

Didactic Toolkit for Engaged Learning



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0 Introduction

This booklet was developed in the task 2.6 “Design the framework for learning” as a support and training material for teaching staff within ENGAGE.EU.

Within the ENGAGE.EU consortium, teaching staff is confronted with heterogeneous educational offers, which range from micro credentials to joint academic programs on different levels. Additionally, a very diverse group of learners and a wide span of topics makes teaching particularly interesting – and challenging.

Building on the set of key skills and competences that were developed as a first step in 2.6, the task group decided to focus on the transversal skills within these competences, i.e. those that are applicable in a wide range of disciplines by teaching staff with very diverse requirements and teaching in different contexts. Critical thinking skills, creativity and interpersonal skills were seen as the core of those “21st century skills”. Additionally, a section which introduces the basics of course planning and a section that provides a starting point for adding further thematic foci was added.

Chapter 1 provides a summary of relevant learning theories, as well as information on how to align learning outcomes, methodologies and assessment formats. Especially with a focus on transversal skills, such as critical thinking, it is valuable to (re-)think the course design. This introductory chapter is followed by a compendium of different techniques to foster specific transversal competences.

In **chapter 2** the task group collected methods that allow the students to develop critical thinking skills. Here, teaching staff can find methods that allow students to defend and articulate their thoughts and positions based on evidence, to critically assess and analyze ideas, to value and embrace perspectives of others etc.

Chapter 3 focusses on creativity, a skill that is rather hard to teach within the boundaries that higher education imposes. Allowing students to create new ideas, to find a multitude of possible solutions for a problem, or to get creative by choosing the format of assessment themselves are examples for the methods collected here.

Chapter 4 – interpersonal competences – collects methods that support students to embrace diversity and make the most of the resources present in heterogeneous teams. Understanding one’s own identities, values and beliefs is crucial for developing these skills and thus also a part of this chapter. Finally, learning how to avoid the fear of mistakes is also addressed by the methods presented in this chapter.

The booklet is concluded by **chapter 5 – Exemplary focus on climate**. Contrary to the chapters 2-4, it does not primarily focus on transversal skills. Climate change and its meaning for sustainable economies is one of the relevant topics addressed also by the ENGAGE.EU mission. Chapter 5 contains three options how this topic can be addressed in class. This should only be viewed as a starting point though – hence the word “Exemplary” in the title – as the other challenges addressed in the ENGAGE.EU mission (i.e. digitalization and artificial intelligence, aging societies, migration etc.) provide ample opportunities for additional methods. So ideally, this booklet will be growing.

In the meantime, we hope you enjoy browsing through the methods and find them helpful!

An overhead view of a group of people sitting around a large white table in a modern, brightly lit room. They are engaged in collaborative work, with several laptops open on the table. The room features a wooden floor and a glass railing in the foreground. The entire image is overlaid with a semi-transparent blue filter.

Didactic Toolkit for Engaged Learning

1. Basics

1.1. Learning Theories

Learning theories provide a description and explanation of how learning works. However, it is important to note that learning theories can only provide a certain perspective on the topic of "learning", i.e., they can only depict a certain part of it. None of the learning theories described here can explain learning in its entirety (cf. Reinmann 2013).

Moreover, learning theories have historically always been shaped by the prevailing zeitgeist. For their part, they shape the teachers' but also the learners' perception of how teaching or learning works (cf. Reinmann 2015: 132).

The three major learning theories are behaviorism, cognitivism, and constructivism, which also historically emerged in that order.

Even if there are no direct practical derivations for action regarding teaching, learning theories help to make didactic decisions but well-founded. Especially in the field of teaching, there are often also subjective theories of the teachers, i.e. ideas about how learning works/should work. Knowledge of learning theories can help to question and possibly influence subjective theories and misconceptions (cf. Reinmann 2015: 132-135).

Finally, principles can be derived from each of the three major currents that can inspire one's own didactics.

Behaviorism - learning as behavioral adaptation

Behaviorism understands learning as a system of stimuli and reactions to them. In this context, it is important to note that behaviorists are not interested in mental processes - although the brain triggers reactions to certain stimuli, the processes that take place in the brain are not relevant for behaviorists. Especially well known are the animal experiments of Pavlov and Skinner and in this context classical and operant conditioning. Behaviorism shaped large parts of psychology until the middle of the 20th century.

In classical conditioning, Pavlov (1928) combined a neutral stimulus (ringing of a bell) with a reflex-triggering stimulus (presentation of meat triggers salivation in dogs) in his experiments. After repeated presentation of these two stimuli, the sole presentation of the bell sound subsequently led to salivary secretion in dogs.

For today's teaching and learning at universities, classical conditioning is no longer relevant.

Operant conditioning is based on the principle of setting consequences (positive and negative reinforcement) for certain actions. A spontaneous behavior is thus combined with a pleasant stimulus - such as praise, or a reward - and this increases the probability that it will be performed again. Skinner (1954) conducted experiments on this with pigeons and rats that learned through rewards.

Learning objectives at the lower levels of Bloom's taxonomy (see 1.3, Learning Outcomes) can be achieved in this way. This includes, for example, tasks that are practiced until they can be solved correctly. This is used, for example, with vocabulary trainers or similar programs.



What roles do learners and you as a teacher take on?

Overall, in settings with teachers and learners, behaviorism leads to you, the teacher, taking responsibility for the learning process: You control the stimulus (i.e., attn. choose tasks) and also determine the consequences of getting it right (or wrong). Learners are responsible for responding to the stimuli presented. Thus, they are very much active. However, the process of teaching/learning is almost entirely in your hands as the teacher (cf. Reinmann 2015: 144).



Which elements can inspire one's own didactic actions?

Examples of didactic elements that come from behaviorism and can be incorporated into one's didactic actions are:

- **Immediate feedback:**

Feedback is particularly effective when provided immediately after a task has been completed.

- **Tasks with automated feedback**

e.g. MC questions in the learning management system that can be repeated until the correct answer appears. The correct solution and, if applicable, feedback, are presented immediately after the task has been solved. MC tasks are particularly suitable for practicing rather simple content and for achieving learning outcomes at the lower taxonomy levels.

- **Positive reinforcement**

Praise from the teacher, but also good grades, act as positive reinforcers and promote (extrinsic) motivation to learn. In the field of digital teaching, this knowledge is exploited when online badges are used, which are earned when tasks are solved correctly or when learning is continuous over a longer period of time.

Cognitivism - learning as information processing

Cognitivism, which occupied teaching and learning research from the early 1980s, is mainly interested in how information is processed in the brain. Thinking and understanding processes of learners are the focus. A comprehensive theory of learning was replaced by many partial theories about attention, perception, processing and storage of information. Learning is described as an information processing process and the brain is compared to a computer. The process is understood similar to a communication model, in which the sender transports information to the receiver via a medium.

Among the well-known cognitivist theories is, for example, Piaget's cognition stage model. Cognitivist theories have also been developed for media didactic scenarios, such as the "Cognitive Load Theory", a theory of the cognitive load of the memory, which offers assistance, how learning materials should be structured.



What roles do learners and you as a teacher take on?

As a teacher, you are responsible for preparing information in such a way that learners can process it. Thus, a lot of responsibility lies with you. The learners have an active role, but they do not work independently, but under the guidance of the teacher (cf. Reinmann 2015: 144).



Which elements can inspire one's own didactic actions?

Cognitivism can provide inspiration especially for structuring and designing learning materials:

- **Presentation and design of learning materials:** Learning materials should be prepared in a way that facilitates information intake and processing for learners. The Cognitive Load Theory gives hints on how this can be done.

