into a single learning method. In addition, we must be in a position in which we can estimate the requirements and changes in the labour market and how they can impact the learning method in use. In previous years, success was mainly related to the acquiring of a degree, to a successful job interview and to having a great business idea.

Yet, in recent years, the requirements of the labour market include the cultivation of soft and hard skills, the value of social entrepreneurship as well as the importance of working fruitfully with others. For this reason, education should embrace the positive aspects of both learning methods.

However, the questions arise here is which are the core elements of each method and their advantages and disadvantages? Is there a middle ground among the two learning methods?

Core elements of competitive teaching

Competitive teaching consists of an educational method that is mostly relied on competition among students and is one of the traditional techniques of learning. In this way, individualistic learning is promoted, and students learn to complete tasks and comprehend the studied material on their own. With the use of quizzes and tests individual performance is assessed by teachers and learners learn to compete to enhance their grades.

In the context of competition inside a classroom, the educator uses competitive strategies to raise the effort of their students and students rely only on their skills for academic achievement. While competition can motivate some students, for others reduces their self-esteem and self-efficacy. In competitive learning students face the real-world challenges of competition and are adequately encouraged and rewarded for independent thinking, without considering the possible benefits of teamwork.

Core elements of collaborative teaching

Collaborative teaching method highlights the importance of interpersonal and communication skills inside a classroom. It mostly emphasizes on teamwork and on collective educational results. The educator using a collaborative teaching promotes activities including studying together, reviewing each other, working on the same project, and helping each other for exams or assignments.

It is supported that with collaborative teaching each student is equally motivated to achieve their goals. In this context, learners comprehend the significance of individual opinion, while they are daily involved with concepts such as respect and equality. The main objective of collaboration is that students will understand that the collection of ideas is more beneficial than individualistic results. Another important element of collaborative teaching is that students who need academic support are sufficiently encouraged by their peers.

Benefits and disadvantages of competitive and collaborative teaching

Having observed the basic elements of each educational method we are able to understand that cooperative learning enhances the emergence of several competences compared to competitive learning. However, in several work contexts, the skills enhanced through competitive learning are essential.

Undoubtedly, the balance between the two methods seems ideal, but for a successful integration of the two methods it is important to understand in depth the advantages and disadvantages of each. The table below highlights the main points of convergence and divergence between the educational methods.

Competitive teaching	VS	Collaborative teaching
Students face the real world challenge of competition		Students learn and understand that individual opinions matter
Independent thinking is encouraged and rewarded		The collection of ideas and effective results are vital
Interaction and collaboration are usually de-emphasized		Collaboration before the actual goal even sets in
Evaluation is done easier		Evaluation is required in every step
Less progress monitoring and more focus on results		Progress monitoring is equally important to results

How to balance competitive and collaborative teaching

The integration of both educational methods seems quite difficult because it requires a lot of effort and commitment, but maintaining the positive aspects of each learning technique will bring about a significant educational outcome. In detail, each educator who wants to use a mixed learning method must be able to identify the basic needs of their students and to assess their abilities, since not every student is capable of competition or collaboration inside a classroom. Integrating competitive and collaborative learning should include innovation as a competitive advantage and the opportunity for the learners to solve problems collaboratively.

For lessons that require more information memorization the competitive method could be useful, but within this the collaboration of students on specific projects could enhance the overall learning experience. Students could also be allowed to choose their own collaborative activities and deciding how they would like to be tested. To achieve a successful implementation of both learning methods, the teacher could also create a multi-disciplinary viewpoint and be intrinsically motivated, since this implementation requires consistency. Also, the commitment to digital literacy will enable the easier integration of competitive and collaborative learning.

By combining competition and collaboration learners will be able to benefit from healthy competition and by cooperation with others. Healthy competition refers to the experience of aiming higher, learning to meet new challenges, while identifying their own weaknesses. On the other hand, collaboration enables the student to work with other towards a goal, to be patient with others and to develop the values of mutual aid, sharing and team spirit.

Exercise 1

TRUE and FALSE

1. Competitive teaching method can be completely dismissed.

TRUE

FALSE

2. Competition is beneficial since it sidelines social skills, provokes negative feelings among students, weakens self-esteem and changes the focus of the educational process from individual progress to a struggle for grades and the teacher's approval.

TRUE

FALSE

3. Cooperative teaching enhances learners' interpersonal skills and self-esteem and endorses positive feelings and attitudes.

TRUE

FALSE

4. Education should not embrace the positive aspects of both learning methods.

TRUE

FALSE

5. While competition can motivate some students, for others reduces their self-esteem and self-efficacy.

TRUE

FALSE

Exercise 2

Please choose the right answers for the following question.

Among the core elements of collaborative teaching are the following:

- Teamwork (**YES**)
- Collective education results (**YES**)
- Encouragement of independent thinking (**NO**)
- Interpersonal and communication skills (**YES**)
- More focus on results than on progress monitoring (**NO**)
- Studying and reviewing the material together (**YES**)
- Progress monitoring (**YES**)

References Unit 2. Competitive Versus Collaborative teaching.

<https://www.tandfonline.com/doi/full/10.11120/elss.2011.04010007>

<https://resilienteducator.com/classroom-resources/competitive-classrooms-vs-cooperative-classrooms-pros-and-cons/>

<https://www.amle.org/collaborative-individualized-and-competitive-learning/>

<https://educationendowmentfoundation.org.uk/education-evidence/teaching-learning-toolkit/collaborative-learning-approaches>

UNIT 3: Developing collaborative teaching strategies

Importance of collaborative teaching strategies

Collaborative learning can be considered a key component of 21st century life skills. From an educational standpoint, we can witness the effectiveness of shared learning.

Collaboration can have a major impact on the quality of teaching, but it also influences the whole educational system in a fruitful way. By collaboration, educators can be more effective in comparison to a more individualistic teaching method and students are greatly benefited when working in teams. For collaborative practices to be established, as an educator you need to cultivate your own collaborative teaching strategies. The first step to it, is the deep understanding of the significance of these strategies and how they can improve your teaching skills.

One of the most important elements of collaborative teaching strategies is that they help to minimize discrimination inside a classroom since students are encouraged to work with all type of students. In addition, in a cooperative setting different responses and opinions are expressed and acknowledged. In this way, educators and learners are highlighting the importance of the acceptance of individual differences.

Through collaboration, interpersonal development is achieved because students can connect to their peers and other learners as they work together in a group. Students are also actively involved in the learning process as they have equal opportunities to contribute to small groups. By using collaborative teaching strategies effectively, you will be also able to receive personal feedback and to reflect on it to enhance your teaching style.

The development of adequate collaborative strategies will facilitate multiple perspectives to be arisen and will demonstrate how education can remain imparted. By using these strategies as an educator, you will be able to improve your own communication and leadership skills. You will be exposed to a wide range of situations and perspectives that will allow each member of the collaborative experience to be taught how collaboration really works. Another important element of collaborative strategies is that by using them, you will develop a greater sense of responsibility and self-management skills.

Reflection video (how to design effective collaborative learning in education)

Having understood the importance of collaborative teaching, it is beneficial to understand in depth how you can design effective collaborative practices within the classroom. Through the video below you can understand the ways in which collaborative teaching can succeed, and the challenges that can arise in this process.

How to develop your collaborative teaching strategies

Understanding the theoretical basis for collaborative teaching seems easier than integrating collaborative practices within the educational process. It is very important as teachers to be able to think outside the classroom environment and to keep in mind that cooperative teaching is inextricably linked to the ability to solve problems. Therefore, a clear distinction needs to be made between the simple acquisition of knowledge through a competitive lens and the acquisition of skills using collaborative practices.

Given this learning model and its advantages, developing collaborative teaching strategies may seem difficult at first. However, over time, as new skills are developed, it becomes easier. This applies to both teachers and students.

A good model of collaborative teaching incorporates the previous experience of teachers. Some teachers may have less experience than others. However, in the context of cooperation all members of the team can be helped by the others. Through open communication, cooperative teaching is successfully carried out. Yet, communication does not only concern the classroom environment and the direct teacher-student interaction. The teacher needs to apply collaborative practices to their relationship with other members of the educational team. Therefore, through enhanced communication, collaborative learning is greatly facilitated.

Below are some ways that can help you develop your collaborative strategies.



Working as a team

As a teacher you need to foster team spirit and promote it appropriately to your students. Teachers collectively can work together and teach students collaboratively. Through this technique, students will be able to clarify their doubts and will be able to address to the teacher with whom they feel more comfortable. Through collaboration with both other teachers and students, you will be able to get to know all the views and personalities involved in the educational process. You should consider team spirit as the key element of your collaborative strategies.



Teaching part by part

Sharing the course material with different teachers can help students to interact with the rest of the teaching team, but also to become recipients of different teaching styles, information, opinions, and perspectives. An additional strategy that can be used to ensure that students are grouped under this technique is grouping by topics. Students can be grouped by topics and can contact teachers for any questions and additional information. Through this way, collaboration and learning within the group should be enhanced.



Teaching same topic in a different way

The traditional way of teaching does not facilitate the adequate learning experience. It would be more effective if you used different ways and techniques to get your students to understand a particular subject. To acquire this ability, you need to be creative and use innovative ways of teaching including digital tools, which make the learning process more interactive.



Observe and teach

Concerning teacher collaboration, observation and assessment are extremely important. When using a method, assessing the number of students impacted is significant as well. In this manner, you will be able to comprehend the level of effectiveness of the method you have used. Several educators can take up the responsibility of teaching and some can assess the performance and students reach out to the teacher for queries. Observation is done based on how well they respond and their understanding of topics.



Define group roles for complex tasks

In terms of completing complex and difficult tasks, it is important to define roles within the team so that all team members are equally productive. The different roles may be related to the students' abilities, but also to your own judgement which has been formed through observation.



Keep in mind the diversity of groups

When creating teams, you need to bear in mind that they include a range of talents, learning styles and experiences. The most effective option is to create mixed teams, so that no one team is superior to the other. You can also rotate groups frequently depending on the project so that students can learn from and interact with other students to a satisfactory degree.

Challenges of collaborative teaching

Like any educational method, cooperative teaching seems to have several advantages for both the teacher and the students. In fact, it is observed that it is one of the most effective teaching methods that can be used efficiently in an online environment and that is a rewarding opportunity. However, despite its merits, collaborative teaching involves certain challenges that you need to be aware of.

The core characteristic of collaborative teaching method is that it challenges the roots of the traditional teaching model which is the most well-known and most used in the educational environment. To properly integrate cooperative teaching, it needs to be reformulated. However, the reform needs to concern not only the content of the courses and their individual tasks, but also the whole delivery system. By changing the content of the courses, it is impossible to change the way of teaching.

All members of the education system need to adopt and integrate collaborative practices in the right way to achieve a collaborative learning environment. It is understood that collaborative teaching provides an academic and social community, both of which are integrated within a method. Learning new information, activities and skills is therefore essential, but it also critical an adequate cooperation to be achieved between educators. To avoid making important mistakes when trying to implement collaborative teaching, you are presented with five significant challenges that you should take under consideration.

The presence of genuine professional teaching staff



In the case of cooperative teaching, it is the teachers who must be committed to the goal. The goal of developing effective methods of delivering education. Yet, teacher's collaboration can seem forced and create additional challenges if not all are committed to the final goal. Once there is effective coordination among teachers, the process is usually easier. In this case, success depends more on open-mindedness and a willingness to achieve the goal.

Effective planning



Planning plays an important role. Sometimes, teachers may feel that collaborative teaching could be an extra burden if done beyond their usual school hours. They might lack time for discussion sessions.

In such cases, it is important to remember that time is a valuable resource and must be used effectively. A leader of the group can design the schedules or timetables. Everyone's personality must be respected, and arrangements must be made for group activities. Discussion is a vital element of the whole collaborative process.

Voices going unheard.



Communication is a particularly important element in achieving collaborative teaching. The collaborative team should use open communication as a means of sharing different views, opinions, and ideas, and it is equally important that all team members are heard and express their views. The extent to which a member feels heard creates a sense of belonging to a group and at the same time increases their confidence and trust. Every problem is easier to solve when it is expressed through communication and dealt with an open mind. Through open communication, any issue that arises is made known and in the light of cooperation all members can actively help to find a solution. Also, every opinion needs to be treated with respect and not to be pushed aside. By strengthening the sense of belonging the group bond will be significantly facilitated and commitment will be established between the members that share a common goal.

Availability of Resources and Tools



Suggesting and applying new technology whenever possible and accessible is a good thing to do. However, it must be ensured that everyone has access to the same, and no one is left out. Being left out means unable to access resources with no fault of the student.

Agreeing on a common tool that everyone has and can utilize leads to an effective plan and cultivates the collaborating spirit. Even in the case where tools have to be switched, it is important to make everyone access and understand firstly the basic characteristics of the tool, before using it.

Proper guidance and assistance



Finally, it must be taken into consideration the partition issue that may arise. In the context of collaborative teaching there might arise situations where the project might have to be divided into segments and each segment is offered to different students. As a result, this may stand as an obstacle for several students concerning their understanding.

To resolve similar issues, educators need to provide information about their responsibilities and the whole collaborative guidelines. In addition, any extra help that students may need must be provided consistently so that everyone is at approximately the same level. The necessary counselling and direct explanation of the steps a student needs to follow when executing a task or an assignment, are two essential ingredients for the integration of collaborative practices.

Exercise 1

TRUE and FALSE

1. Collaborative learning cannot be considered a key component of 21st century life skills.
TRUE
FALSE
2. Through independent learning, interpersonal development is achieved because students can connect to their peers and other learners as they work together in a group.
TRUE
FALSE
3. As an educator you need to cultivate your own collaborative teaching strategies.
TRUE
FALSE
4. Understanding the theoretical basis for collaborative teaching seems more difficult than integrating collaborative practices within the educational process.
TRUE
FALSE
5. A good model of collaborative teaching incorporates the previous experience of teachers.
TRUE
FALSE

Exercise 2

Please choose the right answers for the following question.

Among the ways on how to develop collaborative teaching strategies are the following:

- Work as a team (**YES**)
- Teach part by part (**YES**)
- Teach the same topic multiple times (**NO**)
- Facilitate the learning experience using different methods (**YES**)
- More focus on individual responsibilities for complex tasks (**NO**)
- Observe and teach (**YES**)
- Create teams while respecting diversity (**YES**)

References Unit 3. Developing collaborative teaching strategies

<https://eduvoice.in/beginners-guide-collaborative-teaching/#6-how-to-implement-collaborative-learning->

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<https://www.edutopia.org/article/5-strategies-deepen-student-collaboration-mary-burns>

https://link.springer.com/referenceworkentry/10.1007/978-1-4419-1428-6_818

Video: <https://www.youtube.com/watch?v=7FBBd3BTteY>

UNIT 4: How to teach collaboration skills to students in classroom?

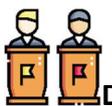
Essential collaboration skills

Collaboration and communication skills share several common characteristics that are considered significant elements of the collaborative learning method. Collaboration depends mainly on the ability to commit to a goal, work efficiently with others, join in, listening to others and expressing your own views and opinions. Students must be aware of the way they can effectively begin and end a conversation within the context of a classroom, as well as to be able to follow instructions, work collectively and help other students. Although, communication is central for collaboration, some other skills are considered equally important.



Adaptability

When working in teams, students should take under consideration that a successful outcome will arise only by being adaptive to changes. By enhancing adaptability, students will be more competent to overcome obstacles and to handle change.



Debate

Frequent debates inside a team can act as a basis for triggering innovative ideas. Good ideas can be analysed and enriched by brainstorming from other members of the group.



Open-mindedness

Accepting new ideas and being open to suggestions and criticism will promote a meaningful collaboration between the students.



Organization

Collaboration can only be successful to the extent that people delegate tasks, share workload, attend to their responsibilities, and organize their activities.



Communication

Fostering direct and meaningful communication between your students, will lead to an optimum educational environment that will produce efficient outcomes.

How to cultivate collaboration skills to your students

Having established the importance and the way in which you can develop your own collaborative skills, it is worth emphasizing that a good foundation of collaborative skills on the part of teachers will directly help learners to develop them in the context of a classroom. Students face the same challenges and need the necessary guidance to understand how collaborative learning works. In this light, teachers are defined as competent guides for the development of a collaborative spirit.

Classrooms are the point of visual interaction and face-to-face learning, but it is understood that the same visual interaction and immediacy can be established through an online teaching environment as well. Therefore, the course context is defined as the best place for students to learn and apply collaboration skills. The ways by which students can be taught collaboration skills can vary. Through creativity and inclusiveness all students can be engaged to a collaborative way of learning.

