FAdE
Flipped Adult Education

Peter Mazohl (Editor)

A guide to implement Adult Education Trainings based on the Flipped Learning 3.0 Framework

Co-funded by the
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of the European Union

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Project Partners

European Initiative for Education (EBI/EIE), Austria

The "Europäische Bildungsinitiative" EBI (European Initiative for Education) is a Private Non-Profit Education and Training Association located in Wiener Neustadt, Austria. EBI's mission is to endorse an innovative approach to education, training and culture. Target groups are adult learners and teachers/trainers in Adult Education. E>BI was coordinator of the project.

Etairia Draseon Epimorfosis (EDRASE), Greece

EDRASE is a private, not-for-profit association that works, mainly, with trainings and projects, both on national and on European level. EDRASE is intensively involved in training on remote places, for example Aegean Islands. The organization is active mainly in the local communities, where their members live, like Halki island, Syros island and the municipality of Egaleo, Attica. EDRASE offers various activities like training courses, but onsite learning as well, for example with Science Coffee events.

Asociacion Juvance

This association has several objectives, including the training and apprenticeship of young adults. For this reason, they have participated in the Fade Project. The intention was to provide a more modern and effective training for younger adults. Most of the people working on the project from Asociacion Juvance are also members of the AMAIS association based at the University of Málaga and have integrated this association into the project team as an associated member of the team.

Intermezzo Ungdomsorganisasjon, Norway

INTERMEZZO is a local, non-political, independent, non-profit organization run by students and members in Dramen, Norway. Its members are interested in world issues, localization, culture, European awareness, minorities, youth policies and social obstacles. The intention

to participate in the project was to implement modern Youth trainings based on Flipped Learning.

Associated Partners

Flipped Learning Global Initiative (FLGI), USA

The Flipped Learning Global Initiative (FLGI) is a worldwide coalition of educators, researchers, technologists, professional development providers and education leaders who are committed to Flipped Learning. The participation of board members (Errol St. Clair Smith and Jon Bergmann) enabled the impact to Flipped Learning 3.0 from the source.

Malaga Association for Studies and Social Research (AMAIS), Spain

The association - created in Málaga in 2009 -with major objectives are the promotion of culture, development cooperation, promotion of actions and research in various fields, especially in the social. AMAIS has provided personal support for the implementation of activities related to the flipped classroom in the FADE project collaborating with JUVANCE.

Contents

Preface

When the Flipped Learning Global initiative (FLGI) was approached by FADE to work with a group of educators in Europe on flipping adult education, we didn't have to think long about the need or potential value of this project. Interest in Flipped Learning was well-known in K-12 education circles, had growing interest in higher education, and was just beginning to capture the imagination of corporate trainers in the United States. The mission of FLGI is to support the global evolution of Flipped Learning and to collaborate with others to curate and share best practices across international borders. This project was clearly aligned with that mission.

Jon Bergmann, an early pioneer of Flipped Learning and author 13 books on the topic, liked the idea of participating in the FADE-led Erasmus+ project. When Jon passed the FADE proposal to me for review I was as excited about what we would learn from the educators in the participating countries, as he was about what we could contribute. As the director of global development, I saw the opportunity to help the project align with the known best practices for effective learning defined by the Academy of Active Learning Arts and Sciences. I also saw an opportunity to work with an extremely dedicated and committed team of professionals to reach new communities across Europe.

We flew to Austria to meet Peter Mazohl, the project leader, along with the cohort of robust minds he had assembled. We were immediately impressed by the vision, the people and the possibilities. Over the course of the week, we would think and talk through how adult education could be profoundly improved through flipped instruction. We also confronted the unique challenges we would have to surmount for the project to have impact. Each day, we started early, ended late and thoroughly enjoyed the creative ideas that we're percolating in the group discussions. We left Austria with a strong sense that the FADE project was worthy of the effort and the team was up to the task.