- **Structure of the learning materials:** Since new knowledge has to be linked to existing knowledge during the learning process, it is helpful to activate the learners' prior knowledge and to establish points of contact and connections to previously learned content.

Constructivism - learning as the construction of meaning

The basic assumption of constructivism is that reality cannot be described objectively and independently of the individual person. Each one of us constructs his/her own reality on the basis of previous experiences, social contexts, etc. This also applies to learning content - the learner has to take content into his/her own context, adapt it to his/her own experience and construct knowledge by him/herself.



What roles do learners and you as a teacher take on?

On the level of didactics, this goes hand in hand with settings that leave the learners a great deal of room for maneuver and give them the opportunity to make their own experiences. The learner is in the center and has to find a solution on his/her own. This results in a strongly problem-oriented approach, in which complexity is not reduced, but learners should learn from "real" problems. This also means that learning materials are not specially prepared. In a way, they take on the role of a coach who offers learning opportunities and supports the learners in finding solutions.



Which elements can inspire one's own didactic actions?

Approaches that give students a lot of freedom in solving a problem are based on a constructivist approach. Examples are:

- **Problem-oriented approach:** Students have to solve, for example, the concrete problem of a company or, in law subjects, a concrete case.
- **Unstructured tasks:** In contrast to exercises where a certain skill is to be trained or a certain concept is to be applied, in unstructured tasks learners have to find out for themselves which competencies and skills they need and choose the appropriate knowledge and processes themselves.

- **Assignments that are not right or wrong:** Assignments that do not have a correct solution but require, for example, a reasoned opinion or a critical position-taking by the students.



For the key transferable skills that we want students to acquire in the context of all ENGAGE.EU educational offers, constructivist approaches are particularly relevant.

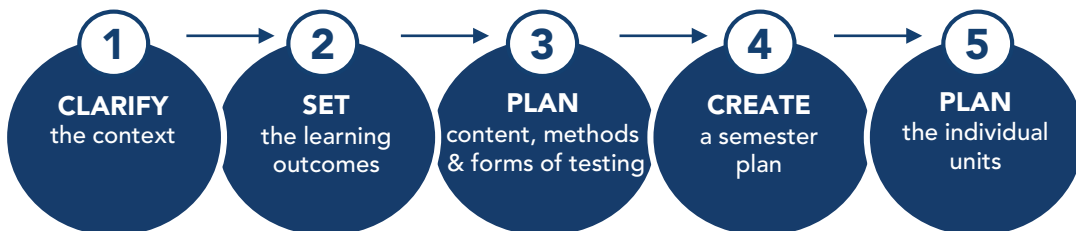
1.2 Planning Courses

As teachers, we often start planning courses with a strong content-orientation. However, if planning is purely content-oriented, this often leads to an increase in workload for the teacher: The focus on content leads to too much content being researched. Often, the examination format does not match the teacher's idea of what the students should learn in the course.

Similarly, a course that is not well structured or in which teaching methods are not well aligned with learning objectives, will also have an impact on learners: As evidenced by the Hattie study (2015), appropriate teaching methods, as well as specific learning objectives and transparency regarding performance requirements, are factors that have a positive impact on student learning.

Hence, there are good reasons to give enough time to course planning. Most experts recommend starting with the creation of learning objectives or learning outcomes and then successively moving from a rough planning of the semester to a detailed planning of the individual units (e.g. Svinivki/McKeachie 2011, Ulrich 2016, Dee Fink 2013). To this end, it has proven helpful to follow the following steps (adapted from Ulrich 2016: 38 and Dee Fink 2013. 75 f.).

Five Steps for planning the semester



Step 1: Clarify the context

When you take on a new course, the first thing you should do is clarify the context. Legal requirements, such as the curriculum in which your course is offered, but also the Examination Regulations of your university influence the delivery of your course. In addition, the assigned room or the available teaching technologies also have an influence on your course.

The following questions may help you:

- In which curriculum is the course offered?
- What have students already learned before your course and what do you want your course to prepare them for?
- What is the format of the course?
- Can you teach the course as a block?
- How many students are likely to participate?
- In which room will the course be held?
- Is there a learning management system you can use?

Step 2: Set the Learning Outcomes

As a next step in planning your course, you should think about what your students should know and be able to do at the end of the course. Even more than content, learning objectives determine the teaching and assessment methods used in the course. When planning your course, you should formulate specific learning objectives.

If these learning objectives are verifiable, they are suitable for planning the teaching and assessment methods. For more information, see the section on Learning Outcomes (1.3).

When formulating the learning outcomes, you should always keep the context in mind. For example, if you want students to acquire presentation skills in your course, it makes a big difference to your planning whether you teach a group of 30 or 180 students. Some learning objectives cannot be implemented in certain settings and must therefore be discarded.

Step 3: Plan content, methods and forms of testing

Based on the formulated learning outcomes, the next step is to select the necessary content, teaching methods and forms of examination. It is particularly important that you align the content with the learning outcomes: What content do students need in order to achieve the defined learning outcomes?

Subsequently, you should consider which content you would like to explain yourself (lecture, input, possibly video) and which content is suitable for elaboration by the students (depending on the format in partner or group work, self-learning phases outside the course, via student presentations, homework, etc.).

The choice of the exam form is also particularly relevant, since especially very efficient or low-motivated students tend to align their learning mainly with the exam (cf. Biggs/Tang 2001: 198). For this reason, it is particularly important that the forms of examination you choose are well aligned with your learning objectives (= Constructive Alignment). This automatically aligns the learning of less motivated or very efficient students with the learning objectives. For example, if you have formulated learning objectives in your course that are related to higher taxonomy levels, but the exam consists only of knowledge questions, the learning objectives and the exam form are not well aligned. This can lead to frustration among students. In extreme cases, students conclude that attending your course is not necessary to be prepared for the exam.

You can read about how to align learning outcomes, teaching methods, and forms of assessment in the Learning Outcomes chapter (1.3).

Step 4: Create a semester plan

Once you have defined the learning outcomes, content and methods and know which forms of assessment you will use, the next step is to distribute the learning objectives over the semester. To do this, first assign the defined learning objectives to the individual units. Start with the most important learning objectives and then add less important learning objectives. Try to estimate the time as realistically as possible. Learning objectives that you can no longer accommodate in your plan should be omitted and, if necessary, integrated during the semester if you are making particularly fast progress.

One way to design the semester plan is to provide a line for each date and then add learning objectives, methods and form of examination. In any case, you should design the semester plan in such a way that it is easy for you to use.






Step 5: Plan the individual units

In addition to the learning outcomes and the contents, the methods and a time estimate should also be recorded in the planning for the individual course units. Just like a well thought-out structuring of the course, the time allocation is a central point for the success of a course. A good schedule helps you to teach without stress and to create a relaxed working atmosphere in the course.

Each unit should be divided into the three phases "introduction", "working phase" and "conclusion". Less experienced teachers often plan the working phase very precisely, but the introduction and conclusion are too short, although the two phases are very important for motivating the students, as an aid in structuring and for collecting the central content (cf. Ulrich 2016: 49). Some examples how you can design the two phases (cf. Mendzheritskaya et al. 2018: 75):

- Introduction: presentation of the unit's Learning Outcomes, locating the unit in relation to the course as a whole, introducing the structure of the unit, relating it to current issues.
- Conclusion: summary of the key points of the unit, outlook for the next week.