The first step, however, would be to remove the barrier that exists between students and teachers. For collaboration skills to be adequately developed and used by all members of a classroom, students must feel comfortable around teachers. Also, you should keep in mind that there is no need to hurry. Collaboration skills can be imparted one by one, with continuous assessment. In this way, students will be given the opportunity to slowly develop collaboration competencies and educators will be able to assess the impact of these skills by observing the overall performance.

Apart from the obvious benefits of collaborative skills which have been described in detail in previous sections, teaching them to your students will give them a head start in the professional field. More and more professional fields require collaborative work, and your students will be more prepared for the job market using collaborative practices.

The first objective is to comprehend teamwork and its benefits, such as the importance of teamwork. It needs to be understood that each result is the equivalent of equal effort by all students and that each student can help the others to obtain a successful result.

Below are some ways in which you could help your students develop the idea of cooperative learning.



Think, compare and share

This is a common method of collaborative learning that can start in classrooms. The students are given a certain topic for discussion, a specific problem that it will require them to discuss it with their peers, or with the members of their group. The discussion should be shared in a manner that enables positive exchange of ideas with respect to the opinions and different views of others.

During discussion, you will be also able to observe the dynamics of each student and the way they cooperate with other members of the classroom. After the discussion, students will try to reach to a best solution, which will be presented with the adequate arguments. In this way, learners will be able to actively listen and express their perspectives and problem-solving skills and to observe arguments of their peers. In this way, students will be able to understand the dynamics of the other students and will be able to understand the way the other members of the group think and the way they communicate their arguments.



Problem-based learning

Another way that will help your students to actively collaborate is to present them a particular problem that needs a solution. It is important that you ask your students to work collectively to resolve and then to present the final solution to the classroom. In this way students will begin to assess the problem and further come up with a solution. By using the applying the solution to a real-life situation learners will be able to better comprehend the advantages and disadvantages of this solution. Finally, students will understand how to implement their factual knowledge.



Guided Flow

In this method, each progress step of the student is supervised. The entire idea might be like problem-based learning, but the assessment matters. Students tend to find an answer at each level and report back.

During this method you should guide your students based on their given answers and assessment. Students are taught certain procedures and methods to confirm that they comprehend the way that collaboration works.



Case studies and stimulations

Role-playing and stimulation of certain examples will gradually lead your students to develop a multifactorial knowledge. Interaction is the key to collaboration.



The jigsaw strategy

The jigsaw technique builds on one of the most effective ways to process and retain information — teaching others. It is a way that supports interdependence, cultivates communication skills, and resolves conflicts between the students.

For an effective usage of the jigsaw method, start by asking each member of the classroom to learn a piece of the material and then to teach it to their peers. The group then works together to synthesize the information and create a presentation about what they've learned.

Keep in mind that the jigsaw technique is more effective in small groups, including five or six students. Additionally, the topic needs to be complex so as students will put effort into explaining it the others. The division of the lesson into five or six separate sections and assign each student to a particular section. For example, if you're studying different approaches to crime, one student could research about the social perspectives, one the biological explanations to crime and one the psychological aspects.

Once the students have completed their research, bring them back together to meet in small discussion boards or private video meetings to share what they've learned and to develop a greater understanding of the concept. Promote discussion between the students and ask each other to assess the work of others. After, you can also assess the group on their knowledge of all the materials with a group presentation, essay, or project.



Peer review

You should try to include peer review inside your collaboration strategies. In this way, students will review each other's work and will be able to benefit from individual feedback, even in a large group. The importance of feedback between peers has been well highlighted by research concerning the educational field. Peers will improve their writing skills and will deepen their knowledge by accepting other critiques.

To enable a flawless and successful peer review, you'll need to anonymously pair students to review each other's work. You should provide students with the appropriate tools they need to perform an effective review: sample reviews, assessment rubrics, and guidelines on giving constructive feedback.

For starters, you could use Eduflow's peer feedback template

<https://www.edufLOW.com/peer-review/>.

Models and practical ways to collaborate in classroom



Google / Microsoft: Several students are part of schools that either use Google or Microsoft as their classroom management systems. These tools provide a solid space for collaboration, as learners can work simultaneously on the same project, exchanging ideas and giving each other feedback. Implementing these tools will create a sense of collaboration between your students. Access to documents and different presentation formats will be given to students and they will have the opportunity to work with the same tools.



Blogging: Blogging represents a good and practical way that helps students develop their literacy skills and to practice the content by applying their knowledge in a more authentic way. Blogging can be used for any grade level or content area. Students can also collaborate on writing posts together and then share to build upon the learning process within the collaborative group. With blogging, students will be also able to share their ideas inside their group and to actively comprehend the material studied.



Project Based Learning: The use of project-based learning is a good way to help students prepare for their future by exploring real-world, engaging in authentic work issues and working with peers to come to a solution.



Hands-On Activities: Creative ideas for collaboration will make the lesson less boring and theoretical. You should provide your learners with the appropriate materials in order to use their innovative ideas. Apart from completing a worksheet or textbook activity, students could be asked to role-play or to create a poster about a particular topic, with the use of digital tools. Also, instead of watching videos that explaining the material, you should ask your students to make their own video concerning a complex lesson.



Creating a Wall of Discussion: Digital tools available for having students share ideas, such as Padlet, are quite helpful for collaborating. Students can post their ideas, even anonymously, share photos, videos, weblinks links or record audio to add to the collaborative space.



Use online tools that will make the lesson more engaging and interactive: During lecturing you will notice that several students are disorganized or bored. Theoretical knowledge is not always understood by all students. Distance education needs to use tools that will enhance students' active participation and allow them to work collaboratively, while having fun during lessons. You can use the following tools in an e-class environment. You can also watch the video to understand the use of these tools and how you can use them. [Click here.](#)

Apps that make online sessions interactive:



<https://www.wooclap.com/>



<https://www.online-stopwatch.com/>



<https://www.ehyde.com/No%20Hands/>



<https://quizizz.com/>

In the following table you are presented with three different models that will facilitate a successful collaborative environment.

MODELS OF COLLABORATION

REMOTE	Individual devices, connected to a shared document or LMS (learning management system), are used. Students communicate via chat or comment feature.
ROLE BASED	Students work on smaller, individual tasks based on their role within the group. Continuous communication is needed to construct shared final product.
SHARED SCREEN	Students work side-by-side, discussing and taking turns to complete an activity using one device.

How to understand if collaboration isn't working?

In many cases, cooperative teaching may not be properly implemented and may create failures within the classroom environment. It is important for every teacher to be able to recognise the signs which indicate that collaborative teaching/learning is not being implemented correctly. Through these comments you will also be able to better observe the modifications you will need to make, to improve the overall collaborative experience.



Sign 1: Failure to provide elaborated explanations

Ensure students aren't just simply restating or rephrasing information.



Sign 2: Failing to seek and obtain help

Students may be unaware of their need for help, seek irrelevant help, or avoid help altogether in fear they may appear dependent on others.



Sign 3: Suppressed student participation

Some individuals may feel inadequate and decrease their participation around high achieving peers, and conversely, highly engaged students may decrease their input as they see other students receiving a 'free ride' through lack of participation.



Sign 4: Cognitive conflict

This refers to how much students agree or disagree with the topic and affects collaboration in two ways: if students agree too much with a topic, there may be a lack of new ideas or incorrect ideas will go unchallenged. If students strongly disagree, students may spend too much time arguing with no ideas being put forward.



Sign 5: Lack of coordination

Structure the class so each student has a chance to contribute while the rest of the class actively listens. Encourage students to think critically about these ideas so they don't just advocate their own ideas and discard others without proper consideration.



Sign 6: Negative social behaviour

Creating a positive classroom environment is crucial to successful collaboration. The quality of the group decreases when students are rude or unresponsive to one another.

Exercise 1

TRUE and FALSE

1. Collaborative learning cannot be considered a key component of 21st century life skills.
TRUE
FALSE
2. Through independent learning, interpersonal development is achieved because students can connect to their peers and other learners as they work together in a group.
TRUE
FALSE
3. When working in teams, students should take under consideration that a successful outcome will arise only by being adaptive to changes.
TRUE
FALSE
4. Neglecting new ideas and being open to suggestions and criticism will promote a meaningful collaboration between the students.
TRUE
FALSE
5. Collaboration can only be successful to the extent that people delegate tasks, share workload, attend to their responsibilities and organize their activities.
TRUE
FALSE

Exercise 2

Please choose the right answers for the following question.

Among the ways on how to cultivate collaboration skills to your students:

- Think, compare and share (**YES**)
- Problem-based learning (**YES**)
- Unguided flow (**NO**)
- Case studies and stimulations (**YES**)
- More focus on discussion (**NO**)
- The jigsaw strategy (**YES**)
- Peer review (**YES**)

References: Unit 4. How to teach collaboration skills to students in classroom?

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<https://resourced.prometheanworld.com/collaborative-learning-students/>

<https://www.teachthought.com/pedagogy/collaborative-learning-tips/>

<https://www.eduflow.com/blog/online-collaborative-learning-strategies-to-keep-students-engaged-while-at-home>

<https://www.jacaranda.com.au/blog/tips-and-ideas/collaborative-learning-tips-and-strategies-for-teachers/>

UNIT 5: How to encourage teachers' collaboration to develop collaborative capabilities?

Benefits of teachers' collaboration

1. Professional development and exchange of experience

It is obvious that within an educational environment there are different teachers who in turn have different experiences and different personalities. Interaction between teachers allows for the exchange of experiences, but also for an environment in which discussion is facilitated. This setting can help educators to learn from each other in ways that are directly applicable to their practice.

2. Improved educational practices

When teachers work in a team spirit, they can form meaningful relationships with their colleagues. It is understood that the collaborative context between teachers provides a sense of belonging to a larger context. This feeling can positively influence the school culture, which of course can directly affect student learning and the overall experience of collaborative learning.

3. Separation of duties

Within the collaborative teaching framework, teachers can organize meetings to ease the exchange of ideas on the practices they use. One teacher may plan a module and collect materials, while another takes over the next module. The efficiency of each teacher, but also of the whole team, needs to be reflected in the performance of their students. When teachers work together, it is easier for students to understand the broader context of cooperative learning.

4. Better results may mean better use of data to guide decision-making

The data collected should be part of the teachers' meetings. The data analysed within the group helps to identify trends and patterns prevailing in a classroom. Teachers can therefore discuss and exchange information on data from other educational institutions and not only report on their individual courses.

5. A shared sense of responsibility

Teachers who work together realise that they all have a responsibility towards their students. When teachers of specific courses work together, they can share modules and use each other's knowledge and skills to guide students to a higher level of efficiency and understanding of the material. They can also learn new things about their students from other teachers that affect their ability to connect with and support their students using the relevant practices.

Ways of encouraging teachers' collaboration

Teacher collaboration refers to the educational condition in which members of a learning community work together to improve the learning experience and to share their ideas and practices concerning education. The goal for an educator is the academic achievement in which teachers operate as facilitators.

To enhance cooperation between the members of an educational team, common goals are needed first and foremost, whether they are short or long-term. It is noted that, whether educators share mutual goals during collaboration, it assists in team building efforts.

Another significant way that enables the improvement of collaboration between educators is the shared ownership in the learning process. Teachers that have a shared sense of responsibility and ownership in student learning work more collaboratively together. They are active participants of the educational experience, and they tend to transmit these collaborative practices into their classroom. A shared sense of responsibility automatically leads to an enhanced learning outcome since educators are feeling responsible for their students' progress. Additionally, maintaining a sense of respect among your co-workers will enable them to freely express their ideas and experience for a better learning outcome to be succeeded.

Finally, you should pay attention to the instructional improvement. Educators suggest that having an open mind to innovation instructional practices is beneficial in teacher collaboration. Also, it can make you more resilient to change and open new horizons, since you will be always looking for innovative ways to educate your students.

Practical tips to enhance teachers' collaboration

Develop and Agree Upon a Shared Vision and Mutual Goals



Having a shared vision and mutual goals can lead to the buy-in required for teachers to have a genuine sense of ownership.

Foster a Sense of Community and a sense of belonging



The central goal of collaboration is building relationships. You should take the time to get to know your colleagues and form meaningful relationships with them. The process of relating with them on a personal level will develop a greater sense of trust and respect. You should invest on these relationships that will adequately facilitate the collaborative environment that you are trying to establish.

Create Group Norms and Potentials



Collaboration can be stressful and uncomfortable at times as educators are passionate about their work and beliefs. It's important to develop a culture of trust, respect, and humility. Your team should delegate roles and responsibilities, as well as protocols for communication, time management and decision-making.

Use Discussion to Work Through Conflicts



Although dialogue opens doors to new possibilities, it can also open the door to conflict. It's a good idea to develop a conflict management plan, monitor your own emotions, and always use your professional judgment and effectively communicate your perspective and set of beliefs.

Exercise 1

TRUE and FALSE

1. When teachers work in a team spirit, they can form meaningful relationships with their colleagues.

TRUE

FALSE

2. Through independent learning, interpersonal development is achieved because students can connect to their peers and other learners as they work together in a group.

TRUE

FALSE

3. The efficiency of each teacher, but also of the whole team, needs to be reflected in the performance of their students.

TRUE

FALSE

4. When teachers of specific courses work together, they can share modules and use each other's knowledge and skills to guide students to a higher level of efficiency and understanding of the material.

TRUE

FALSE

5. The goal for an educator is the academic achievement in which teachers operate as facilitators.

TRUE

FALSE

Exercise 2

Please choose the right answers for the following question.

Among the practical tips to enhance teachers' collaboration are the following:

- Develop and Agree Upon a Shared Vision and Mutual Goals (**YES**)
- Foster a Sense of Community and a sense of belonging (**YES**)
- Avoid Group Norms and Potentials (**NO**)
- Use Discussion to Work Through Conflicts (**YES**)
- Develop an "avoid conflict" strategy (**NO**)
- Open doors for dialogue (**YES**)
- Develop a sense of trust (**YES**)

References Unit 5. How to encourage teachers' collaboration to develop collaborative capabilities?

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<https://www.frontiersin.org/articles/10.3389/feduc.2019.00085/full>

<https://www.nea.org/professional-excellence/student-engagement/tools-tips/benefits-collaboration>

<https://www.teachingchannel.com/blog/teacher-collaboration>

Module 5: HOW CAN MOODLE AS LEARNING MANAGEMENT SYSTEM (LMS) ENGAGE STUDENTS?

The Module is concentrated to get the basic knowledge and skills on how to use Moodle platform while developing online courses. There is also a vast explanation of functionalities and advantages of Moodle platform as well as presentation of external tools/plugins which help to create extended version of eClassroom on Moodle platform. Moreover, there is also a short introduction on how to sign up to the Moodle platform, how to navigate it and start developing own course.

MODULE PLAN

UNIT 1: Basic features of Moodle

UNIT 2: How to create a collaborative lesson on Moodle.

UNIT 3: Advanced tools used in Moodle useful in creating collaborative and inclusive e-classroom.

UNIT 4: The use of Assistive Technology in Special Education: Application and Solutions In Action

AIMS AND GOALS of MODULE 5

- Being acknowledged about Moodle and its features.
- Understand well its functionalities and features.
- To have knowledge and skills to use Moodle platform while developing online course.
- To use Moodle platform to develop inclusive and collaborative eClassroom.
- To develop eClassroom on Moodle platform and be able to involve students.

LEARNING OBJECTIVES of MODULE 5

Upon completion of this module, the learner will:

- Be able to have the knowledge about the Moodle platform.
- Have knowledge about the features and functionalities of the Moodle platform.
- Be able to use the Moodle platform to develop own eClassroom.
- Be able to develop inclusive and collaborative eClassroom on Moodle.

KEYWORDS of MODULE 5

eClassroom, Moodle, Learning Management System (LMS), Open Educational Resource (OER), MOOCs – Massive Open Online Course, Moodle, Inclusive eClassroom, online course, collaborative eClassroom, eLearning

Topic and Instruction Method	Timing (minutes)	Materials and Equipment required	Assessment/Evaluation
<p>UNIT 1: Basic features of Moodle</p> <p>Moodle platform is presented and explained, theoretical information is provided on Moodle as the Learning Management System, of its main features, advantages. It is explained in short on how to create own account on Moodle and start creating own e-course</p>	45 min	Power point presentations, video lessons, text	The activity is going to be evaluated through exercises (questionnaire and quiz)
<p>UNIT 2: How to create a collaborative lesson on Moodle</p> <p>The tools of Moodle platform are presented which are useful in developing collaborative eClassroom. Teachers, trainers, mentors are presented with the basic explanation and presentations (as well as video) on how to use different tools to create lesson which could be pleasant and interesting to their students.</p>	60 min	Power point presentations, video lessons, text	The activity is going to be evaluated through exercises (questionnaire and quiz)
<p>UNIT 3: Advanced tools used in Moodle useful in creating collaborative and inclusive e-classroom.</p> <p>It is explained in detail why Moodle platform is collaborative and interactive platform, also presenting some exercises, training activities, assessment possibilities which all together make this platform collaborative and inclusive</p>	90 min	Power point presentations, video lessons, text	The activity is going to be evaluated through exercises (questionnaire and quiz)
<p>UNIT 4: The use of Assistive Technology in Special Education: Application and Solutions In Action</p> <p>It is explained in assistive technology used in training activities of disabled learners to create inclusive eClassroom.</p>	45 min	Power point presentations, video lessons, text	The activity is going to be evaluated through exercises (questionnaire and quiz)

UNIT 1: Basics features of Moodle

Moodle is a free, online Learning Management system enabling educators to create their own private website filled with dynamic courses that extend learning, anytime, anywhere.