Jon Bergmann and Errol St. Clair Smith in Vienna (Picture: Peter Mazohl, EBI), during their stay in Austria

It's been just under three years since that initial meeting. Over the that time span, we've had the opportunity to collaborate closely with the FAdE team to ensure that project is securely anchored in the international best practices for effective Flipped Learning. We are delighted to see how the team embraced, incorporated, and applied the Flipped Learning 3.0 framework to adult learning with rigorous fidelity.

In 2020, the global COVID-19 pandemic introduced a new challenge for all educators. Namely - how do we effectively continue educating our students remotely. It turns out that Global Elements of Effective Flipped Learning transferred very well to remote teaching and attracted greater interest in the flipped instructional model.

As we now move through the pandemic-driven upheaval in education, many educators are re-examining their well-established traditional teaching practices for the first time. The timing for a discussion about flipping adult education couldn't be better.

This book is a must read for any professional engaged in adult learning. It is both an effective introduction to flipping adult education and an evidence-based, globally tested road map that will help you avoid the big mistakes. This book has translated more than a decade of collective international insight on effective Flipped Learning into a concise and powerful resource. Enjoy the journey!

Errol St. Clair Smith
Director of Global Development
Flipped Learning Global Initiative

Irvine, California July 2021

1. About this guide

Jon Bergmann is one of the pioneers of Flipped Learning. He is teaching science (mainly chemistry) in high schools. The idea behind the new approach was to have more time for the students in the face-to-face time.

The new approach was an innovative approach to teaching and was widely echoed in the guild of teachers. Teachers all over the world tried to follow the ideas of Jon and the result was the flipped classroom.

This is the reason why – until today – many people think that they know "Flipped Learning". In the evaluation report for this project, it was mentioned that Flipped Learning is a well-known and proven method for teaching.

The problem is – that is not true!

Jon Bergmann and his colleagues have always been involved in further development of Flipped Learning. They are aware of problems and obstacles, they have the personal experience with their students, and the feedback from the other teachers involved in Flipped Learning.

Flipped Learning developed on several levels:

- An international community has emerged, where teachers are able to exchange their experience and views.
- The simple idea of flipping lessons was developed to a complete framework that covers not only the core teaching area but guides teachers through the complete workflow of teaching
- Flipped Learning became a global movement.

- The Flipped Learning Global organization was founded and took over the international coordination of all ongoing developments and improvements
- The idea jumped over to other fields of education and received valuable contributions, ideas and - especially from universities - various research results, which were subsequently used for the further development of Flipped Learning.
- The cooperation between Jon Bergmann and Errol St. Clair Smith seems to have been the missing quantum leap that ultimately resulted in the release of Flipped Learning 3.0.

Image 1: Errol St. Clair Smith and Jon Bergmann attending the Kick-off Meeting of the project in Wiener Neustadt (November 2017) (c) Peter Mazohl

Today, we have a well-defined framework for Flipped Learning 3.0 that has found its way into school education, Higher Education and Vocational Education and Training. In the meantime, the framework has been supplemented and underpinned by related literature (in English and much of it in Spanish).

Relatively new territory prevails in the field of Adult Education, where the term Flipped Learning is largely unknown, at least for full- time trainers working in adult education. Incidentally, this also applies to social work in the youth

sector. Within the scope of various meetings with youth workers, the project staff were able to recognize that some of them have heard about Flipped Learning, but it was unknown to most of them.

This guide tries to fill the "white space in the map of Education" that occurs because of the missing knowledge of Flipped Learning 3.0. The focus is on Teachers and trainers that work in Adult Education. Nevertheless – the content of this guide might be useful for all educators, as a primary contact to Flipped Learning as well as to increase teachers' and trainers' own experience.

Terms used in this guide

Flipped Learning addresses the basic idea, based on the flipped classroom.

Flipped Learning 3.0 addresses the framework published in November 2017 and based on the 187 Global Elements of Efficient Flipped Learning.

2. About Learning

In this chapter we give a short overview about considerations focusing on learning. This is a short introduction to learning and intends to clear the approach to learning of the project group.

What does Learning mean?