Time Management Tips for your course planning

	<p style="text-align: center;">CREATE A PLAN</p> <p>Estimate time for your course: To do this, structure your course into different sections, such as input, group work, results presentation, etc. Estimate the duration of these sections in advance. Afterwards, note how long each section actually took. In this way, you will gradually learn to estimate the time required better and better.</p>
	<p style="text-align: center;">ALLOW 10% BUFFER TIME</p> <p>Plan in order to allow for at least 10% buffer time. This will prevent you from being pressed for time and feeling like you have to rush to get through the material.</p>
	<p style="text-align: center;">STAY FLEXIBLE</p> <p>Excited discussions among students, unexpected questions or difficulties in understanding can upset your schedule. However, critical reflection and follow-up questions from the learners and interactive engagement with the topic promote learning success – even more so, when you want to teach critical-thinking skills. For this reason, it is usually worthwhile to allow discussion and inquiry in the unit. Plan several (shorter) optional parts that can easily be left out to stay flexible.</p>
	<p style="text-align: center;">DEVELOP AN ADDITIONAL TOPIC</p> <p>Develop a 10-20 minute topic that you can flexibly incorporate into each unit if you ever finish earlier than planned. The topic should either be very general in nature or very specific, so that no prior knowledge is required to work on it. It can then be incorporated variably into units.</p>
	<p style="text-align: center;">OFFER TO ANSWER QUESTIONS</p> <p>Use forums or office hours: Inform students that questions can be asked by mail or in the forum if there is no time in the course unit. Also, inform them of your office hours and offer them the opportunity to clarify certain topics in this setting at their leisure and to clear up any ambiguities.</p>

1.3 Formulating Learning Outcomes

Learning outcomes (LO) describe the competencies that students should have acquired at the end of a learning process. If you do not focus solely on the content of the course, but also the way in which the students should master these topics, learning outcomes can serve as a starting point and orientation for the planning of the course. Models such as Bloom's Taxonomy help to classify the learning outcomes.

Well-articulated Learning Outcomes also make requirements and expected outcomes clear to students.

The additional benefits of a course design oriented to learning outcomes become evident when content and learning outcomes are compared in the following examples:

Example 1

Contents	Learning Outcomes
Integrated corporate budget	Students will be able to prepare an integrated corporate budget consisting of a performance budget, financial plan, and budgeted balance sheet.

Students must be able to create the budget themselves. In this case, it will not be sufficient to memorize the components. Pure input from the teacher will also make it difficult to achieve this goal. Assignments and assessment forms linked to these Learning Outcomes therefore involve student activity, e.g., examples must be calculated in the course.

Example 2

Contents	Learning Outcomes
Analyze events of everyday school life in a theory-based manner	<p>Upon completion of the course, students should be able to:</p> <ul style="list-style-type: none"> ... independently develop questions and concerns that affect their own instructional design using theory and research methods. ... change one's own teaching practice based on reflection of experiences during the school practicum phase. ... know and use methods of evaluation and reflection.

If we only consider the content in this example, it could be, for example, an introduction to the different methods that are presented by the course instructor during a lecture. Only on the basis of the Learning Outcomes it becomes visible that the students should apply the methods independently.

Example 3

Contents	Learning Outcomes
	<ul style="list-style-type: none"> ▪ Students will be able to: ▪ LO 1: adapt their writing to a variety of professional and academic contexts. ▪ LO 2: Prepare and present content in a comprehensible way ▪ LO 3: reflect on their own learning.

Transversal competencies usually cannot be assigned to a content, but are controlled by the method used. These include, for example, interpersonal competences, writing competence, critical thinking, creativity or teamwork. Therefore, they often do not appear in the syllabus and only become visible through the learning outcomes.

In all the three Learning Outcomes listed, it is clear that the competencies in question can only be acquired through a certain type of methods used: In the case of LO 1, for example, through assignments that require students to prepare their research findings for different audiences. The achievement of LO 2 can be supported by the help of presentations by the students and for LO 3 the students could e.g. keep a learning diary.

As the examples show, Learning Outcomes provide indications of the didactic means and methods that can be used to teach content and competencies.

Via the principle of Constructive Alignment, they also lead to the assessment form: if students should be able to reflect and express their own opinion on a certain phenomenon, this cannot be assessed with a multiple choice exam, for example, and another exam format has to be found.

In this sense, learning outcomes can be understood as the starting point and the end point of course planning. They can also be an orientation for the choice of didactic methods and subsequently also for the choice of assessment forms.

Formulate Learning Outcomes

In order to make Learning Outcomes concretely usable in this way, however, they must have certain characteristics: They should be concrete, actionable, and verifiable.

Learning outcomes always have a content component and an action component, which are described by a noun (content) and a verb (action). The action component in particular also provides information on how assessment must be designed in order to be able to verify the achievement of the learning outcome.

Therefore, verbs like "understand" are not very helpful in the formulation. In an exam, there are different ways to assess whether students have understood a concept: e.g., when they reproduce a definition, when they can analyze a case study based on theories, or when they apply a formula. The formulation of Learning Outcomes should therefore also refer to these actions. This makes learning outcomes more concrete and subsequently also verifiable.

Taxonomies

Taxonomies help to classify learning objectives. The best known is Bloom's Taxonomy (Bloom et al. 1956), which classifies learning objectives into six hierarchical levels. There have been numerous revisions of Bloom's taxonomy - the best known of which is probably Anderson and Krathwohl's (2001) revision, which introduced verbs in place of the nouns originally used to denote taxonomy levels and also reversed the order of the top two taxonomy levels (see figure 1).

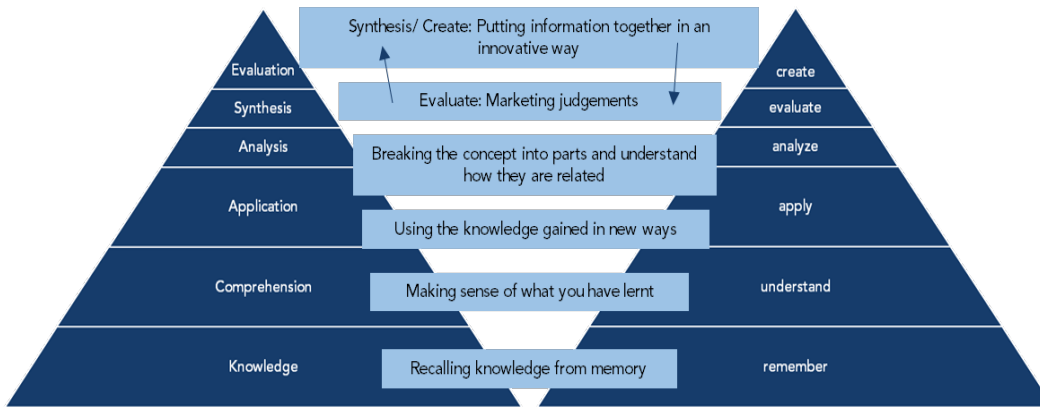


Figure 1: Taxonomies, based on Anderson et al. 2001 und Bloom et al. 1956

Level one, knowledge, means that students can reproduce facts or concepts in an exam. Level two, comprehension, means that learners can reproduce and explain concepts in their own words. This does not yet mean that they can apply the concepts, as level three would require. This includes, for example, students being able to use formulas independently to solve problems. Level four, analysis, requires a little more independence, because the students do not have to apply predefined solutions, but analyze themselves which concepts, formulas and methods they need to solve a certain task. They have to put what they have already learned into a new context. Level five, evaluation, involves defending one's own positions or questioning another person's positions in a well-founded way, i.e. on the basis of knowledge already acquired. Finally, the sixth level requires learners to create something new themselves.