Moodle is a free software, a learning management system providing a platform for e-learning, and it helps the various educators considerably in conceptualizing the various courses, course structures and curriculum thus facilitating interaction with online students.

Moodle is an acronym for Modular Objective Oriented Dynamic Learning Environment (MOODLE) developed by the Australian educator and computer programmer, Martin Dougiamas.

It's the first Open-Source Learning Management System (LMS) brought out to the public in 2002. Since then, Moodle is the best alternative to tens of commercial LMS software. Currently, about 100 million educators have used or still using this platform.

While Moodle presents certain common features in almost all similar e-learning tools, it also provides certain plug-in options. As an e-learning platform, Moodle features:

- blogs
- chats
- database activities
- glossaries
- support systems enabling the functioning in multiple languages
- content management
- regular examination and assessment

The current infrastructure facilities adopted by Moodle enable it to support a plethora of plug-in options like graphical themes and content filters, enrolment and authentication processes as well as resource and question patterns.

Any operating system that supports the usage of PHP allows the usage of an e-learning platform like Moodle and some of the systems where Moodle can perform without any alterations include Mac OS X, Windows, Linux, Unix, NetWare etc.

Here are some standalone characteristics/advantages of Moodle LMS to consider and go Moodle:

Highly Configurable LMS Software

Moodle Learning Management System (or, Moodle LMS) is highly customizable LMS. Being an Open Source software, Moodle changes continually year after year, with exceptional improvements incorporated in the latest versions, from its community of developers all over the world.

Since Learning/Training and Development (L&D) requirements change vis-à-vis organization objectives, Moodle allows for users to make tweaks to the software. Add the required Moodle plugins, themes or whatever. That way you get the perfect LMS.

Moreover, the big advantage of this fact is that you pay for what you get. The other LMSs come as full-fledged eLearning software. That is, the users may find many features which they may not use.

Moodle speaks plain PHP

If Moodle LMS is written in PHP programming language, what's the benefit? Well, PHP is known for its easy deployment and implementation. That means, the language paves the perfect way for endless capabilities and functionality expansions in the future.

Hence, the continual updating of Moodle in the form of its versions is feasible. So, the users won't lag behind their competitors when it comes to leveraging the technology for learning/training and development requirements.

Moreover, its flexibility to run on any platform such as Linux, Unix, Windows, macOS, and even on the newcomer Ubuntu has made PHP a preferred choice for writing Moodle LMS software.

All in all, writing Moodle software in PHP has made the Moodle LMS independent of any platform, just like its software language.

Plugins, plenty!

Chances are that no other LMS except Moodle will have these many plugins. Moodle plugins directory tells us that there is about 1601 plugin.

Moodle plugins allow users and organisations to extend and customise the functionality of Moodle beyond what Moodle HQ have developed for Core. This flexibility is what makes Moodle collaborative and community enhanced.

These add-ons give to users' great flexibility; whenever you, as user, want to enhance your LMS, you can add them. Otherwise, you can discard the same. It is a useful thing.

Moreover, some add-ons to Moodle are commercially available. The plugins such as – Edwiser RemUI, H5P, Congrea, Poodll, LearnerScript, etc. to name a few, are nothing short of excellence. Plugins like those will not only give it an edge over the other LMSs, but they also make it a great substitute.

Assessment-type flexibility

When one of seasoned Moodle developers was asked what one big advantage of Moodle (over other LMSs) is he observed over the years as a developer, which a commoner cannot find it on Google. "Quizzes," he replied. "They are the heart of Moodle LMS. Unlike the other LMSs available on the market, Moodle offers a variety of assessment types: questionnaire, quizzes, assignments, hot spots, audio-and-video type assessment, etc. all for free cost." He added: "It all depends on the kind of assessment that best fits educational organization L&D goals, and moreover, if learning is not measured for development, what's the use of learning after all," the moodler continued.

And the bottom line here, like the words of *Hal Elrod – The Miracle Morning guy*, is this: Learn, measure and grow! The Moodle LMS simply facilitates this approach for all educators.

Learning Analytics tools

There is a famous quote from Peter Drucker, “What gets measured gets managed.” So it’s no use if every educator’s eLearning on Moodle is not measured and analyzed for actionable insights to enhance learners’ learning outcomes. These Moodle insights will play a constructive, crucial role for organizations and individuals alike to chart their course of learning action respectively.

For that purpose of getting learning analytics, every trainer/educator will find more or less a dozen analytics and reporting tools available for Moodle LMS. Some of them, like **LearnerScript**, belong to the Moodle family.

Feedback System

The feedback system in Moodle is part and parcel of the LMS. It helps understand how a course, trainers/teachers, pedagogic methods are doing, which otherwise not possible to know.

The feedback in Moodle aims at improving the quality of L&D (Learning and Development) efforts. In other words, it helps to put a check to formality-kind-of training which is only a burden and diminishes the chances of better ROI (Return on Investment) of every educational organization.

To assess your training whether it’s productive or not, various types of questions such as multiple-choice, essay answers, and as such form the feedback in the system.

Setting up your practice course

Here is the guidelines on how to set up the course, how the teacher must sign up into Moodle platform in order to develop own course. So the steps are as follow:

- First go to Moodlecloud.com and choose a package that you're interested in. Perhaps you could start with the free trial. Once you've signed up and got your site, log in and from the Users tab click Add a new user. Choose a username and a password and make sure you remember them both and then any other information for example first name and last name, and then save this account.
- Then from the Site administration, click the Courses tab, Add a new course. You can give it any name you want - the full name and short name can be the same if they're not too long. Choose a subject that's relevant to you or that you're interested in, add any other details you want and click Save and display.
- On the next page you need to add the teacher so click the Enrol users button, type in the name, the username, and you'll find your teacher and assign the role of teacher. Press Enrol users and you now have the teacher account in your practice course so log out, and then log in again with your teacher account and now you're ready to start!

Finding your way around Moodle

Often when you log in, you're directed to a personalised customisable page called your dashboard. Here you'll see an overview of the courses that you're enrolled in. Over on the left you'll see a navigation or nav drawer with useful links, for example to your site's front page or site home. Perhaps your administrator directs you to the site home when you log in, in which case you can access the dashboard by clicking the link in the navigation drawer. This navigation drawer also allows you to see the courses you are enrolled in so you can access them either by clicking the link in the nav drawer or the link in the Course overview. The navigation drawer can be collapsed or closed by clicking the hamburger icon top left to free up more space. You can open it again by clicking it again. Over on the right is a User menu also with useful links, for example in your Preferences page you can edit your profile, change your password, select the language you want Moodle to display in and decide the text editor you want when typing in text. As with many modern websites you have icons for messages and notifications. From the messages menu you can read and send messages, manage your contacts and from the cog, select who you want to exchange messages with and how to be notified of new messages. Notifications works in a similar way: you can view notifications mark them as read and from the cog icon access your preferences.

You can either click the link in the navigation drawer or the link in the Course overview. Once inside the course, notice that the nav drawer links have changed to reflect what's happening in the course. There's a Participants link, a Badges link to see which badges are available, Competencies are enabled on this site, Grades, and the topic numbers here are four sections within the course.

EXERCISES UNIT

Exercise 1

TRUE and FALSE

Moodle is free online Learning Management System

TRUE

FALSE

Moodle is not MOOCS (Massive Open Online Course)

TRUE

FALSE

Moodle does not provide data base activities

TRUE

FALSE

Moodle platform can run just under the Microsoft operational software

TRUE

FALSE

Moodle plugins allow users and organisations to extend functionality of Moodle platform and allow to users to develop better and more activities while developing online course on Moodle

TRUE

FALSE

Exercise 2

Please choose the right answers for the following question.

Advantages of Moodle platform are the following:

- Plugins extend the use of Moodle platform and make it more functional (**YES**)
- Moodle has functional feedback system (**YES**)
- Moodle platform is not open educational resource (**NO**)
- It is easy to evaluate the progress done of every learner in Moodle platform (**YES**)
- Moodle platform is used just in Linux operational system (**NO**)
- Moodle platform is highly configurable LMS Software (**YES**)
- Moodle platform is flexible to be used on any platform such as Linux, Unix, Windows, macOS, etc. (**YES**)

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UNIT 2: How to create a collaborative lesson on Moodle

An established edtech, Moodle learning management system (LMS) can support students and educators, trainers, teachers with their collaborative learning and group communication in a hybrid, blended or online learning environment. Let's explore the key activities.

Moodle activities that support teachers and students in collaborative eClassroom

Groups: using Groups in Moodle allows you to add an additional dynamic to interactive activities: giving groups of students a private or shared space to discuss and collaborate. Depending on the goals you have for an activity, you can determine how public the actions of groups can be.

Video available at <https://www.youtube.com/watch?v=X9aQ2TiYXs0>

Moodle Group Modes: Moodle has three Group modes to choose from when adding a new activity:

- **No Groups** - all students in the class participate in an activity without any restrictions
- **Visible Groups** - students are organised into groups and can interact within their own group members and can 'read only' activity of other groups
- **Separate Groups** - students are organised into groups and can interact within their own group, but cannot see any activities of other groups

Forums: a forum is a great way to build and contribute to an online community in an eLearning environment. Forums can be used in a number of innovative ways, however, bear in mind that the strategies for teaching (sharing content) and students' collaboration (creating content) are different.

Forums are ideal for students that want to communicate with each other and co-create content. Students can participate in threaded discussions, share files, collaborate and explore topics, and write together. Moodle has five built-in forum types, some of which are suited to content sharing and assessment while others work better for collaboration.

Forum types for content sharing and assessment

- A single simple discussion
- Each person posts one discussion
- Q&A forum

Forum types for student communications and collaboration

- Standard forum for general use
- Standard forum displayed in a blog-like format

Using Forums for Group Discussions

A forum is a great option for groups looking to collaborate and co-create content by participating in group discussions, posting files and responding to each other. Depending on your learning goals, you might want to create a more structured activity (where you set the topic and/or control how people contribute) or leave things more open so that students can take the lead.

The most open forum type is the Standard forum for general use. It's useful when you want Groups to have a space to plan projects, brainstorm ideas, or provide each other feedback.

How to set-up a group discussion forum?

Add a Forum activity with the following settings:

- Forum Type: Standard forum for general use
- Group Mode: Separate Groups (Suggested to give groups privacy, and prevent confusion)
- Assign to grouping: Optional, but necessary if you plan on using multiple sets of groups in your cours

Using Forums as a Group Blog

Forums can also be adapted to match the function of blogs where students can create posts that are listed chronologically. This format is more conducive to group members contributing on a periodic basis, and having posts commented on by the rest of the group.

How to set up a group blog forum?

Add a Forum activity to the course with the following settings:

- Forum Type: Standard forum in a blog-like format
- Group Mode: Visible groups promotes sharing between groups, however Separate groups is also appropriate
- Assign to grouping: Only necessary if you plan on using multiple sets of groups in your course

Wikis: a wiki page is a co-created web page, that everyone in your class can contribute to. It is accessed in the browser, without having to have HTML knowledge.

A wiki starts with one front page. Each author can add other pages to the wiki by simply creating a link to a page that does not exist yet. It may be useful to think of a wiki's front page as a structured table of contents. A wiki is structured by its links.

In Moodle, Wikis can be a powerful tool for collaborative work. The whole class can edit a document together, to create a class piece of work. Groups can also have a wiki space to collaborate. Alternatively, each student can have their own wiki and work on it with you and their classmates.

A Wiki is an efficient, easy and popular method for creating content as a group on the internet. There is usually no central editor of a wiki, no single person who has final editorial control. Instead, the group edits and develops its own content. Consensus views emerge from the work of many people on a document.

How to set-up and assign a Wiki to groups?

Add a Wiki activity to the course with the following settings:

- Wiki mode - Collaborative Wiki
- Group Mode - Separate Groups (for Group privacy)
- Assign to Grouping - This is only needed if you are planning on using multiple sets of groups in your course

Chats: While a Forum or Wiki activity allows students to make contributions when it's convenient to them, the Chat function in Moodle is designed for students who want to communicate with each other in real-time, in a live session.

When a course member is logged in to chat, the Recent activity block will display that the chat room is in use, which encourages other students to join.

Chat works well when used in conjunction with group modes, meaning you can create chat rooms for groups to hold online meetings. Moodle keeps an online record of conversations held in the chat. This means that any member of a group can access the transcript at a later date, which is done by opening the chat room and selecting "View past chat sessions."

How to set up Chat for groups?

Add a Chat activity to the course with the following settings:

- Save past sessions - Never delete message (default)
- Everyone can view past sessions - Yes
- Group Mode - Separate Groups (to give each Group privacy)

Database: the Moodle Database Activity is a searchable repository of course-specific information that allows students and/or teachers to populate, display, and search a bank of record entries. The format and structure of these entries is virtually unlimited, including images, files, URLs, numbers, and text.

Video available: <https://www.youtube.com/watch?v=HkKUojvm6Ag>

Glossary: within Moodle, the Glossary Activity allows users to create a list of definitions, like a dictionary, that course participants can search or browse.

Teaching staff can manage access to a Glossary, with the options of allowing students to add new entries or making it "read only."

Video available: <https://www.youtube.com/watch?v=ojTLv11p71U>

Workshop: the Workshop activity in Moodle enables the collection, review, and peer assessment of students' work. Students assess their peers' submissions using a multi-criteria assessment form.

Video available: <https://www.youtube.com/watch?v=7cYG1d87jSo>

EXERCISES UNIT

Exercise 1

Please select the right key activities which contribute in developing a collaborative eClassroom on Moodle:

The right answers are signed in bold.

LIVE DISCUSSIONS in CLASSROOM, **GROUPS**, **FORUMS**, GROUP WORK IN CLASSROOM, **CHATS**, PEER-TO-PEER ACTIVITIES, **WIKIS**, **GLOSSARY**, **DATABASE**, **WORKSHOPS**

Exercise 2

Please choose the right answers about the Groups and Moodle activity:

- Students cannot be organised in groups on Moodle platform (**NO**)
- Using Groups in Moodle allows you to add an additional dynamic to interactive activities (**YES**)
- Moodle has four Group modes (**NO**)
- No Group mode means that students participate with restrictions (**NO**)
- Separate Groups Moodle mode means that students are organised into groups and can interact within their own group but cannot see any activities of other groups. (**YES**)

Exercise 3

Please choose if it is TRUE or FALSE for the following statements on Forums as Moodle tool:

- Forum is a collaborative tool in eClassroom as all students can co-create the content together (T/F)
- Forum allows just Q&A session (T/F)
- You can use Forum for group discussions but cannot use it as a group blog (T/F)
- Students can use Forum as a tool of communication and collaboration in two ways: general use and a blog-like format (T/F)

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Open Educational Resource: https://docs.moodle.org/311/en/Using_Forum

Open Educational Resource: https://docs.moodle.org/311/en/Using_Wiki

Open Educational Resource: https://docs.moodle.org/311/en/Chat_activity

MOOCs about Groups on Moodle: <https://www.youtube.com/watch?v=X9aQ2TiYXs0>

MOOCs about Database: <https://www.youtube.com/watch?v=HkKUojvm6Ag>

MOOCs about Glossary: <https://www.youtube.com/watch?v=ojTLv11p71U>

MOOCs about Workshop: <https://www.youtube.com/watch?v=7cYG1d87jSo>

UNIT 3: Advanced tools used in Moodle useful in creating collaborative and inclusive e-classroom

Numerous analyses and research identify Moodle as a well-established and advanced learning platform for multiple disciplines and particularly used in STEM education.