The human brain is a very complex organ, and it is directly connected with learning, along with the nervous system. Many scientists have given various definitions of "What learning is". Here are some:

- According to Robert Gagne[1], described in The Conditions of Learning (1985), "Learning is a change in human disposition or capability that persists over a period of time and is not simply ascribable to processes of growth."
- Another scientist, Richard E. Mayer, wrote in the Learning in Encyclopedia of Educational Research that "Learning is the relatively permanent change in a person's knowledge or behaviour due to experience.

  This definition has three components:

  1. the duration of the change is long-term rather than short- term
  2. the locus of the change is the content and structure of knowledge in memory or the behaviour of the learner

3. the cause of the change is the learner's experience in the environment rather than fatigue, motivation, drugs, physical condition or physiologic intervention."

- Finally, a third definition, coming from Ruth C. Clark and Richard E. Mayer work e-learning and the Science of Instruction (2016) "Learning involves strengthening correct responses and weakening incorrect responses. Learning involves adding new information to your memory. Learning involves making sense of the presented material by attending to relevant information, mentally reorganizing it, and connecting it with what you already know."

It is widely recognized that there are several types or levels of learning. These classifications are important because different types of learning require different types of instruction. Five major categories of learning are distinguished by Gagne: verbal information, intellectual skills, cognitive strategies, motor skills and attitudes.

Different internal and external conditions are necessary for each type of learning. For example, for cognitive strategies to be learned, there must be a chance to practice developing new solutions to problems; to learn attitudes, the learner must be exposed to a credible role model or persuasive arguments.

The "contemporary" learning has three cornerstones

- Learning as information procurement (quickly done search for information, quickly forgotten and out of mind)
- Sustained learning: Long lasting memory including long-lasting competence (Knowledge, skills & attitudes)
- The need to review, practice, and repeat.

How does Learning work?

Learning is a change or modification in knowledge, skills, behaviour by practice or experience. Learning must be seen as a process. Basically, learning results are not permanent, and usually they are forgotten (following an exponential formula).

Learning itself cannot be measured, but the results can be evaluated by various methods. This can be as well self-assessment as external assessment.

Brain research

The brain contains billions of so-called neurons. These are nerve cells organized in patterns.

The brain consists of about 100 billion cells called neurons and up to 5 times as many supporting or glial cells.

In complex multicellular animals, such as insects and mammals, various types of neurons form signalling circuits. In the simple type of circuit called a reflex arc, interneurons connect multiple sensory and motor neurons, allowing one sensory neuron to affect multiple motor neurons and one motor neuron to be affected by multiple sensory neurons; in this way interneurons integrate and enhance reflexes.

There are regions in the brain which are dedicated to performing different functions, for example to register and process light or sound information, while other regions are responsible for movements and sensibility.

All regions in the brain must work together in order for the most advanced brain functions to become activated. So, "The brain works as a whole".

Very little is known about the ways that mental processes are performed within the brain. The regulation of sensory influx has been studied with regard to vision and hearing. There are special units that process visual information composed of neuronal circuits that recognize straight lines and horizontal and vertical structures. There are similar units for other signal types, but also other, more adaptable ones. Such units can be unconsciously activated in

order to suppress background noise or prevent it from reaching conscious hearing. For instance, when a low frequency fan which has been working for a few hours is turned off, we become relaxed. This indicates that the unconscious mental process of suppressing the background noise requires energy.

It is also possible to recruit, shape and/or activate such units consciously. Similarly, to unconscious suppression of background noise etc., active and conscious suppression requires energy as well. Mental functions which have been formed under normal conditions function optimally in similar conditions. Should the conditions change, the precision of the functions could be impaired, which may lead to increased uncertainty in the processes and thereby also increased energy consumption

Memory[2]

The "working memory", often called short-term memory, is located in the prefrontal part of the brain. It has the ability to store approximately seven items for the timeframe of about one minute. It is a kind of pre-processor of the memory. If you need information stored for a longer time, the inner parts of the brain get activated, and you can memorize the items for a longer time. Nevertheless, you will forget these items quickly as you don't use these memories regularly.