Anderson and Krathwohl also placed an increased focus on the different knowledge dimensions (factual knowledge, conceptual knowledge, procedural knowledge), which, however, were already taken into account in the original version by Bloom et al. In addition, they added the dimension of metacognitive knowledge.

In most courses, it is advantageous to have Learning Outcomes on several levels. However, it is important to consider which level can be achieved at all by the given examination format. If the course format calls for a lecture, i.e., a format that relies heavily on content delivery, it is probably unrealistic to assume many application-based learning objectives. Many learning objectives at higher levels of Bloom's Taxonomy are difficult to achieve through a lecture in the classical sense, as they require greater student activity to be achieved at all.

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https://www.hda.tu-darmstadt.de/media/hda/pdf_4/didaktik_tipps_1/2014-02_Zeitmanagement_in_der_LV.pdf, 19.09.2019

An overhead view of a group of people sitting around a long white table in a modern office or meeting room. They are working on laptops and looking at documents. The scene is dimly lit with a blue tint. The text is overlaid on the center of the image.

Didactic Toolkit for
Engaged Learning

2. Critical Thinking Skills

2.1 Debating Society



Learning Outcomes

- Defend and articulate thoughts and positions based on an analysis of evidence.
- Distinguish between facts, opinions, and presumptions.
- Identify and clarify one's own values and beliefs.



Proposed setting

In seminars, for group sizes between six and 30 students.



How is this method used?

1. Choose a controversial topic.
2. Form two groups with an equal amount of members (between three and six per team). If there are more students, they are part of the audience/jury and will be part of a debating team in the next debate.
3. Give them a position/interest they have to defend, e.g. the position of a country at an international climate conference or a political party (e.g. a green vs. a conservative party) on a sustainability related issue.
4. Give the students time to research the topic and prepare logical arguments, supporting evidence and examples for the position taken. This can be done in class or as a homework, depending on the complexity of the topic.
5. Prepare rules for the debate and discuss them with the students.

6. The teacher should chair the debate. Give each team the opportunity to articulate their position and then to challenge the opposing position.

7. Give the audience/jury the opportunity to ask questions and/or challenge the positions of the teams.

8. Let the audience/jury decide and explain which arguments they found to be the most convincing and why.



Advantages

- Students can profit from each other: by working in a team to prepare logical arguments, by defending a point of view that is not necessarily their own, by being challenged by the position of the other team and having to find a quick response to it, by listening to the feedback of the peers in the jury.
- The teacher can profit from listening to the positions of the students and integrating them into future seminars.



Challenges

A large number of participants can pose a challenge as students who are not part of one of the teams are less involved in the debate and could get bored. However, to avoid this, the following steps can be taken:

- Multiple topics to debate on could be chosen with rotating teams;
- The time of each debate should be limited;
- The audience/jury should be integrated at the end of the debate by giving them the chance to ask questions/challenge the articulated positions.

2.2 Battle of Theories



Learning Outcomes

Students learn to formulate their own point of view clearly and to represent and defend it against other, competing points of view.

- Communication competence
- Self-competence
- Social competence



Proposed setting

In seminars (mainly in presence - but can also be realized digitally). Group size is variable, it must be possible to form two groups.



How is this method used?

1. The teams of learners are given the task of preparing two theories in terms of content. In the following battle of theories, they will have to defend one of those theories, while their opponents will defend the other theory.
2. Two teams compete against each other in a battle of theories. Every group gets a short opening statement, then they discuss for about 15 minutes.
3. Afterwards, the audience and/or a jury vote on which theory was the most convincing.



Advantages

- All students in the round can be given the opportunity to perform.
- Each student can learn to represent and defend their point of view in front of others.



Challenges

- The tasks must be formulated in a way that different points of view on the subject can be represented.
- Time management - each group should get equal time - must be well moderated.
- Determining the speaker - silent students will not be activated there - can be solved by the teacher determining the speakers and explicitly challenging quieter students.

2.3 Devil's Advocate



Learning Outcomes

Critical assessment of ideas



Proposed setting

Small classes, around 20-30 people



How is this method used?

1. Explain the method to the students. Every group will appoint one person as devil's advocate. In this role, the student will have a critical role during the whole assignment and will critically assess process and/or product of the group work. Since the task will be made explicit, it will be easier for the student to voice criticism.
2. Build groups. Either let the groups choose the person who will take over the role of devil's advocate, or choose yourself.
3. Let the groups work on their task.
4. Once the task is finished, let the groups reflect on the outcomes of their work, the process and the impact of the role of the devil's advocate. Was the criticism helpful?



Advantages

Students tend to strive for harmony in group works, which might not be beneficial to the outcome and the learning process. By adding the role of a devil's advocate, students are forced to defend their approach, opinions, suggestions etc. during the group work.



Challenges

- Group works might take a bit longer
- Have an eye on the atmosphere in the groups. The technique might work better in groups, where students already know each other. You could also support this, by including icebreaker and activities to get to know the other members of the group at the beginning of the course and/or the task.

References:

<https://traue.commons.gc.cuny.edu/issue-2-fall-2013/davis/>

2.4 Media Collage



Learning Outcomes

- Defend and articulate thoughts and positions based on an analysis of evidence.
- Distinguish between facts, opinions, and presumptions.



Proposed setting

Group sizes up to 30 students



How is this method used?

1. Choose a topic – ideally a controversial, highly discussed one.
2. Tell the students to research media reports on the chosen topic in different media formats (news, commentaries, talk shows, social media posts, etc.) which have to be posted to a shared tool (e.g. Padlet) in advance to the seminar.
3. Show the students the posted media reports using a projector. Let the student who has posted the media report summarise the content.
4. Discuss the media reports in class and let the students analyze what can be considered facts, opinions or presumptions.
5. Let the students articulate their own position on the topic and the way the topic is being outlined in the media report, preferably in small groups.



Advantages

- The method can be easily integrated into the students' daily media consumption – once they see a media report related to the topic, they just have to post it to the tool.
- The students can profit from being confronted with media reports/formats they usually do not consume – this can widen their perspective and enhance questioning the own beliefs.
- The teacher can also profit from the confrontation with media reports/formats s/he usually does not consume, particularly media formats that are consumed by a younger generation, i.e. social media formats.



Challenges

Too little participation can pose a challenge. This can be avoided by asking students to post a minimum amount of media reports onto the tool until a predefined date.

2.5 Truth Statements



Learning Outcomes

- Compare, discuss and value different opinions and beliefs
- Clarify one's own values and beliefs
- Activating prior knowledge on a topic



Proposed setting

Possible with every group size and works in all settings (on-campus, hybrid, online). In large groups, the support of a tool (e.g. Mentimeter) is helpful. It is recommended (regardless of group size) to form small groups/pairs.



How is this method used?

This method is useful to test students' assumptions, opinions, values and beliefs on a topic. Before discussing a new topic, students are asked to write down three statements about a particular issue that they believe to be true and that will then be discussed.

1. Briefly introduce the topic you are going to work on. Make sure to leave a lot of room for the students' truth statements.
2. Next, ask the students to collect three true statements about the topic. These statements represent the students' prior knowledge, beliefs or opinions on a subject.
3. Depending on the class size, this exercise can be done individually or in groups. If groups are to be formed, think about the group forming process in advance and calculate time for it.
4. Give students ten minutes to write down the three statements.