Moodle is a powerful tool used to support learning in various ways. Both educators and students benefit from using the Moodle LMS, although currently at varying degrees. The most prevalent tools being used are Moodle “quizzes” and “workshops”, and external tools that can be easily embedded into the Moodle system are videos, virtual tours, and e-portfolios. Moodle enables the creativity of individual teachers to develop course-specific materials for students. In addition, Moodle saves time due to randomly generated tests, questions with multiple possible answers, automated marking systems and rubrics, and positive and motivational automatic summative and formative feedback. There is strong evidence that Moodle increases student engagement, performance, and satisfaction while enhancing flexibility in their learning environments. Areas showing a rapid growth in research are adaptive content and assessment development, improvements in data security, and user verification.

Moodle LMS is very much popular among learner community as its pedagogical approach is based on social constructionist pedagogy (constructivist pedagogy is thought of as the creation of classroom environments, activities, and methods that are grounded in a constructivist theory of learning, with goals that focus on individual students developing deep understandings in the subject matter of interest and habits of mind) and is able to penetrate in higher education.

Moodle platform is based on sound pedagogical principles (principles engage students in the learning process, explains concepts in an interesting manner, inspires them to explore the unknown, and encourages them to extend their learning to concepts and facts that are known and familiar to them) to help educators to create effective online learning environment. Moodle is the most user-friendly and flexible free open-source courseware product, available all over the world. A study conducted by Cole shows that Moodle is the best learning management system for learning framework in higher education as it has strong documentation, administration and security support with IMS/SCORM (Information Management System/Shareable Content Object Reference Model) standards. Moodle can work with wide range of database systems and assists in installing, administering and using the LMS.

Moodle provides tools to assess user level of engagement and learning status. Instructors can evaluate the activity execution by individual student and points to improve the learning areas. The teachers can create structured and organised lesson plans while making slides, providing text documents, web links, links to simulation of labs. Moodle LMS facilitates the different stakeholders in many ways. The administrator manages the Moodle site once it has been installed by authentication to new users. Managing user accounts, enrolment for users to course, roles and permissions to students, teachers and other users, security and backup of the course material and additional references are the main activities carried out by the administrators. The administrators create courses, update existing courses, assign courses to users and update existing users in Moodle learning management system.

Today, the education becomes independent of time and space, requires to be more collaborative and inclusive. Students need the flexibility to work at a time that best works for them without bothering their fellow classmates, and also have convenience of working at their own pace. This leads to a search of technical infrastructure that gives convenience in learning, independent of time and space. Cloud computing (cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet (“the cloud”) to offer faster innovation, flexible resources) offers a good computing solution for such environment. Cloud and distributed computing break the accessibility and technical infrastructure limitations. Cloud computing, defined as “a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction” is one of the major driver of change in education making it more collaborative.

The cloud computing technology provides flexible infrastructure with enormous storage on demand services via internet in a reliable and efficient manner. Cloud computing allows to efficiently manage upgrades and maintenance, backups, disaster recovery and failover functions. This may increase reliability by serving current needs by increasing and decreasing the capacity of the computing resources. Cloud computing reduces the investment on purchasing the hardware, software and software licenses by providing services on rental basis. Cloud computing applications have mobility feature that can be accessed through internet on any PC, laptop, tablet, smartphones or mobile device. Mobility feature of cloud computing gives new opportunity for education since it provides more chances for students to personalize their collaborative learning process, enhance the social interactions, learn more effectively and more autonomously, and collaborate with other peers and teachers at anytime, anywhere basis, inside and outside the formal collaborative learning context.

Learning Management system (LMS) deployed on cloud computing infrastructure can achieve greater benefits from cloud computing by accessing the system from any location and at any device in an affordable way. Cloud-based learning management system supports the teachers and students to design the new interesting educational activities to enhance teaching–learning experience and also provides a single point to access and manage student record and course content to the administrators. Moodle has been designed using sound pedagogical principles to help educators create effective online learning communities. Moodle based on cloud computing provides tools to instructors, administrators to monitor and engage students in online courses. Moodle is a virtual learning environment that lets teachers provide and share documents, assignments, quizzes, forums, chats etc. with students in an easy-to-learn and user-friendly interface. Moodle LMS is highly efficient with its compatibility and extendibility features with third party systems and plug-ins. It supports customization, creation and development of courses for learning extension to engage students with instructional learning material at any place and at any time in virtual learning environment.

Cloud computing-based Moodle LMS follows the socio-constructivist theory (social constructivism is defined as 'a social group constructing things for one another, collaboratively creating a small culture of shared artefacts with shared meanings') and supports the collaborative and convenient learning environment for individual and collective learning through interactive learning activities. Instructors can motivate students for collaborative learning in team and group work. Online discussions and forums are present in Moodle. The instructors can access the forums to check the active participation of the learners, while the administrator can take report of all listed comments in a site or course. Instructors can create repositories of e-book and supplementary notes for extra reading material that can benefit the student’s knowledge and administrator can schedule course backups. The administrator can generate the course overview report on most active courses and most participatory courses over a certain period.

The instructors can track the progress graph of the learner by examining participation in different learning activities of opensource Moodle LMS. The log of course activity can be generated by Moodle administration in accordance with teaching and participation level. In teaching level, the action performed by teacher that affects students learning can be recorded, whereas, in participating level, the event or action performed by users reflecting their learning experience can be generated as reports. The instructors can use the extension and compatibility features of cloud based Moodle LMS to track the progress of students. Moodle can incorporate various plug-ins, such as: students’ performance analyzer tools, instructor and student monitoring tool, modules with support of plug-ins and extension from third party tools. Moodle has built in learning analytics tools and extension tools for helping in analyzing the performance of students.

Various higher order thinking plug-ins modules are helpful for teachers that inculcate critical thinking in students and resolve complex problems by granular simulations. Moodle plug-ins and extension tools help teachers to analyse students learning track and also provides a scope of improvement.

Moodle is collaborative LMS because it determines students' participation, contributions to forums, discussion, creativity and innovation in product development, sharing and support in group activities. Also, instructors, teachers can thrive because they provided with new assessment strategies and tools for better understanding of online collaborative students activities. The cloud-based Moodle LMS integrates certain module that is in-built and used as extension modules in learning management system. Learning analytics tools such as workshop and survey module are in-built tool of Moodle LMS, whereas LAe-R and Moclog are developed and can be integrated as an extension tool in Moodle LMS for assisting and facilitating instructors to judge student performance, strengths, and weakness in cloud – based collaborative and convenient learning environment.

Moodle Built-in Learning Analytics Tools

Moodle LMS built in learning analytics tools help the teachers to assess student learning in online environment. The two modules, (a) **Survey Module** and (b) **Workshop Module** assist in student assessment. Teachers can analyse and evaluate the student performance based on reports and assignments.

Survey module

It supports the instructors in analysing online classes using COLLES (Constructivist on Line Learning Environment Survey) and ATTLS (Attitudes to Thinking and Learning survey) tools. The tools assist in assessing and stimulating learning in online environment. The online survey generates reports and graphs that can be downloaded in comma separated value (csv) format. Instructors can use this data to analyse about the students learning interest in the class and get reflection on their own teaching

Workshop Module

It is a peer assessment activity module benefits for teachers and students. Workshop activity is a self, peer and teacher learning evaluation tool in Moodle LMS. Workshop module encourages independence and responsibility of student with the workshop activity. It supports the task evaluation criteria and students submit the assignment work. Students (not only teachers) formally assess each other work to provide feedback. In grading evaluation phase, the peer grades are reviewed for accuracy and consistency.

Moodle Learning Analytics Tools as Extensions

Various tools are designed and developed that can be integrated with Moodle to analyze learning analytics. Learning Analytics Enhanced Rubrics (LAE-R) and MOCLog are present tools that facilitate teachers to analyze student performance based on their online collaborative activities in the system. These tools are used as an extension to Moodle LMS.

Learning Analytics Enhanced Rubric (LAE-R)

To analyze student performance and interaction in the activities of the system, instructors can deploy new learning analytics tool LAE-R (Learning Analytics Enhanced Rubric) as Moodle plug-in. This tool supports the modern learning pedagogical structure for computer supported collaborative problem solving and enquiry learning methods. LAE-R is an upgraded version of current existing rubric plug-ins. The LAE-R encompass learners interaction, collaboration, social connections, use of learning resources such as websites, forums and grades of assignments. The tool supports the instructors in analyzing the effectiveness of the online course design for quality improvements and assessing student performance on the basis of online data collection analysis.

MOCLog

This tool is based on didactical theory with physical data or log files by analysis of contents on online courses by teachers. Deeper analysis of student behaviour in learning is done by teachers by checking the status of online activities using information on log data. The online tool MOCLog is beneficial for analyzing log data of students on the Moodle LMS. The MOCLog is used in the analysis and monitoring of student's data in online courses to achieve quality learning in higher education. The MOCLog system can be useful for deeper understanding of student progress towards educational goals. The MOCLog system support teachers and administrators for monitoring online activities.

Educators and Students Monitoring Tool MonSys

The MonSys tool is created on teacher-student relation model. The teacher can create better relationship with student by helping in solving problems and doubts and providing feedback for the training work done. Moodle LMS provides activities with collaborative team participation and monitoring students and teachers participation. To promote improvements in learning monitoring is an essential task. Systematic observation is required for progress of activities to improve student performance and to make task for teachers. The MonSys supports administrators to monitor student and teacher access to courses and activities in Moodle LMS to generate information. It measures the performance of students and teachers activities by tracking and monitoring course, grades, student access and tutor access. The MonSys system in Moodle presents the summary of course access, number of students, course start date, status and closure date etc. The system allows to view the summary of courses to get average number of course access; view the students' grades; tutors and students access in the discipline. The system incorporates user module to list the names and logins of users of Moodle; alerts module to send alerts to students who not attend the online course for a specific period of time and setting module to set parameters of MonSys

Plug-ins in Moodle

Teachers can integrate certain plug-ins in Moodle LMS to develop higher order skills in students. They can introduce realistic problems through simulation or game on computer-based learning environment that will assist for intrinsic motivation towards learning in students. Understanding of learning material is required for increase motivation of students in relation with e-learning environment. Instructors can create simulative activities in Moodle that encourages students to implement knowledge skills

Beaver: Competitor Questions Repository

Beaver program in Moodle is implemented by the group of teachers to improve problem solving skills in students. The group of teachers can post competitive clear basics of a particular subject. The individual student can participate in the program to solve out the question. The Beaver repository facilitates the teachers to create online question bank that will support students to stay and practice in competitive examination. By deploying beaver, teachers can significantly attain the objectives towards learning.

Granular: Simulation and Activities

Embedded interactive multimedia content in courses is highly important for understanding the fundamentals clearly. Teachers can use it to ensure high quality learning outcomes. For effective knowledge construction, MOT-Tec module can be implemented in Moodle LMS to stress for higher order thinking skills with list of activities. MOT Tec integrates learning activities with computerized applications, short videos, simulations, educational games on selected topics. The instructors are free to add or change the content accordingly. Learning can happen in enjoyable way through enquiry as well as discovery. The learning task in the quiz form is placed on the top and granular simulations are present in the bottom. The students respond the interactive simulations and show the interest in learning activities. Students will gain higher ordered thinking skills by actively engaging in interactive applications. The instructors are benefitted by making students understand the complex activities by reducing in granular module. By applying MOT TEC instructors can use technical interesting tools to enhance learning process in classroom. It will benefit students to gain good grades in exam.

Moodle Extension with Third Party tools

Moodle facilitates third party tools to rich and leverage learning environment. The instructors are free to plug-ins the familiar external learning tool to facilitate the students in various learning activity. **GLUE** and **LTI** are the good examples of third party tools that facilitate the instructors.

GLUE

Moodle LMS allows teachers to broaden the online array of tools to enact learning activities in online learning environment to promote collaborative activities using new technologies. It provides centralization of external tools and resources to facilitate designs and ideas for group activities. GLUE and GLUE-PS enables third party tools for sharing and reuse of learning designs that reduce the burden of instructors to create complex activities structure for a group. Instructors are free to use familiar external tools such as Google Documents, DabbleBoard and WebCollage or any latest tool.

LTI: Learning Tools Interoperability

Moodle LMS supports teachers or instructors with interoperability feature with remote tools and contents. Learning Tools Interoperability (LTI) tool facilitates the interaction between the third-party provider system and the LMS, by LTI provider and LTI consumer. LTI is a set of integration interfaces that enables talk between two systems in a common protocol. It facilitates instructors to configure the connection to the external tool as a link within the Moodle course area. The developer of the tool just implements the LTI standard and need to provide the connection details to those who need to integrate it. LTI provider reveals the url and secret keys to access the resources. There are number of tools exists that provides IMS LTI compliance. Wordpress, MediaWiki, Music flight, ChemVantage and Web-PA are few sites that follow IMS LTI compliance. The external tool and LTI plugins extend its support in Moodle for real course sharing and collaboration across multiple learning management system.

EXERCISES UNIT

Exercise 1

Please select the right answers which describe why Moodle is platform where eClassroom could be collaborative:

The right answers are signed in bold.

MOODLE PLATFORM DOES NOT PERMIT TO CREATE INTERACTIVE TEACHING ACTIVITIES, **MOODLE IS CLOUD BASED LMS**, MOODLE DOES NOT PERMIT TO EVALUATE THE TRAINING PROGRESS OF EVERY STUDENT, **MOODLE FACILITATED THIRD PARTY TOOLS TO CREATE COLLABORATIVE LESSON**, IN MOODLE PLATFORM STUDENTS IMPLEMENT TRAINING ACTIVITIES INDIVIDUALLY

Exercise 2

- Please choose the right answer to the question “cloud-based LMS means”:
- It provides flexible infrastructure with enormous storage on demand services via internet in a reliable and efficient manner (T/F)
- It means that it cannot be accessed through internet on any PC, laptop, tablet, smartphones or mobile device (T/F)
- It provides more chances for students to personalize their collaborative learning process, enhance the social interactions, learn more effectively and more autonomously (T/F)
- Students cannot collaborate or implement common activities with their peers (T/F)
- You can storage the information but teachers cannot interact T/F)

Exercise 3

Dig deeper

<https://www.youtube.com/watch?v=BDFnNc8A-CE>

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UNIT 4 The use of Assistive Technology In Special Education: Application And Solutions

Assistive technology includes any software or equipment used to help students with disabilities navigate their learning challenges and strengthen their skill sets. Every student's learning challenges are unique, and assistive technology gives them an equal opportunity to a quality education using individualized lesson plans.

Students often learn best by doing. Assistive technology uses this concept, supplying students with hands-on learning aids to make learning fun and less stressful. Each assistive technology tool strengthens a student's skill set through the act of playing, and many of these devices are outfitted with vibrant colors and engaging designs that fuel a student's empowerment for learning.

Assistive technology refers to the devices and services that are used to increase, maintain, or improve the capabilities of a student with a disability. While the phrase assistive technology may make us think of computers and computerized devices, assistive technology can also be very low-tech. For example, pencil-grips (the molded plastic grips that slip over a pencil) are considered assistive technology. Assistive technology that helps students with learning disabilities includes computer programs and tablet applications that provide text-to-speech (e.g., Kurzweil 3000), speech-to-text (e.g., Dragon Naturally Speaking), word prediction capabilities (e.g., WordQ), and graphic organizers (e.g., Inspiration).

In comparison to other interventions, assistive technology may have a significant effect in helping students with disabilities progress towards the goals outlined on their Individual Education Plans. Assistive technology helps in two ways: it can help the student learn how to complete the task and it can help to bypass an area of difficulty. For example, when a student decides to listen to a digital version of a book, they are bypassing an area of difficulty. However, if the student focuses on the computer screen as highlighted words are read aloud, they can learn unfamiliar words.

The Benefits of Assistive Technology in the Classroom

1. Helps Teach Cause-And-Effect Relationships

Students with special needs can struggle with cause-and-effect relationships. A big part of learning is understanding how actions lead to events, such as how performing a math function leads to a correct solution or predicting what would happen if a button is pushed on an assistive technology device, such as a capability switch.

Assistive technology helps students make connections between cause-and-effect relationships, making them feel in control of their learning and boosting their self-esteem.

2. Aids Group Instruction and Sharing Time

Group time, like circle time, plays a crucial role in a student's education. It's where your students interact and learn social skills, and it's also where you deliver group instruction for the day's activities and tasks.

In circle time settings, assistive technology helps students by keeping instruction and sharing time fun. For example, by passing around an assistive technology like a switch-adapted toy or music device, students can interact with each other in a way that promotes engagement and relationship-building — both of which are essential to a student's future success.

3. Strengthens Fine Motor Skills

Fine motor skills are the smaller movements in the hands, fingers, and wrists — in coordination with the eyes — that enable students to grasp, reach and manipulate objects, like writing with a pencil and picking up smaller items.