5. Collect the answers (on the board, online). Write down wrong answers as well (but correct them in the discussion). With large groups it is useful to collect the answers using a digital tool (e.g. Mentimeter).

6. Cluster the answers in a way that helps you for the next phase, the debriefing/discussion in the classroom. Depending on the topic, you might either

- a. use the answers to align students' prior knowledge and re-explain important concepts
- b. build opposing teams who negotiate diverse opinions, values and beliefs.



Advantages

- Activate and align prior knowledge
- Ensure that all students know the key concepts of the new topic (in order to build on them)
- Students recognize their gaps in knowledge
- Group work encourages students to communicate



Challenges

- Group work might take a little longer. You can think about using tools to bring your students together.
- Define a topic, without revealing too much about key terms.
- If the class is too big, not all answers can be considered. Therefore, the method is best suited for groups of up to 60 students.
- You need some time in advance to collect the relevant information from your students (depending on class size)

References:

Methodenkartei. Ein Kooperationsprojekt der Universitäten Oldenburg und Vechta. Abrufbar unter: <https://www.methodenkartei.uni-oldenburg.de/methode/blitzlicht/> (letzter Zugriff: 21.02.2023)
 Lehre laden. Ruhr-Universität Bochum. Abrufbar unter: <https://dbs-lin.ruhr-uni-bochum.de/lehreladen/lehrformate-methoden/aktivieren-und-motivieren/motiviert-ins-semester/partnerggesprach/> (letzter Zugriff: 21.02.2023)
 Teaching and Learning Collection. Universiteit Utrecht. Abrufbar unter: https://cat-database.sites.uu.nl/learning_activity/truth-statements/ (letzter Zugriff: 21.02.2023)

2.6 Draw up an opinion (line)



Learning Outcomes

- identify and clarify one's own values and beliefs.
- Value diverse perspectives



Proposed setting

Seminar rooms, group sizes up to 30 students (depending on the size of the room and the time available for the exercise)



How is this method used?

1. This method can be used as an icebreaker, an activating activity, or for reflection or debate depending on the subject you choose.
2. Make a visible line in the room (e.g. by putting a rope, tape or just sticky notes on the floor), which serves as a scale to survey opinions, values, similarities, or moods.
3. Instruct students on each step of the method.
4. Ask a question or provide a statement. If a whiteboard or screen is available, write/display it for everyone to see. Depending on the scenario, the questions can be
 - personal (e.g. age from 18 to x, country of birth from north to south, academic background in years of study, years of professional experience)
 - focusing on the mood (how do you feel this morning from shiny to rainy)
 - the opinion on a topic or (agree – disagree)
 - values and beliefs. (agree – disagree)

While focusing on personal background or the mood can provide opportunities for you to get to know the group of students you are

working with and for them to get to know each other, opinions, values and beliefs are likely to incite discussions and thus better suited for student groups who already know each other.

5. Students position themselves along the line according to their opinion.

6. The teacher acts as a moderator and asks students to share their thoughts with the students next to them. Then you could ask the students at the extreme ends of the line to give their opinion. Positioning themselves along the line makes values and beliefs visible and is likely to stimulate discussion.



Advantages

- Easy to use without a lot of preparation
- No special equipment is needed
- Various ways of use

Students benefit from:

- knowledge of fellow students
- In-between activation - mentally and physically

Teachers benefit from:

- Used as an ice-breaker, the method facilitates initial discussions between students
- Gives an idea of students' moods or opinions to touch upon in teaching



Challenges

- Conducting this method in an in-class setting needs some space. It is recommended to book a suitable room for the session in advance.
- A high level of noise in discussions and group dynamics may affect the method. Adapt your moderation accordingly.



Variants

- The method can be varied focusing on reflection or debate.
- Students position themselves in the room according to their opinion on a subject-related or even controversial topic, e.g., in the corners.
- Grouped, they can now start to discuss their opinion with other groups to argue and discuss several perspective.
- It is recommended to use this variant with smaller group sizes, and with students who already know each other.

Reference:

<https://www.methodenkartei.uni-oldenburg.de/methode/meinungslinie/>

2.7 The Six Hats



Learning Outcomes

Embracing perspectives of others



Proposed setting

At least 6 people (to be able to distribute all roles) - the group of listeners can vary.

Ideally on-site (digital implementation is possible, but more complicated).



How is this method used?

The method is used for class discussions where every student or every group of students is assigned a specific perspective. There are six perspectives available, hence the six hats.

1. Define the topic to be discussed
 2. Explain the six perspectives to be adopted
- White hat: Neutral position, focus on facts
 - Green hat: Creative position, innovative attitude; focus on possibilities, alternatives and new ideas

- Black hat: Negative position, searching for the muddy points, risks, difficulties, problems
 - Red hat: Subjective/emotional position; feelings and intuitions; share fears, likes, dislikes
 - Yellow hat: positive position; explore the positive aspects, probe for value and benefit
 - Blue hat: Moderating position, mediate between other participants
3. Assign the roles to the students.
 4. Discussion in the roles
 5. Release from the roles and involve the whole group
 6. Possible change of hats within the group



Advantages

The students will have the opportunity to look at a topic from different points of view or can put on one of the hats themselves to take on one of the perspectives.



Challenges

- The method must be well guided - from the introduction of the method to the allocation of hats, to time management.
- In order for the students to be able to fill the role of their hat, the roles must be clearly understood. This can be solved by visualization - each role gets a card on which characteristics are described. The descriptions can either be hung up (for all to read) or handed out to the hat holders as index cards.
- At the end, everyone must be released from the roles again and a final round without hats is needed to be able to generate a result of the discussion.

References

<https://www.debonogroup.com/services/core-programs/six-thinking-hats/>

<https://www.methodenkartei.uni-oldenburg.de/methode/denkhuete/>

An overhead view of a group of people sitting around a white table in a modern office or meeting room. They are working on laptops and looking at documents. The room has a wooden floor and a glass railing in the foreground. The image is overlaid with a blue tint.

Didactic Toolkit for Engaged Learning

3. Creativity

3.1 Assumption Busting



Learning Outcomes

- Create new ideas and solutions for challenges
- Challenge assumptions



Proposed setting

Plenary (smaller classes), small groups of two to four students (advanced)



How is this method used?

This method challenges students to question parameters that seem irrevocable.

1. Initially, instruct students about the goal and steps of this method. Describe a problem or a stuck situation, and display it on a screen or Flipchart.

2. Let students brainstorm some assumptions about this problem. Typical assumptions concern time and cost restraints, rules or conditions, or assumptions about people's beliefs or needs, e.g.,

- It takes three days to deliver the product to the customer.
- It is not possible to implement this feature within the budget.
- Customers won't pay the calculated price for this service/product.

3. Note all assumptions on small papers (handwritten) or in text boxes (digital) and cluster them.

4. Challenge students to critically question each assumption regarding their truth and moderate the discussion to engage students to expand their thoughts. Take notes of their questions, alternatives, and new ideas.

5. Summarize the main findings and conclude how they could help improve the assumed "stuck" situation or the problem.



Advantages

- Short activity
- No special equipment is needed
- Students learn to critically assess statements assumed to be irrevocable truth, which is particularly important for dealing with complex questions and systems



Challenges

- Quiet students may not dare to take part in the plenary. Create an open and relaxed atmosphere and encourage all students to speak freely.
- In a small-group setting, students may need additional support from the teacher with specific steps. It is advisable to conduct this activity with smaller group sizes or with a team of two teachers.

References:

City University London. Creativity and Goal Modelling: Pilot Studies Instructions for Assumption Busting Creativity Activity.

https://www.cse.chalmers.se/~jenho/cgm/StudySite/Cycle3/StudyInstructions_AssumptionBusting.pdf

Iowa State University, Center for Excellence in Learning and Teaching. 14 Creative Ways to Engage Students. <https://stage.celt.iastate.edu/teaching-resources/course-management/teaching-approaches/14-creative-ways-to-engage-students/>

3.2 Brainsketching



Learning Outcomes

- Recognize and respect perspectives of others
- Critically assess a variety of ideas



Proposed setting

Small groups of 2-4 students, group sizes up to 20 students



How is this method used?

This method is used to generate a large amount of ideas. Contrary to brainstorming, brainsketching relies exclusively on drawings. All ideas need to be sketched, which can increase creativity.

1. Students are divided into small groups.
2. Each group member is asked to sketch one or several ideas on a small paper sheet. Annotations can be added to clarify the idea or further elaborate the thoughts.
3. The group members explain their ideas to each other.
4. They pass on the paper sheets or pin them on a Flipchart paper to build upon the existing ideas.
 - a. Encourage students to sketch their further ideas on a new piece of paper instead of using the existing one from the other group member.
 - b. Communicate that all ideas are welcome. The goal is not to have a ready solution but to stimulate out-of-the-box thinking and question usual thinking patterns.
5. Debriefing on group level: After some cycles, the group discusses internally and presents the main findings to the plenary.



Advantages

- Easy to use without a lot of preparation
- No special equipment is needed

Students benefit from:

- A strong group orientation
- Critical assessment of standard solutions
- Perspectives and ideas of fellow students

Teachers benefit from:

- getting a picture of students' prior knowledge to touch upon in teaching (when used as a variant of brainstorming)
- strengthening of group orientation for group projects
- strengthening the intrinsic motivation of students for self-study (group) tasks



Challenges

- For students with an academic background other than in the design area, it might be unfamiliar to draw up an idea. A short warm-up supports students in becoming acquainted with the procedure.
- This challenging method requires clear instructions on the goal, steps, and outcome of the activity in advance.

References:

PH Tirol. Ideation: Brainsketching. viele Ideen entwickeln. https://ph-tirol.ac.at/sites/default/files/1-3/design.2030_ggdj_ideation_brainsketching.pdf

Van Der Lugt, R. (2002). Brainsketching and How it Differs from Brainstorming. Creativity and Innovation Management, Volume 11, Issue 1, p. 43-54. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/1467-8691.00235>

3.3 Negative Brainstorming



Learning Outcomes

- Create new ideas
- Analyze problems and finding solutions



Proposed setting

Works in all the settings where you would also use a “normal” brainstorming, i.e. small groups in person, large groups with the support of a tool (e.g. Mentimeter).



How is this method used?

1. Clearly define a problem or a challenge
2. Ask “How could I make things worse?”, “What could go wrong with this project?” Let the ideas flow as with a “normal” brainstorming without judging or rejecting any of them.
3. Analyse the most interesting/provoking negative ideas in detail and see if some of them trigger the development of positive solutions.



Advantages

Easy to use, no preparation needed, once the problem is clearly defined



Challenges

- Initially, students might find it hard to see the benefit of this exercise
- In order to shift the focus from the negative aspects, thorough analysis is needed

3.4 Choose your own assessment



Learning Outcomes

- Self-management and self-competence
- Diverse transferable skills



Proposed setting

Technique works best in smaller courses



How is this method used?

Students can choose the format of assessment themselves according to their strengths and personal preferences.

Formulate the task you want your students to fulfill in a way that allows for several different “products”.

2. Select the formats of assessment your students can choose from, e.g.
 - writing an essay,
 - delivering a presentation,
 - doing a video or podcast,
 - oral or written exams,
 - designing a (research) poster etc.
3. Workload and difficulty of the task have to be comparable for all the possible products. This means that questions in your oral/written exams will have to aim at testing for higher level learning (see 1.3, section on learning outcomes and taxonomies).
4. It is very important to formulate very concrete expectations and criteria for every deliverable, e.g. by using grading rubrics, and to communicate those to the students.

Advantages

- Increases motivation
- Students can test their own strengths
- Variation in assessment for teachers and students

Challenges

The different assessment formats have to be comparable in workload and difficulty – which might not be easy to achieve.

It is also very important to explain your expectations to the students to make sure they feel treated equally.

3.5 Concept Cartoon

Learning Outcomes

Depending on the scope and content of the concept cartoon. Possible outcomes:

- distinguish between facts, opinions, and presumptions
- defend and articulate thoughts and positions based on an analysis of evidence
- deal with diverse perspectives on a topic
- finding solutions to a problem

Proposed setting

- Works with every group size
- Students have to get the opportunity to discuss the concept cartoon
- Discussion can happen in pairs (e.g. “turn to your neighbour” in large classes), groups or in plenum (smaller classes).

How is this method used?

Concept cartoons are a visual representation of opinions, ideas or concepts. They consist of simple cartoon style drawings, which illustrate a range of different points of view on certain topics.

1. Depict the topic/question at the center of the drawing and then add personae (designed in a very neutral way) which represent diverse points of views or answers to the question. Their answers can be right or wrong, they can represent half-truths, misconceptions or fake news on the topic. The finalized cartoon ideally nudges the students to discuss the topic/question.

2. Use the concept cartoon in class and ask student pairs/groups to discuss the preconceptions/opinions/values in the cartoon.

3. Depending on the scope and content of your cartoon, you could for example ask your students

Advantages

- The visual impulse helps students to understand diverse perspectives on a topic and provides a stimulus for discussion.
- It is also known that this method nudges them to rethink the mis- and preconceptions represented in the cartoon.

Challenges

You might find concept cartoons on some topics, but will have to prepare them yourself for the majority. This means thorough preparation of the teacher is necessary.

Variants

You could also have students produce their own concept cartoon on a specific topic or question. You would thus have to ask them to research preconceptions on the topic you want to discuss and to design a cartoon.

References

Keogh, B. and Naylor, S. (1999). Concept cartoons, teaching and learning in science: an evaluation. *International Journal of Science Education*, 21(4), 431–446.

An overhead view of a group of people sitting around a large white table in a meeting room. They are working on laptops and looking at documents. The room has a wooden floor and a glass railing in the background.

Didactic Toolkit for
Engaged Learning

Interpersonal Competence

4.1 Composing diverse teams



Learning Outcomes

- Working in heterogeneous teams
- Embracing diversity and respect different perspectives



Proposed setting

Possible with every group size



How is this method used?

1. Decide how big you want your teams to be for the task you are planning
2. Aim to create diverse teams. Decide which information you want to use to make the groups as diverse as possible and how you want to collect relevant information.
3. Aspects you might choose to consider:
 - Gender
 - Culture
 - Race
 - individual academic strengths and skills
 - disciplinary backgrounds
 - opinions and beliefs
 - project interest
 - experience



Advantages

- Diversity among the team members is a key characteristic of effective teams. Diverse teams have been shown to outperform groups of like-minded and/or similarly skilled individuals (Hong, 2004, Smith 2014).
- Diverse groups tend to have more vivid discussions.
- Carefully distributing members with different skills to the teams will lead to more equality across the teams.
- Students learn to accommodate and respect different perspectives and they discover diverse aspects, perspectives and points of views on a subject



Challenges

- You will need some time ahead to collect the relevant information from your students.
- The technique will work better once you already got to know your students a little bit better.