Fine motor movements may be difficult for some students with disabilities. Assistive technology such as activity boxes or small manipulatives helps these students strengthen their fine motor skills, increasing their ability to perform tasks both in school and at home.

4. Improves Visual Tracking

Some students with disabilities have visual challenges, specifically those who are visually impaired, partially sighted, or blind. It's difficult for these students to track and pay visual attention to objects, such as moving pets or adults' gross motor movements.

Assistive technology strengthens visual tracking skills to make learning and day-to-day life easier for these learners. Most visual tracking tools include a sliding feature, and some utilize lights and an auditory component to keep students engaged.

Laptop Computers and Computerized Devices: Benefits of Assistive Technology

Laptop computers and tablet devices are beneficial for students with learning disabilities because they are portable and lightweight. For students with handwriting difficulties, being able to take notes on a laptop or computerized device (such as an iPad) can improve the quantity and quality of the notes. Using a word processor can help students to complete work that is more organized and includes less spelling errors than handwritten work. In addition, students may identify and correct more errors when using spell check than when editing by hand. However, obtaining personal access to laptops and computerized devices does not ensure engagement and increased academic success. For many students, laptop computers and computerized devices can be too distracting. Teachers and students need to be trained in how to meaningfully integrate technology into academic contexts so that the devices don't detract from learning.

Computer-assisted Instruction

Computer-assisted instruction refers to software and applications that have been designed to provide instruction and practice opportunities on a wide range of devices (e.g., computer, laptop, iPad, mobile technology). Computer-assisted instruction provides immediate and dynamic feedback and students with learning disabilities can benefit from this nonjudgmental computerized drill and practice. Computer-assisted instruction has been shown to be helpful for students with learning disabilities in spelling and expressive writing skills as this software can reduce distractibility, and can help students learn to read and achieve other academic outcomes. Computer-assisted instruction is also an effective way for students with learning disabilities to practice math drills, as students who used computer-assisted instruction to practice math skills were able to memorize math facts more easily, and developed a more positive attitude towards math than students who did not use computer-assisted instruction.

Software Functions

Assistive technology can improve the writing skills of students with learning disabilities. Assistive technology can help students to bypass the mechanical aspects of writing. Using spell check and grammar features can help students focus on communicating their ideas and students can write with confidence knowing that they can easily make changes. In addition, being able to submit a final assignment that is neater and better organized supports positive self-esteem. Text-to-speech (e.g., Kurzweil 3000), speech-to-text (e.g., Dragon Naturally Speaking), word prediction (e.g., WordQ) and graphic organizers (e.g., Inspiration) are four useful software functions for students who struggle with language-based learning disabilities.

We may not consider the default functions of word processors to be ground breaking, but for students with learning disabilities, functions such as spell check and text-to-speech can be a tremendous help when composing and decoding words.

Text-to-speech - Text-to-speech software, such as Kurzweil 3000, can read aloud digital or printed text. This is beneficial as students are more likely to understand text when unfamiliar words are read to them. Text-to-speech can have a positive effect on decoding and word recognition, as well as reading fluency and reading comprehension. Text-to-speech software can be especially helpful for students who retain more information through listening than reading. This software can assist students with monitoring and revising their typed work, as hearing the text read aloud may assist students in catching grammatical errors that may have otherwise gone unnoticed.

After reviewing the literature, Strangman and Dalton (2005) reported that the use of text-to-speech software can improve students' sight reading and decoding abilities. In addition, text-to-speech software can improve the reading comprehension of individuals with specific deficits in phonological processing (difficulty hearing letter-sounds) as students can learn to decode new words when they are highlighted as they are read aloud. Kurzweil 3000 provides reading, writing, studying, and organizational support for students who have difficulty reading or writing. The use of Kurweil 3000 software also improves students' perception of their work and their ability to write expressively. Programs such as Kurzweil 3000 may decrease the negative emotions students associate with reading and provide students with a more complete comprehension of the text, and as a result, text-to-speech programs are recommended for use along with research-supported reading intervention practices.

Speech-to-text –Writing involves low-level transcription skills (e.g., handwriting, spelling, punctuation, and grammar), as well as high-level composition skills (e.g., planning, generating content, and revising). Speech-to-text software transcribes spoken word into computer text, allowing the student to bypass the demands of typing or handwriting; freed from these effortful tasks, students may compose stories that are longer, more complex, and contain fewer errors. Speech recognition accuracy improves with use; however, new users can become frustrated with the training process, and they may lack the ability to efficiently edit the program’s text output.

Voice recognition software can improve word recognition, spelling, and reading comprehension skills for students with learning disabilities. MacArthur and Cavalier (2004) found that for students with learning disabilities, essays dictated using Dragon Naturally Speaking were better than handwritten essays, but essays dictated to a scribe were even better. These authors found a differential impact on students with and without disabilities, providing evidence that this technology removes a barrier based on disability.

Word Prediction -Word prediction software was originally designed for students with physical disabilities who experienced difficulty typing. However, word prediction with text-to-speech is also effective for students with learning disabilities because it reduces the need for handwriting, and improves students’ spelling accuracy and writing skills. In addition, students may find it enjoyable to have the words recommended through word prediction and be able to form sentences without having to worry about spelling and word-choice.

An analysis of 25 years of research found that word prediction increases transcription accuracy and may also increase word fluency and compositional quality of writing for students with learning and academic difficulties. In one particular study, children and their families generally found WordQ to be helpful, and reported improved vocabulary use and increased independence, productivity, and motivation to write. While there are potential benefits to the use of WordQ, a basic foundation of phonological awareness is required as students who are unable to identify the beginning sound of words will not benefit from using word prediction software because the user has to provide the first letters of the word. In addition, word prediction demands a fairly high level of attention to make use of the suggested words; and as a result, each child must be considered on an individual basis in order to select the appropriate technology for his or her learning needs.

Mid-tech Devices

Mid-tech devices such as audio recorders, portable note takers, mp3 players, calculators, and pentop computers (such as LiveScribe smartpen) can be useful without the cost associated with high-tech devices. For example, the AlphaSmart is a note-taking device that can provide basic word-processing, without the cost related to the purchase and maintenance of a laptop.

While assistive technology can be low or high-tech, most of the assistive technology for students with learning disabilities is high-tech. Teachers should become familiar with assistive technology and understand how it can be incorporated within their teaching to support an inclusive learning environment.

Graphic Organizers – Graphic organizers benefit individuals who have trouble expressing their thoughts on paper as well as visual learners who need to see their ideas mapped out. While graphic organizers completed without technology can help students with learning disabilities to improve the quality of writing (Institute for the Advancement of Research in Education, 2003), electronic versions, such as Inspiration, allow students to arrange their thoughts on the computer screen without worrying about order, level of importance or categories because the text can be easily manipulated. Graphic organizers provide an organizational framework to help writers generate topics and content for writing projects and can assist with the planning and organizational stages of writing, and using concept mapping software can increase the quality and quantity of writing. Using a web-based graphic organizer with procedural prompts enabled students to produce better organized and higher quality papers, than they could produce with handwritten organizers. Being taught a strategy to plan and organize writing can improve the compositions of students with learning disabilities.

Pentop computers - Pentop computers, such as LiveScribe smart pens, are cheaper than high-tech devices like iPads but can provide text-to-speech, strategy feedback, and other organizational functions. As cost-effective and self-regulated reading aides, pentop computers may be a useful tool for students with reading disabilities. Pentop computers are also useful because they utilize instruction strategies such as providing auditory feedback during composition or math work. Handheld computerized devices that provide feedback have shown to be helpful for students with learning disabilities for essay composition and receptive notetaking and multiplication skills. For example, pentop computers are able to provide reminders such as “don’t forget to carry” during multiplication questions.

Calculators and math software - Students with learning disabilities may have a history of academic failure, which contributed to their development of learned helplessness in math. For some students, a fear of failure and low academic self-concept can lead to math related anxiety. While the use of calculators can level the playing field for students with learning disabilities, some research has shown that calculators may provide unfair advantage. Graphing calculators may be particularly effective because they provide visual conformation of the graph-shape. The added advantage of visual data can be highly motivating for students with learning disabilities. Math drill programs can be an effective way for students to learn to mentally solve math questions, they are also effective in increasing motivation and the addition and subtraction skills of students with dyscalculia.

How Do You Integrate Assistive Technology in the Classroom?

Having the right assistive technologies and knowing the proper way to integrate them into your classroom is equally important. No matter the type of assistive technology you use or the group of students you teach, the best ways to integrate assistive technology into your classroom include:

1. Know What Works

Assistive technologies are individualized tools. What works for one student isn’t guaranteed to work for the next. It’s important to recognize each student’s needs and match them with the right assistive technology.

2. Let Your Students Play and Explore

As mentioned earlier, students learn best by doing. Give your students total access to the various assistive technologies and let them explore each tool's learning potential. Your scholars will learn more about themselves and what works for them, and you gain a clearer picture of what your students prefer to engage with and how.

3. Continuous Training

Training can be provided for students, parents, and teachers to become competent with the technology, as well as environmental factors that will continue to support the learner in using technology. All educators who support an individual student should be knowledgeable about that learners' assistive technology and be able to embed the use of the technology within instruction. Computers shouldn't be restricted to a specific subject area, and the use of technology should not solely occur within a computer lab; rather, assistive and instructional technology should be an integral part of all subjects and the use of these tools should be built into the curriculum.

EXERCISES UNIT

Exercise 1

Please select the right answers which describe the best Assistive technology in Special Education:

The right answers are signed in bold.

Assistive technology means to have additional assistance while doing eLearning course, **Assistive technology includes any software or equipment used to help students with disabilities to learn better**, Assistive technology does not address the individual learning needs of all children, youth and adults, with a specific focus on those vulnerable to marginalization and exclusion, **Assistive technology uses this concept, supplying students with hands-on learning aids to make learning fun and less stressful.**

Exercise 2

Please choose the right answer to the statement:

- Assistive technology may have a significant effect in helping students with disabilities progress towards the goals outlined on their Individual Education Plans (T/F)
- Assistive technology such as activity boxes or small manipulatives do not help to students strengthen their fine motor skills (T/F)
- Laptop computers and tablet devices are beneficial for students with learning disabilities because they are portable and lightweight. (T/F)
- Computer-assisted instruction has been shown to be not helpful for students with learning disabilities in spelling and expressive writing skills as this software can reduce distractibility, and can help students learn to read and achieve other academic outcomes. (T/F)
- Kurzweil 3000, text-to-speech can have a positive effect on decoding and word recognition, as well as reading fluency and reading comprehension. (T/F)
- Word prediction software was originally designed for students with physical disabilities who experienced difficulty moving. (T/F)

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Module 6: HOW DIVERSITY AND INCLUSION AFFECTS COLLABORATIVE AND INCLUSIVE E-LEARNING ENVIRONMENT?

The Module is aimed to present prevailing approach to diversity and (inter)cultural diversity and, both advantages and challenges of (cultural) diversity in collaborative online classroom. Definition, importance, and benefits of diversity and (inter)cultural diversity are discussed in detail. The benefits of Diversity and Inclusion in the collaborative and inclusive e-classroom will be presented in detail as online classrooms become a space for exploring different perspectives and ideas that would not be possible in the normal classroom setting. Seeing the e-classroom as an opportunity to explore new perspectives / cultures without leaving your home country. You will learn that e-classrooms can be more inclusive and diverse than traditional classrooms with ease of access for all learners, regardless of location or learning style.

Challenges we will be facing when creating culturally diverse e-classroom are anticipated through the analysis of appropriate strategies for addressing cultural diversity in the online classroom. In addition, some design strategies for multicultural online courses through using computer-supported collaborative learning environments and social network learning communities are mentioned in relation to experiences of previous researchers.

MODULE PLAN

UNIT 1: What is Diversity?

UNIT 2: What is intercultural diversity?

UNIT 3: The benefits of Diversity and Inclusion in the collaborative and inclusive e-classroom

UNIT 4: Overcoming Challenges to Creating Culturally Diverse Online Classrooms in Action

AIMS AND GOALS of MODULE 6

- Define and understand what diversity is and its different aspects.
- Define and understand what is (inter)cultural diversity, its importance, and benefits.
- Learn about benefits and opportunities of e-classrooms and the chance to gather more perspectives than in a traditional classroom setting.
- To familiarize with cultural diversity in online education in general and acknowledge students' and instructors' approaches and difficulties.
- To address Issues and challenges and to mark possible solutions to overcome them.

LEARNING OBJECTIVES of MODULE 6

- Being able to define diversity and its various aspects.
- To acquire knowledge of various aspects of cultural diversity
- Be able to prevail over possible negative impact of globalization and cultural relativism.
- To learn how Diversity and Inclusion can enrich collaborative and inclusive e-classrooms?
- Being able to discuss the benefits of e-classrooms as an opportunity to explore new perspectives / cultures.
- Learning that e-classrooms can be more inclusive and diverse than traditional classrooms.
- To learn how to appreciate and embrace cultural diversity in e-classroom environment.
- Be able to grasp importance of cultural diversity in the future workplace and everyday social context.

KEYWORDS of MODULE 6

Diversity, (inter)cultural diversity, multiculturalism, globalization, inclusion, culture-neutral approach, online education, collaborative e-classroom, collaborative creativity

Topic and Instruction Method	Timing (min)	Materials and Equipment required	Assessment /Evaluation
<p>UNIT 1: What Is diversity?</p> <p>"Diversity, one of the buzzwords of the early twenty-first century, has become a concept that has multiple meanings to different groups of people. We will discuss this with the "The FOUR LAYERS OF DIVERSITY" model created by Gardenswartz and Rowe with the background of online classrooms.</p>	20 min	Power point presentations, video, articles	Quiz, Questionnaire, Reflection Questions
<p>UNIT 2: What is intercultural diversity?</p> <p>Cultural diversity is not only defined but analysed in relation to multicultural, cross-cultural, and inter-cultural diversity. Importance and benefits of cultural diversity in educational process are discussed when facing possible obstacles.</p>	20 min	Power point presentations, video, articles	Quiz, Questionnaire, Reflection Questions
<p>UNIT 3: The benefits of Diversity and Inclusion in the collaborative and inclusive e-classroom</p> <p>To understand the advantages and opportunities that one can have with online classrooms, we will discuss the theory of Collaborative Creativity regarding e-learning.</p>	30 min	Power point presentations, video, articles	Quiz, Questionnaire, Reflection Questions
<p>UNIT 4: Overcoming Challenges to Creating Culturally Diverse Online Classrooms in Action</p> <p>Theoretical framework of cultural diversity in online education is presented regarding its importance. Impact of students coming from different cultures and instructors' perception of their cultural background are highlighted in terms of promotion and mindset of openness. Some suggestions to overcome key challenges are addressed.</p>	30 min	Power point presentations, video, articles	Quiz, Questionnaire, Reflection Questions

UNIT 1: What is diversity?

Introduction to Diversity

The notion of diversity encompasses acceptance and respect. Diversity means understanding that everyone is unique and understanding individual differences. These include the dimension of race, gender, ethnicity, socio-economic status, sexual orientation, age, physical abilities, political beliefs, religious beliefs, or other ideologies. Diversity is about understanding each other and embracing the dimensions of diversity within each individual. Wellner (2000) conceptualized diversity as representing a multitude of individual differences and similarities that exist among people.

The concept of diversity means more than just recognizing and/or enduring differences. It is a set of practices that involve:

Practicing mutual respect for qualities and experiences that are different from our own. Understanding and appreciating the interdependence of humanity, cultures, and the natural environment.

Understanding that diversity includes not only ways of being but also ways of knowing.

Diversity includes, therefore, knowing how to relate to those qualities and conditions that are different from our own and outside the groups to which we belong, yet are present in other individuals and groups

Multicultural, Cross-cultural, Intercultural

Multicultural: Includes more than one ethnic group or culture. Societies are composed of several cultural groups that do not necessarily have engaging interaction with each other. The world is multicultural and societies in most countries are multicultural.

Cross-cultural: The concept that recognizes the differences among different nations, backgrounds, and ethnicities and the importance of bridging them. The differences are acknowledged, and can bring about individual change, but not collective transformations. In cross-cultural societies, one culture is often considered “the norm” and all other cultures are compared or contrasted to the dominant culture.

Intercultural: occurring between or including two or more cultures. Intercultural describes communities in which there is a deep understanding and respect for all cultures. It focuses on the mutual exchange of ideas and cultural norms and the development of deep relationships.

Four layers of Diversity

The characteristics representing diversity are illustrated in Gardenswartz & Rowe’s (1994) Four Layers of Diversity Model.

The characteristics representing diversity are illustrated in Gardenswartz & Rowe’s (1994), ‘Four Layers of Diversity.’ According to Gardenswartz & Rowe (1994), the four layers of diversity are 1) organizational dimensions, 2) external dimensions, 3) internal dimensions, and 4) personality.