Variants

- You can think about using tools such as the application “Mix Opinion” or the team maker software (<https://info.catme.org/features/team-maker/>) to pair your students. Surveys, as it is described here, is also a possibility.

References

Hong, L. & Page, S.E. Groups of diverse problem solvers can outperform groups of high-ability problem solvers. *Proceedings of the National Academies of Science*, 101(46), 16385-16389 (2004).

Smith, K. & Imbrie, P. K. . *Teamwork and Project Management*. McGraw-Hill, World Fairfield, PA (2004).

4.2 Using Identity Wheels



Learning Outcomes

Understand one's own identity aspects and embrace diversity across cultures, social groups, communities, and individuals.



How is this method used?

Identity wheels will help students to reflect on and discuss the identities that are most important to them. Moreover, identity wheels also help students to get to know each other better. Identity wheels list diverse dimensions of identities and the students fill them with their own identity in the dimension.

Examples of identity wheels can be found online (e.g. [University of Columbia](#), [University of Michigan](#) or [McGill University](#)).

1. Distribute the identity wheel template and explain the activity and its scope to the students. For an example see next page.
2. Since students will be sharing very personal information, it is important to establish clear rules, such as:
 - Keep the information shared by other students confidential
 - Listen respectfully and without interrupting
 - Avoid speaking for others, i.e. using "I" instead of "we", "us" or "them"
 - Invite quiet students to challenge themselves to contribute and students who tend to share a lot, to leave space to hear from others.

Share the rules with the students (or develop them together with your students) to make sure everybody agrees.

3. Have the students fill in the social identity wheel template. Give them approx.. 10 minutes to think about the different dimensions. It might help to show the students a few examples of your own social identity wheel and explain to them what you associate with this dimension of your identity.

4. Ask students to share their wheel with their neighbor(s) – in either pairs or small groups.

5. Ask the groups to follow up with several discussion questions, such as:

- Which aspects of your social identity do you think about most often?
- Which aspects of your social identity do you think about least often?
- Are there any dimensions that you had not thought of before today, and if so, why do you think that is?
- Why do you think more about some of your identities than about others?
- Which dimensions have the strongest effect on how you perceive yourself?
- Which dimensions have the strongest effect on how others perceive you?

6. In a discussion in the plenary, you can ask several groups to share learnings and takeaways from their discussions.



Advantages

Since the technique is very well structured and everybody will focus on the same dimensions, it makes it easier to share very personal aspects of one's own identity.

Challenges

This method only works if students share very openly, which requires a lot of trust within the class.

Example for a Social Identity Wheel

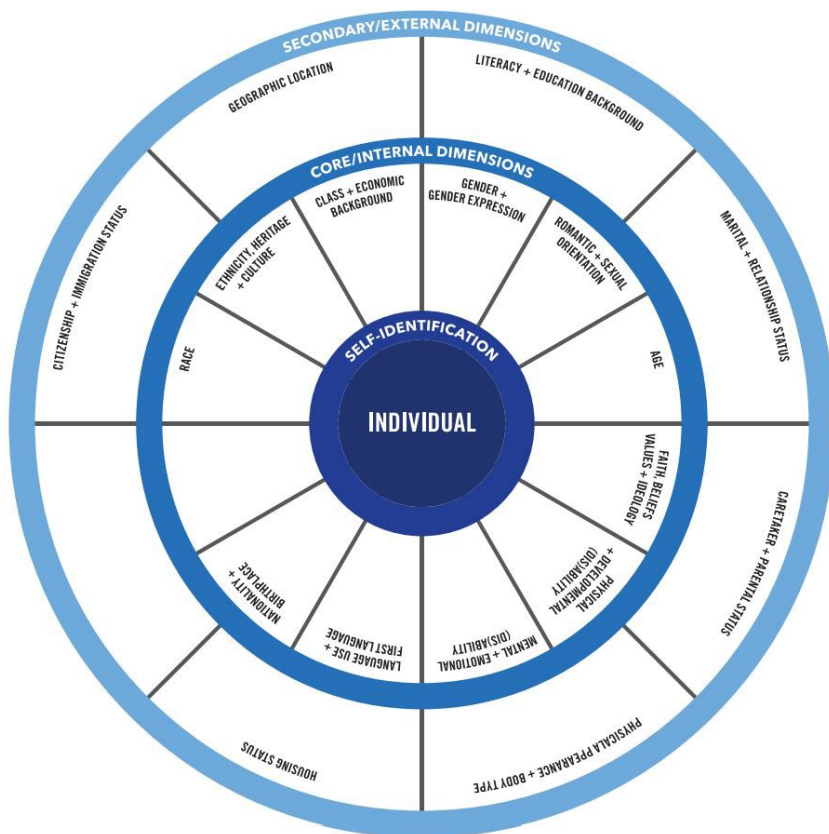


Figure 1: Social Identity Wheel (Source: United Way for Southeastern Michigan; <https://unitedwaysem.org/wp-content/uploads/2021-21-Day-Equity-Challenge-Social-Identity-Wheel-FINAL.pdf>)

References
<https://www.mcgill.ca/engage/files/engage/social-identity-wheel-facilitator-notes.pdf>
https://compiled.ctl.columbia.edu/img/assets/identity_wheel_compiled.pdf
<https://sites.lsa.umich.edu/inclusive-teaching/social-identity-wheel/>

4.3 Providing a framework for controversial discussions

Learning Outcomes

Controversial discussions are an important opportunity to practice learning outcomes such as:

- Understanding, embracing, and facilitating diversity across cultures, social groups, communities, and individuals
- Integrating and negotiating diverse and/or conflicting perspectives
- Recognizing and respecting perspectives of others and
- Listening to opinions and emotions.

How is this method used?

Guidelines can help instructors facilitate classroom discussion around controversial issues. Regardless of the context and topic, it is helpful to explicitly formulate expectations and rules and to structure such discussions in a way that defines boundaries for the process. Providing a framework by taking into consideration the following steps can help shape the nature of the discussion:

1. Establish a clear scope and goal for the discussion
2. Establish clear rules. These can focus on the following aspects:
 - Including all students: Invite quiet students to challenge themselves to contribute and students who tend to share a lot, to leave space to hear from others.
 - Listening to other persons' views: Ask your students not to engage in private conversations (online or offline) while other people are speaking. Invite them to make sure that their comments relate to previous speakers' comments. Understand that there might be diverse solutions to one problem.
 - Formulating critique: Make sure your students criticize ideas, not individuals.

- Language use: Ask students to avoid blame and speculation and help them to understand that words have an effect on other people.
- Assumptions: Ask students to carefully check their assumptions on the topic and to be open for new perspectives and ways of thinking.
- Share the rules with the students (or develop them together with your students) to make sure everybody agrees before the discussion begins

3. Establish a common basis of knowledge: Provide all students with possibilities to establish sound knowledge on the topic you want to discuss, e.g. by providing self-study material. This will help to keep the discussion focused.

4. Carefully moderate the discussion. This includes:

- Preparing initial questions for the start
- Preparing questions for phases when students are hesitant to discuss
- Encouraging students to elaborate on their thoughts or provide further explanations
- Re-focusing the discussion to the topic when students raise points that go beyond the topic of discussion
- Providing recaps at important points of the discussion and at the end

Advantages

- Carefully prepared discussions will work smoother
- Students learn to accommodate and respect different perspectives and they discover diverse aspects, perspectives and points of views on a subject

Challenges

- Carefully prepared discussions will work smoother
- Students learn to accommodate and respect different perspectives and they discover diverse aspects, perspectives and points of views on a subject

References

<https://crlt.umich.edu/examples-discussion-guidelines>
<https://crlt.umich.edu/publinks/generalguidelines>

4.4 Flipped learning and productive failure

Learning Outcomes

Developing resilience and learning how to avoid fear of making mistakes.