Figure 7: Layers of Diversity (Gardenswartz & Rowe, 1994)

The organizational dimensions represent the outermost layer and involve characters such as management status, union affiliation, work location, seniority, divisional department, work/field, and functional level classification. The characteristics of diversity associated with this layer are items under the control of the organization in which one works. The people can influence this layer in a limited capacity because control lies with the organization in which people work.

The external dimension represents those characteristics that deal with the life choices of individual. The individual exercises a higher level of control over these characteristics in this layer are personal habits, recreational habits, religion, educational background, work experience, appearance, status, material status, geographic location, and income.

The internal dimension of diversity an individual has no control over these characteristics. These characteristics are assigned at birth, such as age, race, ethnicity, gender, and physical ability. Often these characteristics are the source of prejudice and discrimination.

Personality is described as traits and stable characteristics of an individual that are viewed as determining particular consistencies in the manner in which that person behaves in any given situation over time (Winstanley, 2006). The personality of an individual is influenced by the other three levels of the model. The other layers help shape the individual's perception, disposition, and actions, as the individual interacts with the world around them.

Diversity in e-classrooms

Globalization has been accompanied by increased remote communication via ICTs (Information and Communication Technologies). Consequently, there is increased interaction between people from different backgrounds. The higher education and training sectors are experiencing rapid competitive internationalization, where the choice of study destinations spans an enormous range of institutions worldwide.

When it comes to education, the idea of unity in diversity in the classroom doesn't seem like a farfetched idea anymore. Studies have demonstrated that fostering diversity in the classroom has a huge impact on student performance. Research results show that students achieve more and work harder in multicultural environments. In addition, when lesson plans reflect the students and their varied backgrounds, they develop a deeper knowledge of a subject as they explore it from varying perspectives. This equips students with a broader understanding and opens their minds to deeper insights.

A diverse learning environment also fosters creativity when interpreting and using knowledge, data, and facts. Group activities with diverse group members help to create a positive atmosphere and group dynamic for creative and collaborative learning. Bringing diverse students together helps with critical thinking or problem-solving, especially when applied to real-world business problems.

A great deal of emphasis is placed on cross-cultural communication, where teachers are made aware of how to use more inclusive language, to use less ‘jargon’, and to speak more slowly and clearly. It is also crucial to develop the ability to rephrase and multi-interpret the communications they are receiving- seeing circumstances through the eyes of others.

Becoming more self-aware and willing to adapt one’s actions are the key to overcoming discrimination in the learning environment.

One of the most powerful ways is raising awareness of the issues and to explain the effects of ‘unconscious bias, attitudes, and beliefs that affect the way people communicate and behave.

To create better rapport, first, you must understand what lenses you are using to see through and how they impact the way you see the world (rather like looking through a pair of spectacles). Then you need to develop the attitude, skills, and behaviour to adapt your communication to build bridges of intercultural understanding.

Intercultural competence is all about:

- Awareness of your own culture (knowledge about yourself and your core values and how these are expressed in attitudes, behaviours, and communication in the workplace)
- Assessment of other cultures (awareness of others and the ability to compare otherness with various tools and techniques)
- Action (continuing curiously to learn more; the willingness to adapt and be flexible and the ability to identify and respond creatively to cultural challenges and conflicts in ways that both respect and engage the other)

Common cultural diversity in classrooms

Even though they might share a lot in common, each student is unique. In order to foster cultural awareness, there should consider all aspects of culture that can influence students' perceptions, behaviors, and attitudes. Common cultural differences include:

Race

Race acceptance and sensitivity should permeate the classroom. It is as important for teachers to respect and recognize the impact of race on their students as it is for students to recognize it among each other.

Ethnicity

Aside from the differences in appearance, ethnicities span across countries, towns, villages, and tribes. By understanding these differences, you can better recognize students' unique interests and perspectives that are shaped by their ethnic backgrounds.

Religion

As everyone worships in a different way, it is important to familiarize yourself with the ways religious traditions and requirements can impact students' behaviors.

Language

Language barriers should not be obstacles to education. As you can't be expected to speak every language, you can be expected to adapt to those who speak English as a second language.

Economic

Students' economic situation can have a big impact on their performance. It is important how economics can lead to classroom stress as well as finding the time and place to study.

LGBTQ

Students' sexual orientation and or gender identity shouldn't be a point of conflict in the classroom.

How to foster cultural awareness and sensitivity?

Express interest in diversity

Show your personal interest to be culturally aware and ask students to share their stories and relate their cultural experiences to the lesson you are teaching.

Remain sensitive to differences

Some students might be more sensitive regarding their cultural differences than others which can affect their performance in the classroom. Therefore, the methods should be adjusted and/or provide accommodations.

Maintain high expectations for all students

Cultural diversity does not require having different expectations. Even though sometimes might be necessary to make accommodation for students who need them. However, it is important to maintain the same expectations for different students as otherwise might lead to the misunderstanding that cultural differences determine educational abilities.

Teach a culturally inclusive curriculum

It is important to develop a broad curriculum that more accurately captures the whole world in its whole. By doing so, you can help ensure students don't feel as if their culture is unimportant or that their own contributions aren't wanted.

EXERCISES UNIT

Exercise 1

TRUE and FALSE

- 1) Multicultural: The differences are acknowledged, and can bring about individual change, but not collective transformations (**TRUE/FALSE**)
- 2) Diversity is about understanding each other and embracing the dimensions of diversity within everyone (**TRUE/FALSE**)
- 3) Intercultural: It focuses on the mutual exchange of ideas and cultural norms and the development of deep relationships (**TRUE/FALSE**)
- 4) The internal dimension of diversity represents those characteristics that deal with the life choices of the individual (**TRUE/FALSE**)
- 5) Assessment of other cultures means awareness of others and the ability to compare otherness with various tools and techniques (**TRUE/FALSE**)

Exercise 2

YES or NO

1. It is as important for teachers to respect and recognize the impact of race on their students as it is for students to recognize it among each other (**YES/NO**).
2. Cultural diversity requires having different expectations (**YES/NO**).
3. Understanding that diversity includes not only ways of being but also ways of knowing (**YES/NO**).
4. In the organizational dimensions layer of diversity people can influence this layer in a limited capacity because control rests with the organization in which people work (**YES/NO**).
5. The four layers of diversity are: 1) **organizational dimensions**, 2) **cross-cultural**, 3) **internal dimensions**, and 4) **Intercultural** (**YES/NO**).

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UNIT 2: What is intercultural diversity?

Introduction

Cultural diversity is the term used to describe many different cultures co-existing within one larger culture. As an abstract concept, cultural diversity is pretty straightforward; however, finding a concrete definition of culture can be a little bit tricky. As a result, we will investigate cultural diversity from a variety of perspectives.

Defining (inter)cultural diversity

Formal and extended definition of cultural diversity

Cultural diversity has a simple formal definition. The first definition is extensively cited in dictionaries, however the second definition places the term in a larger context, resulting in terms that are interchangeably used. As a result, cultural diversity is defined as:

- the cultural variety and cultural differences that exist in the world, a society, or an institution
- the existence of a variety of cultural groups within a society. the existence of societies, communities, or subcultures that differ substantially from one another.

Many diverse features can be found among cultural groupings. They are as follows: culture, religion, ethnicity, language, nationality, sexual orientation, class, gender, age, disability, health disparities, and a variety of other factors all have a role.

Inclusion and multiculturalism are closely linked to cultural diversity. There are tiny variations between diversity and inclusion, and in many circumstances, a dual focus is required - not just including people of varied cultural backgrounds, but also increasing the knowledge, skills, and behaviors required to fully accept, support, and encourage the differences in society. Everyone's inclusion ensures that "everyone may participate," and a focus on diversity ensures that "everyone can participate on their own terms."

Multiculturalism is the belief that minority cultures, races, and ethnicities, in particular, deserve special recognition for their uniqueness within a dominant society. As a result, multiculturalism is both a response to modern democracies' cultural heterogeneity and a means of compensating cultural groups for previous exclusion, discrimination, and persecution.

“Culture” and “diversity” - interconnection and limitations

A group or community's culture is defined as a set of shared experiences that shape how its members perceive the world. It covers racial, ethnic, national, gender, social class, and religious groups into which we are born. It can also refer to a group that we join or become a member of. For example, relocating to a different nation or region, changing our economic standing, or being disabled can all lead to the acquisition of a new culture. When we consider culture in this light, we recognize that we all belong to multiple cultures at the same time.

People have wildly divergent ideas on what a multicultural society or community should or could be. Some general lines can be underlined when discussing in practical terms:

Everyone is invited.

To commit to working on diversity, everyone must believe that they will be included and valued. To build a diverse community, everyone must feel welcome. And everyone needs to understand how important their culture is to others.

Guilt is ineffective in promoting diversity.

It is ineffective to motivate people by blaming them. When people are appreciated and liked, rather than condemned or guilt-tripped, they are more likely to change.

Treating everyone the same may result in unintentional oppression.

Many people are afraid that recognizing differences will alienate them from one another. Learning about cultural differences, on the other hand, can bring people closer together by revealing important aspects of each other's lives. It can demonstrate how much we have in common as humans.

People are more willing to confront difficult issues when they are presented with a sense of hope.

When people believe there is no hope for change, they have a difficult time functioning at all. When presenting diversity issues, you can say things like, "This is an excellent opportunity to build on this organization's strengths," or "There is no reason why we can't solve this problem together."

Creating a team around us is the most effective way of bringing about institutional and community change on issues of diversity.

You will be more effective if you surround yourself with people who work well together. It is critical to invest time in developing strong relationships with a core group of people before working together as a group.

Recognize and work with the diversity that already exists in seemingly homogeneous groups.

Recognizing differences in religion, sexual orientation, socioeconomics, parenting, and class backgrounds will help create a welcoming environment and lay the groundwork for becoming more inclusive.

Shared ground of multicultural, cross-cultural, and intercultural diversity and communication

What's the distinction between multiculturalism, cross-culturalism, and interculturalism? While they are all located under the same roof, they describe very different rooms. The differences in meaning are due to our perspectives when interacting with people from other cultures.

A multicultural society is one that contains a variety of cultural or ethnic groups. People live alongside one another, but not all cultural groups have engaging interactions with one another. In a multicultural neighbourhood, for example, people may go to ethnic grocery stores and restaurants without really interacting with their neighbours from other countries.

Cross-cultural refers to the comparison of various cultures. Differences are understood and acknowledged in cross-cultural communication, which can result in individual change but not collective transformation. In cross-cultural societies, one culture is frequently regarded as "the norm," with all other cultures being compared or contrasted to the dominant culture.

Intercultural communities are those that have a deep understanding and respect for all cultures. Intercultural communication focuses on the mutual exchange of ideas and cultural norms, as well as the formation of meaningful relationships. No one is left unchanged in an intercultural society because everyone learns from one another and grows together.

History

Since its inception in 1945, the United Nations Educational, Scientific, and Cultural Organization has defended the concept of cultural diversity on a global scale.

The United Nations General Assembly established the World Day for Cultural Diversity, Dialogue, and Development in November 2001, in response to UNESCO's Universal Declaration on Cultural Diversity. Its goal is to encourage cultural diversity, dialogue, and development. It takes place on May 21.

In September 2002, the Brazilian city of Porto Alegre hosted a world meeting for culture, bringing together mayors and cultural technical directors from around the world, as well as observers from civil society. The cities of Porto Alegre and Barcelona proposed the creation of a reference document for the development of local cultural policies, modeled after Agenda 21, which was created in 1992 to address environmental issues. Thus, Agenda 21 for Culture was created with the goal of incorporating cultural diversity at the local level. On May 8, 2004, during the first edition of the Universal Forum of Cultures in Barcelona, the document was approved (Spain).

UNESCO adopted the Convention on the Protection and Promotion of the Diversity of Cultural Expressions in October 2005 in order to protect cultural diversity in the face of cultural homogenization caused by globalization, free trade, and international trade.

Why is cultural diversity important?

Negative impact of globalization

Traditional nation-states have been put under enormous strain since the advent of globalization. Information and capital are transcending geographical boundaries and reshaping the relationships between the marketplace, states, and citizens as technology advances. The expansion of the mass media industry has had a significant impact on individuals and societies all over the world. Although beneficial in some ways, increased accessibility has the potential to harm a society's individuality. Because information is so easily disseminated around the world, cultural meanings, values, and tastes risk becoming homogenized. As a result, the identity of individuals and societies may begin to deteriorate.

The globalization of technology destroys local culture while homogenizing the world. This is also referred to as cultural unification. Globalization also introduces new values that we do not recognize. Many cultures can now interact with one another, causing the uniqueness of each culture to fade.

Cultural relativism vs. respect of each other differences

Cultural relativism is the belief that a person's beliefs and practices should be understood through the lens of that person's own culture. Cultural relativists also argue that the norms and values of one culture should not be compared to the norms and values of another.

The controversial implication of cultural relativism is that social norms are infallible, and no individual can challenge them on moral grounds, that every moral code held by a culture is just as acceptable as any other even if it contains prejudices such as racism or sexism, and that moral progress is impossible due to the lack of universal standards by which a society's norms can be judged.

Acknowledgment of the importance and necessity of cultural diversity in the classroom environment

It is important to remember why diversity and cultural awareness are so important in the classroom, as well as the benefits they can have on students both now and in the future. Diversity education exposes students to a variety of cultural and social groups, preparing them to be better citizens in their communities. These culturally sensitive teaching strategies will assist you in promoting diversity in the classroom.

With these culturally responsive teaching strategies in mind, it's important to remember why diversity and cultural awareness are so important in the classroom, as well as the benefits they can have on students both now and in the future.

Students Develop More Empathy

Promoting awareness and making personal connections with people from different cultures in the classroom can help students avoid developing prejudices later in life. Because they are more aware of the experiences that people of a different race or cultural group may face, they can empathize with those who are different from themselves.

Students gain a better understanding of the lessons and the people around them.

Students gain a more comprehensive understanding of the subject matter when they work and learn with people from a variety of backgrounds and cultures present in the classroom. It also teaches students how to contribute in a diverse working environment by utilizing their own strengths and points of view.

Students Develop More Open-Mindedness

Naturally, exposing students to a wide range of perspectives, ideas, and cultural backgrounds encourages them to be more open-minded later in life. This will make them more open to new ideas and allow them to gain a better understanding of a subject by considering various points of view.

Students are more confident and feel safer.

Students who learn about different cultures in school feel more at ease and secure with these differences later in life. This enables them to interact in a broader range of social groups and to feel more confident in themselves and their interactions with others.

Students are better prepared for a diverse work environment.

With the rise of globalization, it is more important than ever to be able to collaborate with people from various cultures and social groups. Students who are exposed to diversity and learn cultural awareness in the classroom are better prepared to succeed in the workforce.

Need to embrace and not only tolerate cultural diversity

Students in typical educational and social settings exhibit classic in-group/out-group behaviors. Most students are at ease interacting with people, behaviors, and ideas with which they are familiar, and they react with fear and apprehension when confronted with the unfamiliar.

Culturally responsive instruction can assist you in showing your students that differences in viewpoint and culture are to be cherished and appreciated rather than judged and feared.

Show students that people who do not look or act like them are still people just like them.

This viewpoint can be taught by creating a culture of learning from one another rather than a culture of passing judgment on differences in values and beliefs. Some useful classroom activities include:

- Allowing students to share stories about their home lives, such as family holiday traditions, allows fellow students to gain insight into their peers' cultural traditions.
- Show your students photographs of people of various ethnicities, shapes, sizes, and attire. This can help your students humanize people they have never met before.
- Inviting guest speakers from various backgrounds who have all made positive contributions to important fields into the classroom can also help dispel any preconceived notions that students may have about the relative competence and value of people from different cultures.

Instruct your students on multicultural role models.

This demonstrates that people of all genders, ethnicities, and physical appearances can have a positive impact on the world and should be respected and emulated. Students are more likely to respect and value diverse cultural backgrounds if they are taught about the contributions that people of various ethnicities, genders, and creeds have made to a variety of different artistic, scientific, and political fields.

Create an environment conducive to culturally responsive learning.

Display posters depicting cultural groups in a non-stereotypical manner on your walls. Students can also use a world map to mark the countries from which their ancestors immigrated, and classroom signs in multiple languages can be hung.

Instill in students an appreciation for their own culture and heritage.

Another important goal of culturally responsive education is to instill in students a sense of pride in their heritage and culture. Minority students may feel pressured to abandon cultural norms, behaviors, and traditions in order to fit into the dominant social order. When this occurs, it can cause a significant disconnect between the culture of the student's school and community lives, interfering with emotional growth and social development and frequently resulting in poor performance in social and academic domains.

Benefits of cultural diversity in education process

What makes a school multicultural?

The first step is to acknowledge a society's or organization's rich diversity. For the longest time, racial/ethnic minorities, physically disabled people, and women have not received the same level of recognition as others. The one-sided approach to history and education is evidence of this.

Respect should accompany recognition. Respect and recognition are not synonymous, because recognizing the existence of a group does not always imply respect for the group.

Recognizing the validity of various groups' cultural expressions and contributions is also part of multiculturalism. This is not to say that all cultural contributions are equally valuable and socially valuable, or that all should be tolerated. Some cultural practices are more beneficial to society than others. Thus, multiculturalism entails valuing what people have to offer rather than dismissing or dismissing it simply because it differs from what the majority, or those in power, regard as important and valuable.

Multiculturalism will also encourage and enable various groups to contribute to society or an organization. However, not everything can be used, nor is it of equal worth and value. But it has value, if only because of the time and effort put into bringing it to light. Such efforts must be encouraged because who knows where the next great idea will come from.

The essence of multiculturalism, the underlying concept of multicultural education, is the ability to celebrate with the other in a way that crosses all barriers and creates unity in diversity. Multiculturalism enables us to see the Other, particularly the Other that society has taught us to distrust and distrust, as a "profitable partner" rather than a "potential predator."

As our society evolved from an Industrial Society concerned with nationalism and uniformity to an Information Society concerned with internationalism and diversity, on its way to the Global Society of the twenty-first century concerned with the environment and interconnectedness, the ethnic make-up of society and our schools changed as well.

Managing diversity in a classroom environment

Managing diversity is a continuous process that unleashes the various talents and capabilities that a diverse population brings to an organization, community, or society to create a wholesome, inclusive environment that is "safe for differences," allows people to "reject rejection," celebrates diversity, and maximizes the full potential of all, in a cultural context where everyone benefits.

Become acquainted with your students.

Learn about each student's cultural background, hobbies, learning styles, and what makes them unique. A genuine interest in learning about each student and their culture will help you establish trust and form a bond with them, making them feel valued. If students feel appreciated and at ease with the teacher, they are more likely to feel at ease talking with and respecting their classmates – and communication is at the heart of a culturally aware and inclusive classroom.

Maintain regular communication

Aside from getting to know your students, teachers should keep in touch with them throughout the semester or school year. Scheduling one-on-one meetings with students to "check in" on a regular basis will enable you to consistently improve how accessible the classroom is to all students.

Recognize and respect each student

It is also critical for students to celebrate and respect their own diverse backgrounds, as well as the backgrounds of their peers. Teachers should encourage students to research and learn about their own ethnic and cultural backgrounds when appropriate. Also, as you encourage students to learn about their diverse backgrounds, remember to emphasize what is offensive as well as the difference between cultural celebration and appropriation.

Exercise cultural sensitivity.

While it is critical to maintain an open dialogue among students, it is also critical to be sensitive to everyone's culture, beliefs, and language concerns. Take the time to learn about each student's cultural quirks, from learning styles to the language they speak, and use this knowledge to design your lesson plans.

Include diversity in the lesson plan.

The classroom environment is critical for cultural development. Always try to present and connect lessons to real-world issues, regardless of the subject. When there is a real-life example for students to relate to, it is easier to promote cultural awareness in your lessons.

Allow students the freedom and flexibility they require.

Allow students to read and present their own materials related to the fundamental lesson so that they can approach the subject from their own point of view. As a teacher, you can serve as a facilitator, encouraging conversation and healthy debate between opposing viewpoints. Group assignments are also a great way to expose students to different points of view while allowing them to collaborate to explore and solve a problem.

Pivotal role of a cultural diversity in preparation for the future in a workplace

Accepting cultural diversity in the workplace is a critical first step for businesses seeking to compete on a global scale.

Cultural perspectives from a variety of backgrounds can inspire creativity and drive innovation.

An international team's diverse viewpoints, combined with its diverse personal and professional experience, can provide new perspectives that inspire colleagues to see the workplace—and the world—in new ways. Diversity of thought has been shown to foster creativity and drive innovation, assisting in the resolution of problems and the fulfillment of business needs in novel and exciting ways.

Local market knowledge and insight improves a company's competitiveness and profitability.

When entering new markets, a multicultural workforce can provide a significant competitive advantage. Understanding local laws, regulations, and customs, as well as the competitive landscape, can aid a company's success. Furthermore, local connections, native language skills, and cultural understanding can exponentially accelerate international business development.

Cultural sensitivity, insight, and local knowledge translate into higher-quality, more-targeted marketing.

Cross-cultural understanding, combined with local market knowledge, allows for the development of more effective marketing strategies and materials. When it comes to imagery and design, market-specific knowledge and insight are also invaluable.

Using a culturally diverse talent pool enables an organization to attract and retain top talent.

Employees are more likely to remain loyal in a diverse workplace if they feel respected and valued for their unique contribution. This, in turn, fosters mutual respect among colleagues who value their team members' diverse cultures, perspectives, and experiences. An inclusive environment of cross-cultural cooperation is an excellent way to unite colleagues and teams across the organization.

Multicultural teams are more productive and perform better.

A diverse workplace provides a wide range of experience, expertise, and working methods, which can improve problem-solving capacity and lead to increased productivity. Diversity can foster healthy competition, pushing a team to perform to its full potential. This healthy competition environment can lead to the optimization of company processes for greater efficiency.

More opportunities for personal and professional development

Fundamentally, a business that is inclusive and culturally diverse will attract talented, ambitious, and globally minded professionals who will value the opportunity for personal and professional development. Working across cultures can be a truly enlightening experience, allowing others to learn about different perspectives and traditions from all over the world.

EXERCISES UNIT

Exercise 1

TRUE and FALSE

1. Cultural diversity refers to the cultural variety and cultural differences that exist in the world, a society, or an institution (**TRUE / FALSE**)
2. Inclusion and multiculturalism are closely linked to cultural diversity (**TRUE / FALSE**)
3. Community culture does not cover racial, ethnic, national and religious groups into which we are born (**TRUE / FALSE**)
4. United Nations Educational, Scientific, and Cultural Organization has defended the concept of cultural diversity on a global scale since late 80s of the 20th century (**TRUE / FALSE**)
5. Cross-cultural refers to the comparison of various cultures. Differences are understood and acknowledged in cross-cultural communication (**TRUE / FALSE**)

Exercise 2

YES or NO

Advantages of Moodle platform are the following:

1. The globalization of technology destroys local culture while homogenizing the world. (**YES/NO**)
2. Cultural relativism is the belief that a person's beliefs and practices should be understood through the lens of that person's own culture. (**YES/NO**)
3. Diversity education exposes students to a variety of cultural and social groups, preparing them to be better citizens in their communities. (**YES/NO**)
4. Recognizing the validity of various groups' cultural expressions and contributions is also part of multiculturalism. (**YES/NO**)
5. Multicultural teams are not more productive and do not perform better (**YES/NO**)

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UNIT 3: The benefits of Diversity and Inclusion in the collaborative and inclusive e-classroom

Section 1: Benefits of Diversity and Inclusion in the e-classroom

Our modern society is enormously diversified as well as multicultural, as a result promoting diversity and tolerance in the e-classroom has become a crucial goal for teachers, schools, and adult education. Building emphatic and open-minded characters can make a real impact on learners and the whole society. Research results show that diversity can promote student growth and reflection. In addition, it can create positive learning outcomes which can have benefits that reflect well beyond students' graduation and can impact their lives going forward. Diversity in the classroom can also help students to foster a sense of empathy for others and bring about open-mindedness. Diversity in the classroom comes along with many benefits such as:

Diversity improves cognitive skills and critical thinking

Being in a diverse learning environment increases the possibility for students to consider perspectives and opinions that they might have not encountered before. By being exposed to different viewpoints from their own, it allows the students to think critically about their own beliefs and see things from a different angle. Diversity alters the way individuals think by promoting creativity and innovation, as well as decision-making and problem-solving skills.

Diversity provides the foundation for confidence in early adulthood and adulthood

The professional world is accompanied by a vast and diverse workforce where interacting with other people of diverse backgrounds and mindsets can present a challenge without prior exposure to diversity, especially at a young age. Hence, learning about different cultures, religions, mindsets helps to foster a deeper sense of safety and self-confidence in the workplace and not only.

Diversity builds valuable soft skills such as empathy

Being able to consider the different circumstances and experiences that different people experience helps to foster empathy.

Reduce prejudice and builds interpersonal skills

Being able to build empathy reduces the prejudices allowing them to form closer relationships with their peers. These interpersonal skills are valuable not only to strengthen friendships but also valuable skills that they can apply in their workplace environment.

Improves student achievement

As students build empathy and interpersonal skills, they become better equipped with the skills needed to improve their school performance.

Diversity prepares students for citizenship

Studies show that experience with diversity in college does lead to increased civic engagement. This indicates the more involved citizens are with their government and political landscape, and the more educated they become about government processes, the more informed decisions they can make about how they are governed.

Diversity promotes Creativity

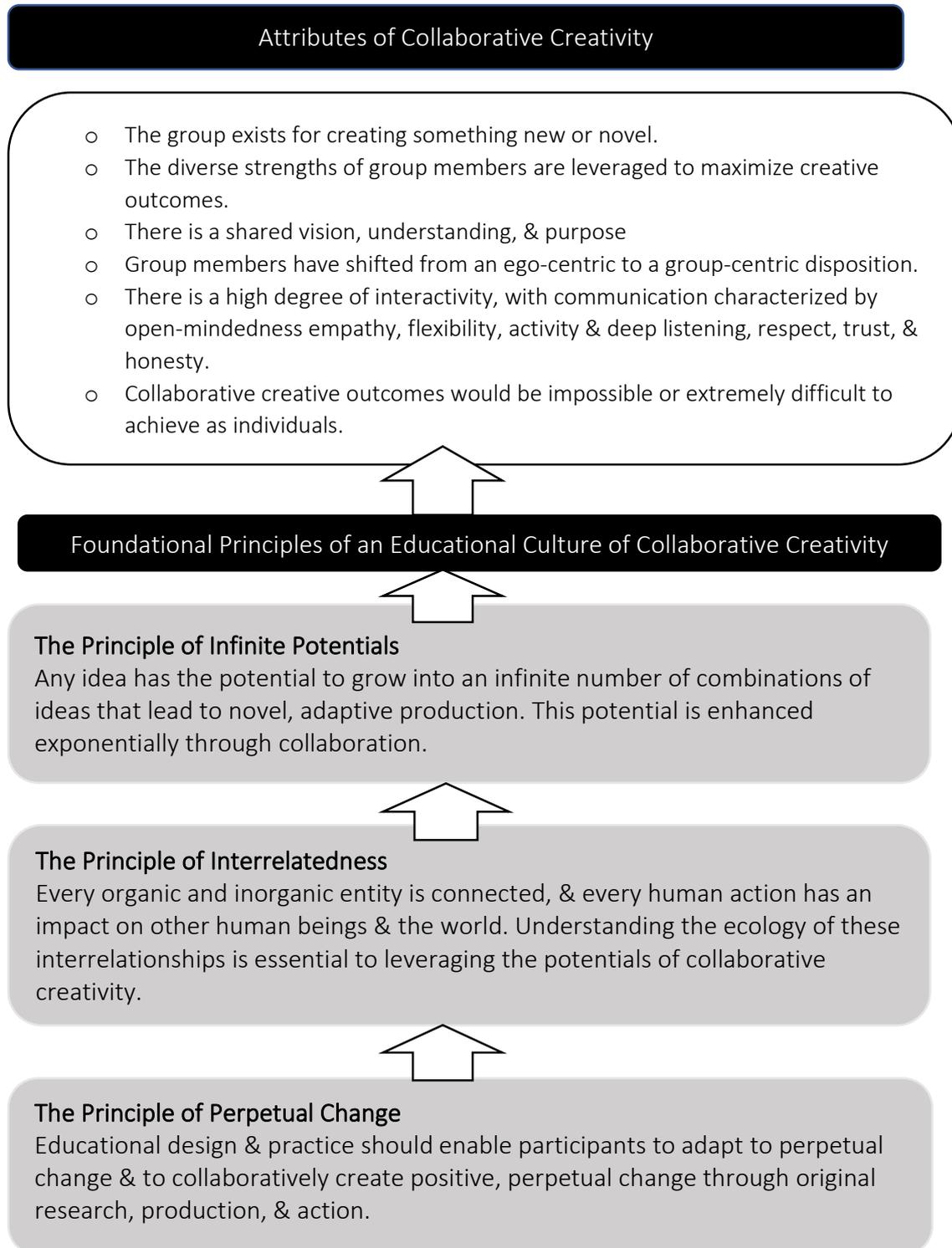
Diversity is all about bringing together different ideas and transforming them to make something new, unique, and personal. Hence, the more diverse ideas people are exposed to, the more creative they can be. In professional and nonprofessional situations that call for creativity, it is a wise choice to bring diverse perspectives.

The theory of collaborative creativity

Collaborative creativity, and its core concepts of creativity and collaboration, are viewed through the lenses of applications within educational practice. Collaborative creativity is a group of two or more individuals with a shared purpose and complementary skills engaged in a sequence of thoughts and actions that lead to novel adaptive production that would be impossible, or highly unlikely, to achieve as individuals.

Collaborative Creativity is defined as the perspective of creativity, which is an inherently social process that promotes the creative process in the form of partnerships collaborative in completing group tasks.

Foundational principles and attributes of collaborative creativity



The principle of infinite potentials is built around the belief that any idea has the potential to grow exponentially through combing and recombining with other ideas into an infinite number of possibilities. Ideas are formulated by people, so the principle implies that anyone capable of generating an idea has the potential to be connected to the exponential growth of that idea into an infinite number of creative outcomes (Kelly,2020).

The principle of interrelatedness stresses the importance of understanding our connections with everyone and everything, and the impact that every action has on these relationships. This ecological perspective is essential to create the basis for sensitive, empathic communication that creates cultures of trust and honesty, and networks focused on collaborative creative production (Kelly, 2020).

The principle of perpetual change speaks to the very heart of what world we are preparing our educators and learners for. This principle address two perspectives. The first one is that educational design and practice should focus on enabling participants to adapt to perpetual change. However, this principle goes further by stressing that educational design and practice should equip learners and educators with the capacity to collaboratively create positive perpetual change through original research, production, and action (Kelly, 2020).

Putting into context: Collaborative creativity as a driver for diverse e-learning

Teaching to engage diversity is essential for preparing civically engaged adults and for creating a society that recognizes the contributions of all people. Teaching for diversity acknowledges a variety of differences in the classroom. Teaching for inclusion refers to embracing differences. Teaching for equity allows the differences to transform the way we think, teach, learn and act. All these ideas complete each other and increase educational opportunities for all students.

It is important to promote a learning environment that supports diversity, inclusion, and equity in education. One aspect concerns the matching of resources within schools to individual student learning needs such as allocating teachers’ resources within schools, use of space, use of time, ICT resources. Also, learning strategies to address diversity such as student assessment including diagnostic assessment, individualized learning, classroom strategies, and use of technology.

How to embrace diversity in the learning environment?

Create space for expression and reflection and get to know your students

Cultural awareness should be promoted in the classroom and the teachers should try to understand each student. This can be done by showing interest regarding the student's background, learning style, and what makes them unique. Students need to express their individuality and teachers must create a safe environment that makes students feel that they can be themselves. This can be achieved, for instance, by making rules that prevent bullying, so students feel safe.

Maintain consistent communication and give students freedom and flexibility

Apart from getting to know the students' teachers should also maintain ongoing communication with their students. Students can share whether they felt included in the classroom culture and this can help to identify issues or ways to improve the overall experience. In addition, giving students freedom in the course encourages more connection to the curriculum. Allow students to read and present their materials and act as a facilitator and encourage conversation and healthy debates between diverse opinions. Group assignments are also a way to expose students to diverse perspectives.

Introduce diverse perspectives and incorporate diversity in the lesson plan

Teachers can include a diverse range of perspectives by introducing diverse authors and historical figures into teaching material. Teachers can utilize regular reviews of concepts learned to help students retain information, use a variety of visual, audio, and tactile learning activities to meet the needs of different kinds of learners, provide opportunities for group activities as well as one-on-one interactions, and listen to student feedback to adapt based on what each student needs. Being prepared to utilize different teaching methods and strategies will help foster a successful diverse classroom. Another strategy is bringing in diverse speakers to add varying points of view and real-life context to different subjects. These can be ways to ingrain cultural awareness and diversity in the lesson plan. This will help all students understand and appreciate diversity more.