Proposed setting

In-class and in-person setting, with possibility for students to interact with their peers and with the professor

How is this method used?

In this method, students learn by failing, which means that they find a positive outcome in the failing experience. Consequently, the idea is to decrease their fear of failing and of making a mistake in front of a large group of people (class) and of a superior (professor). Students are faced with a topic or question they know little or nothing about and are asked to provide a solution/answer without having received prior knowledge.

These are the steps of the productive failure learning process:

- 1. Fail:** Students try to give an answer, which results wrong. This is an opportunity for the teacher and the involved student(s) to understand what was understood and what was not.
- 2. Flip:** Provide material to the class that allows them to expand their knowledge on the topic (e.g. videos or brief explanations on the topic). Ask students to familiarize themselves with the topic.
- 3. Fix:** The class engages in fixing the mistakes and misconceptions emerged during the "Fail" phase. The greatest impact of this method is assured, when this phase is included in a course which allows the teacher to help the students reflect on the topic and their experience in the "Fail" phase.
- 4. Feed:** The instructor provides feedback, which enhances the positive outcome of the learning process.



Advantages

- Students are stimulated to activate prior knowledge on the topic, which they then apply to finding a solution
- Students are made better aware of their lack of knowledge on a certain topic, thus making them able to identify gaps they can fill
- Provides students with a better learning agency and engagement, thus motivating them to learn more and to support their peers in the process



Challenges

Some students may find difficult to engage in such a way of learning because they may have difficulties in overcoming the fear of judgment and of failure, although this is the very core of the productive failure method.

References

Kapur M, Hattie J, Grossman I and Sinha T (2022) Fail, flip, fix, and feed – Rethinking flipped learning: A review of meta-analyses and a subsequent meta-analysis. *Front. Educ.* 7:956416.

Didactic Toolkit for Engaged Learning

Exemplary focus on climate

5.1 CO₂ Reduction Game



Learning Outcomes

- Identify and clarify one's own values and beliefs.
- Distinguish between espoused and practiced values.
- Develop plans to reach envisioned outcomes.
- Take intentional decisions to enable transitions toward a sustainable future.



Proposed setting

Seminars, for group sizes up to 30 students. Form groups of three to five students.



How is this method used?

1. Ask students about their espoused values regarding sustainable consumption and let them write down the answers.
2. Ask them a few questions regarding their actual consumption habits (food consumption, living, mobility, etc.) and let them write down the answers.
3. Introduce them to a tool to calculate the carbon footprint of their consumption habits and let them calculate their footprint over the past year.
4. Form groups of three to five students. Let them discuss where they see potential to cut down on their consumption habits to reduce the gap between their potential personal carbon footprint (if they practiced their espoused values) and their actual carbon footprint. Let them figure out how they could achieve it.

5. Let them discuss where they see potential to cut down on society's consumption habits and where they see barriers to change.

6. Let them brainstorm on potential plans to overcome these barriers.

7. Let the students present the outcome of their group discussions and discuss it with the whole class.



Advantages

The method is very interactive; it allows students to think about their espoused values and to put their consumption habits into perspective. By discussing the gap between their espoused and practiced values in group settings they can identify potential barriers to change on a societal level and discuss potential plans to overcome these.



Challenges

- Students might be hesitant to reveal their personal consumption habits.
- By keeping the groups relatively small, students would only have to reveal their personal consumption habits to a few group members.

5.2 Climate Fresk

Learning Outcomes

At the end of the workshop, learners will be able to :

- Explain climate and how it's changing
- Describe the cause and effects of climate change
- identify key behaviours they can change for themselves and the people around
- Identify various solutions that could be used to reduce these changes

This method address the subskill "Critical-thinking" but also the "problem-solving competence".

Proposed setting

The climate fresk works best in on or several teams from 4 to 8 players with a trained facilitator. The organisation offers a formation to train anybody to become an official facilitator. The workshop takes place for 3 hours and follows several well-defined steps.

How is this method used?

1. 1h – Build : Collectively use cards to create the fresk. The cards represent the various components of climate change and present accurate scientific data. The participants must collaborate to identify the causality between the cards and draw links between them.
2. 1h – Create : Take ownership of the fresk by naming it and illustrating it.
3. 15' – Present : Deliver a concise presentation to consolidate the knowledge and share with the facilitator and the other teams.
4. 45' – Debrief : Share feelings, ideas, solutions, questions and beliefs with each other

Advantages

- Fun and Simple
- Accurate
- Can be profitable for beginners and experts alike. Beginners will discover the topic and deconstruct their prejudices while experts can consolidate and deepen their knowledge and help coming up with effective solutions.
- Can be adapted to participants level, age and language

Challenges

- Facilitator must have solid knowledge of the topic and the game
- For the game to be efficient and fun the place must be large enough with all the necessary equipment
- Each team must have 4 to 8 players to ensure dynamic and efficient brain storming
- It is better to divide 9 students in two teams of 4 and 5

Variants

The information fresk (Fresque de l'information in french) is developed by the French company Be. My media. It is a serious game based on the climate fresk. Its goal is to help teams of 6-8 players understand the complexity of the news media system and develop critical thinking and solutions to recognize and avoid fake news, to find relevant information between the abundance of sources and news and to identify the multiple bias preventing us from accessing sure, unfiltered and unaltered information..

References
<https://climatefresk.org/>

5.3 2 Tonnes



Learning Outcomes

At the end of the workshop, learners will be able to :

- Explain the stakes linked to climate, environment and greenhouse gas emissions
- Identify key behaviours they can change for themselves and the people around to reach the limit of 2 tonnes of CO₂ equivalent per person and per year
- Explain how the limit of 2 tonnes of CO₂ equivalent per person and per year correspond to a CO₂ neutral world
- Identify various solutions that could be used to reduce these emissions and climate change

This method address the subskill “Critical-thinking” but also the “problem-solving competence”.



Proposed setting

The 2tonnes workshop takes place in a 2 to 3 hours long workshop with several well-defined steps. It works best in one or several groups from 6 to 15 persons with a trained facilitator and an expert. The organisation offers a formation to train anybody to become a facilitator.



How is this method used?

1. Format : 5-10 minutes to realize player’s individual carbon footprint
2. Introduction : Presentation of the causes and consequences of climate change and the framework for climate action; introduction to carbon accounting
3. Simulation : 8 rounds of individual and collective action in order to simulate the evolution of emissions until 2050

4. Debate : Discussing the results, key findings, brainstorming, coming up with new activities and an inspiring conclusion

5. Action : Participants have access to their data after the workshop to make commitments and to become actors of the transition



Advantages

- Fun
- Immersive
- Immediate visualisation of the impact of the chosen actions during the game
- Uses real and accurate scientific data
- Can be profitable for beginners and experts alike. Beginners will discover the topic and deconstruct their prejudices while experts can consolidate and deepen their knowledge and come up with effective solutions.



Challenges

- Facilitator must have solid knowledge of the topic and the game
- For the game to be efficient and fun there must be enough space with all the necessary equipment



Didactic Toolkit for Engaged Learning

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