Create an interdisciplinary curriculum focused on diversity

Collaborating with other teachers is key to helping introduce diversity into a classroom. Teachers who focus on different subjects can help create an interdisciplinary curriculum that highlights the importance of diversity. Doing so gives reinforcement to the ideas of diversity, and helps students apply it in multiple areas of their schooling and life. For instance, teachers can begin each term with a simple email or conversation with other teachers, asking if they would be interested in collaboration on the subject of diversity.

EXERCISES UNIT

Exercise 1

TRUE or FALSE

1. Being able to build empathy reduces the prejudices allowing them to form closer relationships with their peers (**TRUE/FALSE**).
2. The principle of infinite stresses the importance of understanding our connections with everyone and everything, and the impact that every action has on these relationships (**TRUE/FALSE**).
3. In attributes of collaborative creativity, there isn't a high degree of interactivity, with communication characterized by open-mindedness empathy, flexibility, activity & deep listening, respect, trust, & honesty (**TRUE/FALSE**).
4. Diversity in the classroom can also help students to foster a sense of empathy for others and bring about open-mindedness (**TRUE/FALSE**).
5. Collaborative creative outcomes would be impossible or extremely difficult to achieve as individuals (**TRUE/FALSE**).

Exercise 1

YES or NO

6. The Principle of Interrelatedness: Every organic and inorganic entity isn't connected, & every human action hasn't any impact on other human beings & the world (**YES/NO**).
7. Diversity is all about bringing together different ideas and transforming them to make something new, unique, and personal (**YES/NO**).
8. Collaborative creativity is a group of two or more individuals with a shared purpose and complementary skills engaged in a sequence of thoughts and actions that lead to novel adaptive production that would be impossible, or highly unlikely, to achieve as individuals (**YES/NO**).
9. Teaching for equity allows the differences to transform the way we think, teach, learn and act (**YES/NO**).
10. Studies show that experience with diversity in college doesn't lead to increased civic engagement (**YES/NO**).

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UNIT 4: Overcoming Challenges to Creating Culturally Diverse Online Classrooms in Action

A multi-cultural learning environment has the potential to bring together learners and teachers from various cultures, bridging the gap in cross-cultural understanding. Despite nearly limitless learning opportunities, teaching/learning in a multi-cultural setting can pose significant challenges for both the instructor and the student. Educators, course designers, and instructors should, of course, look for ways to meet these challenges.

Theoretical Framework: cultural diversity in online education

Massive Open Online Courses (MOOCs) – European approach

Massive Open Online Courses (MOOCs) are becoming increasingly popular in the United States and Europe. In terms of the number of learners, institutions, and courses on board, a few large American platforms dominate the field. Because of the opportunities for visibility and branding that these platforms provide, they attract many European institutions. Similarly, many platforms have emerged in Europe, but no single pan-European initiative has established its own space.

In response to the growing MOOC movement, the EU Institutions embarked on an investigation into a possible European response and European model for MOOC creation and delivery through the funding of various projects. The European MOOC platform should encourage cross-border collaboration, with people from various backgrounds and cultures working and studying together. Citizen mobility remained a cornerstone of EU programs for economic success, and the EU also recognized the importance of multilingualism and language learning. Translanguaging considers bilingual people's language practices to be normal rather than strange, emphasizing the importance of providing opportunities for incorporating translanguaging strategies and techniques into learning and encouraging students to switch between their various linguistic resources rather than being confined to one.

Investigating potential EU MOOC solutions yielded five major approaches:

- (1) A multiplatform consortium approach, accessed through a single portal, allowing for native language delivery of MOOCs from partner institutions in various languages and platform architectures.
- (2) A single platform and English language delivery as the lingua franca, addressing the majority of MOOC learners whose proficiency in the foreign language is sufficient to effectively understand video and text content.
- (3) A variety of platforms with English as the lingua franca.
- (4) A single platform with a multilingual interface and multilingual, native speaker delivery of MOOC content, with built-in translation systems to broaden access and allow learners to switch between available languages.
- (5) Finally, individual MOOCs are available in multiple language versions. This is the model used by Bocconi University, where the same course is offered in both English and Spanish versions, and they are taught and produced separately rather than translated.

According to the findings of various surveys, most learners appreciated the multilingual approach and perceived their learning experience as "truly European" and culturally diverse.

Understanding Universal Design for Learning (UDL)

Universal Design for Learning is a framework that educators are currently using to guide the planning process for inclusive instruction. Multiple Means of Action and Expression ("how of learning"), Multiple Means of Representation ("what of learning"), and Multiple Means of Engagement ("why of learning") are the three neuroscience-based principles that comprise the UDL framework.

The UDL framework and its principles contribute to addressing learner variability by shaping the design of flexible course goals, instructional methods, materials, and assessments that enable educators to meet the diverse needs of their students.

- Allows for flexibility in how information is presented, how students respond or demonstrate knowledge and skills, and how students are engaged; and
- Removes instructional barriers, provides appropriate accommodations, supports, and challenges, and maintains high achievement expectations for all students, including students with disabilities, students from diverse cultural backgrounds, and students with limited English proficiency in general.

Why is diversity important in education?

Cultural diversity is an important component of education that should not be overlooked, as it can lead to subtle differences in classroom discussions, student and teacher expectations, overall classroom etiquette, and the degree of acceptance of technology.

One of the most important aspects of distance education is social interaction, which involves establishing social relationships between instructors and students as well as among students. Many researchers have agreed that teacher/student and student/student interactions are critical components in the design of online courses. Students tend to associate highly effective social interaction with online learning enjoyment, online learning effectiveness, and even the likelihood of enrolling in another online course. Furthermore, effective social interaction is seen as a requirement for quality assurance in distance education. Nonetheless, research into the cultural barriers to effective social interaction patterns has been quite limited. These issues must be addressed because there is little doubt that in multicultural virtual educational environments where instructors and students come from a variety of cultural backgrounds, the importance of proper social interaction patterns will only grow.

Acknowledging and understanding cultural differences

The broader discourse on cultural diversity and education considers content, pedagogy, and knowledge construction, as well as a student's race, gender, country of origin, and language (among other factors) and their impact on education. Without a doubt, a student's cultural background plays an important role in this discussion. Culture not only influences the overall classroom experience, but it has also been shown to influence learning, motivation, and satisfaction in a course.

Recognizing that culture does, in fact, influence learning is a critical first step in designing for and instructing a culturally diverse student body. This could include identifying cultural cues in discussions or framing questions during discussions to elicit culturally relevant examples. This will set the tone for a safe space in the classroom where students may feel more comfortable sharing their experiences, particularly those shaped by their individual culture.

Challenges of culture-neutral presentation of material

One way to address the issue of culture in the multicultural online classroom is to strive for a material presentation that is culture neutral. This would entail, first and foremost, identifying cultural material. It could be argued that culture is inextricably linked to the material itself in some subjects, such as law or business administration, and that teaching the material outside of its cultural context would result in incomplete instruction.

Another aspect of culture-neutral presentation would be the instructor's neutral expectation of student participation. In other words, not all cultures value student participation and discussion in the same way that Western cultures do, and some cultures frown upon it as disrespectful and inappropriate. Furthermore, who is responsible for achieving cultural neutrality: the instructional designer, the instructor, or both? Whatever the answer, there is also the issue of cultural awareness, which is an important pedagogical aspect in which both instructors and designers may lack proficiency and experience.

Students from diverse cultures in the multicultural online classroom

Eastern vs. Western approach: differences in educational styles

There are at least subtle differences in class discussions, student and teacher expectations, and overall classroom etiquette between any two cultures. There are also significant differences in generalized educational styles between eastern and western approaches that must be considered when designing a multicultural curriculum. The boundaries of authority in the classroom are very clear in Eastern education. The eastern classroom is primarily teacher-dominated, has a centralized pedagogical structure, and is delivered in a one-way, lecture-based format. Classroom activities and interactions are primarily group-based, learning is primarily memorization-based, and evaluation is primarily exam-based. The western approach, particularly that of the United States, on the other hand, is more interactive between teacher and students as well as between students and their classmates, encourages open discussion and disagreement, and is application-based and process-oriented. In the multicultural online classroom, this polarity in educational approaches can cause serious problems for both learners and educators. Miscommunication is exacerbated by differences in education and cultural communication patterns.

Influence of students' individual cultural dimensions – Cultural Intelligence (CQ)

The impact of cultural diversity climate on CQ may differ between student groups. Students from immigrant families are exposed to cultural diversity on a daily basis. While families and same-ethnic peer contexts are typically more influenced by their ethnic culture, schools and different-ethnic peer contexts are more influenced by mainstream culture. Intercultural experiences, on the other hand, may be less common among students of non-immigrant origin, implying that if they occur, they may have a greater impact on their intergroup attitudes and intercultural skills.

Contact and cooperation and multiculturalism on the one hand, and CQ on the other, are stronger among students of non-immigrant origin than among those of immigrant origin. A classroom climate that encourages contact and cooperation among students from various cultural backgrounds is associated with higher CQ among students.

Instructors' perceptions and challenges

One of the most important aspects of distance education is social interaction, which involves establishing social relationships between instructors and students as well as among students. Many researchers have agreed that teacher/student and student/student interactions are critical components in the design of online courses. There is a strong link between online course interaction and student satisfaction.

Educators must raise students' awareness of how culture influences social interaction and affects students' and instructors' perceptions of distance education in order to ensure high quality social interaction standards in distance learning. This will allow them to overcome the major challenges that international students face, which include understanding the instructor's role in a socio-constructivist approach, adapting online collaborative learning, and acquiring academic skills.

How to support cultural diversity in online classroom

Approaching cultural diversity with a mindset of openness

Being open-minded entails viewing differences in ideas, cultures, genders, and lifestyles as opportunities rather than dismissing them as incorrect or "other." In the same vein, cultural diversity in the e-classroom should be encouraged.

Here are some ideas to consider and put into action:

- Interact with people from other cultures.
- Be willing to listen and let go of preconceived notions.
- If you see someone who is being culturally insensitive, speak up.
- Recognize that differences can be beneficial rather than harmful.
- Do not impose your beliefs on people who hold opposing views.
- Read literature and learn about other cultures.
- Take in media and art from all over the world.
- Learn a new language and communicate in the native language of a friend rather than your own.

Promotion of culturally responsive educational models

The culturally responsive teaching (CRT) framework puts students' cultural identities at the center of the learning process and makes use of diverse students' cultural knowledge, prior experiences, frames of reference, and performance styles. Many people think of race and ethnicity when they think of culture and identity. However, many dimensions of diversity are present in most classrooms, and CRT implies that educators should engage students' additional identities to recognize the intersectionality of various facets of who their students are.

Three classroom criteria form the foundation of culturally responsive teaching: academic achievement, cultural competence, and sociopolitical consciousness.

- A culturally responsive classroom has clear and academically challenging expectations for all students. A variety of learning assessments are used in the learning environment. Educators must be well-versed in their subject matter and adept at creating effective learning environments.
- A culturally responsive classroom fosters high levels of cultural competence by requiring students and teachers to demonstrate a thorough understanding of their own and other cultures.
- The educators must have socio-political consciousness, or a well-developed understanding of their own world views, as well as the understanding that their own worldviews are shaped by their experiences and, as a result, are unlikely to be the same as those of the students in their classes. Culturally responsive educators are those who examine their own cultural perspectives and biases on a regular basis to ensure that they are creating environments that support all learners.

Providing opportunities to embrace difference

Understanding the differences between online and traditional classroom environments, as well as how culture manifests itself in each, can help students have a positive educational experience. At a fundamental level, anticipating the challenges that students may face in areas such as classroom dynamics, participation requirements, comprehension of course themes, and interpretation of course resources and design can help students be supported through thoughtful course design and instruction. Beyond the practitioner level, organizations should promote more culturally inclusive ways of thinking in order to support faculty and staff development.

Key Challenges – issues and suggestions

Eliminating cultural barriers through technology acceptance

Acceptance of technology is one aspect of culture that is frequently overlooked in many fields, including education. The relationship between communication, culture, and technology is complicated: communication patterns are determined by culture and altered by technology, and culture exerts influence over technological adoption only to be altered by technological change. Designers must be aware of the varying degrees of technology acceptance when designing for the multicultural online classroom to create a fair and welcoming online environment.

Addressing linguistic diversity by way of informal communication and interaction

Informal language allows people to express themselves and their identities freely. Because informal language lacks the rigidity of formal language, speakers can change and manipulate their language as they see fit. This can result in richer expressions that can convey their excitement and agreement to a greater extent. Language manipulation can also provide additional information about the speaker's culture.

Another function of informal language is effective communication in social settings. Slang, another characteristic of familiarity, improves communication efficiency even further.

It is obvious that informal language serves many functions in a society, including the ability to portray one's identity as well as a means of efficient communication. It also serves to increase solidarity and reduce social distance. This should be considered in a collaborative learning environment of culturally diverse students and instructors.

Anticipating challenges beforehand in online classroom setting

Noticing cultural differences in the classroom is much easier than anticipating them ahead of time. Geert Hofstede's (1986) four-dimensional culture model is the most widely used and accepted framework in the field of classroom cultural issues:

- Power distance (PDI) is a measure of how unequally power and wealth are distributed.
- Individualism-collectivism (IDV) refers to the degree to which members of a society act as individuals or as members of a group.
- Uncertainty avoidance (UAI) is the degree to which members of a culture feel threatened by unknown situations and unstructured ideas and, as a result, avoid them.
- Masculinity-femininity (MAS) refers to the extent to which a society adheres to distinct gender roles.

Educators and instructional designers can create a more inclusive curriculum and environment by keeping Hofstede's cultural distribution framework in mind and understanding the importance of culture in the classroom.

Coping with “crisis” while adhering to curriculum

The "Motivational Framework for Culturally Responsive Teaching" (Ginsberg, M., and R. Wlodkowski, Diversity and motivation: Culturally responsive teaching in college, Jossey-Bass, San Francisco, 2009) was created specifically for adult learning environments and describes norms and practices that promote participation, inquiry, discourse, and respect for all learners. It consists of four components: (1) establishing inclusion, (2) fostering attitude, (3) enhancing meaning, and (4) fostering competence

The following questions can be used by instructors to assess their teaching practices:

1. To ensure inclusion,

- How do I acknowledge my students' cultural identities, such as racial, ethnic, religious, sexual, and gender identities?
- How do I learn about my students and what they value about the learning process?
- How can I encourage my students to interact with their peers?
- How can I ensure that students are free to speak up about class policies that they believe are discriminatory or biased?

2. To cultivate an attitude,

- How can I help learners feel positive about the content and the learning process while also incorporating learner autonomy into curricular planning?
- How can I encourage students to communicate deeply and meaningfully with one another and with me?
- How do I incorporate materials and resources that reflect my students' diverse backgrounds?

3. To deepen the meaning,

- How can I assist students in connecting with the material in ways that are based on critical reflection and critical inquiry?
- How do I integrate a wide range of learning activities and instructional practices?
- How do I incorporate real-world applications into my learning activities?
- How do I require students to examine the curriculum from various angles?

4. To foster competence,

- How can I use authentic and effective assessment to help them demonstrate mastery in a variety of ways?
- How can I motivate students to take ownership of their learning?
- How do I make room for students to evaluate their own learning?

As online teachers gain experience in creating culturally responsive learning environments, they will be able to achieve their goal of creating equitable and inclusive classes for all of their students.

EXERCISES UNIT

Exercise 1

TRUE and FALSE

1. MOOCs and UDLs are important part in development of online classroom aimed to culturally diverse learners (**TRUE / FALSE**)
2. Social interaction is one of the most important aspects of distance education (**TRUE / FALSE**)
3. Recognizing that culture does not influence learning is a critical step in designing for and instructing a culturally diverse student bod (**TRUE / FALSE**)
4. All cultures value student participation and discussion in the same way that Western cultures do (**TRUE / FALSE**)
5. Educators must raise students' awareness of how culture influences social interaction and affects students' and instructors' perceptions of distance education (**TRUE / FALSE**)

Exercise 2

YES or NO

Advantages of Moodle platform are the following:

1. Being open-minded entails viewing differences in ideas, cultures, genders, and lifestyles as opportunities rather than dismissing them as incorrect or "other." (**YES/NO**)
2. A culturally responsive classroom has clear and academically challenging expectations for all students (**YES/NO**)
3. Understanding the differences between online and traditional classroom environments can help students have a positive educational experience. (**YES/NO**)
4. It is easy to anticipate cultural differences ahead time. (**YES/NO**)
5. Online teachers can easily gain experience in creating culturally responsive learning environment following common logic (**YES/NO**)

References

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