Memory and learning are so closely connected that people often confuse them with each other. But the specialists who study them consider them two distinct phenomena.

These specialists define learning as a process that will modify a subsequent behaviour.

Memory, on the other hand, is the ability to remember past experiences.

You learn a new language by studying it, but you then speak it by using your memory to retrieve the words that you have learned.

Memory is essential to all learning, because it lets you store and retrieve the information that you learn. Memory is basically nothing more than the record left by a learning process.

Thus, memory depends on learning. But learning also depends on memory, because the knowledge stored in your memory provides the framework to which you link new knowledge, by association. And the more extensive your framework of existing knowledge is, the more easily you can link new knowledge to it.

Model of the brain

Information is stored in the brain by building connections between neurons.

These connections can be deepened by their frequent use. The more often a person uses these connections, the better they are kept in memory.

Image 2: This can be compared with a meadow. A car drives through the fresh meadow and presses down the grass leaving a trace.

Image 3: If you use this way again and again you will get a real path and create a kind of passable way.

The brain works similarly. Once you have created your connection of neurons, a so-called engram (comparable with the first trace) you may use this engram again and again – for example by reviewing the content, watching the same images for several times, or by writing the content or painting an image of the content.

This is the way you create long-lasting memories. This means that stored information changes the physical structure of your brain continuously when you process your impressions, your feeling, or other sensing.

Learning as information procurement versus sustained learning

Learning typically works as described above:

- You hear something new (or get some new information, see something …)
- Your brain processes the information (which always is a "small" information)
- The connection of the neurons is built
- After some time, when you have not used the new gained knowledge again, the connection is dissolved – you have forgotten what you have learned

Basically, what is learned can be classified as "knowledge". Skills or behaviour results from further connections (using knowledge). Sustained learning means that you remember the information for a longer time – this should be the "actual result" of learning. The connections between the neurons can be enlarged (or deepened) by specific environmental conditions. This leads to better reminiscence of what you have learned. This type of learning is called sustained learning.

The term of sustained learning has been used in this context by Peter Mazohl in the frame of the TIBL Erasmus+ Project[3]

Sustained Learning Methods

Some facts

- Practice increases (the) learning

- Practice that creates new neuronal networks is the most efficient
- The amount of experiences in a complex learning environment Is directly proportional to the amount of changes in the brain. The enhancement depends on the environment (group-based learning, project-based learning)
- Learning structures and reorganizes the brain
- Emotions have an enormous influence on learning. They can enable better learning or block learning.
- Create a safe environment

  A safe Learning Environment must challenge participants to move outside their comfort zone and allow them to grow and practice new skills. This is where the "conscious" part of sustained learning practice comes in.

  Trainees explore and try out new ideas and techniques in a safe, supportive environment. It's an important part of the learning experience. Trainees must be pushed outside their comfort zone, doing over the top expressions, gestures, vocal exercises, sometimes even being filmed presenting. In such an environment, they are able to make mistakes and learn from them without the stress of being in an operational work context.

- Personalized training content

  A personalized training content facilitates the application of new skills. It is widely accepted that everyone learns differently. That is designed to meet the special requirements of learners.

  Training content must be adapted to the needs of each group in order to be relevant. The training designer must take into account the trainees' characteristics and create the content or stories they can relate to.

- Learning "Little and Often"

  This facilitates long-term behaviour change. One of the reasons workplace training programs fail is because participants are unable to apply what they have learned. Recent research shows that micro-learning, or learning in bite-sized chunks, makes the transfer of learning from the classroom to the desk 17 % more efficient.

Learning "little and often" allows trainees to engage with new information more deeply (50 % more, according to research). By breaking down large amounts of training content into small chapters, you help the brain to process and retain (that) information better. It's much easier to introduce small (or micro) learning moments to employees' work context.

Conclusion

All the sustained learning methods mentioned above are part of the Flipped Learning 3.0 Framework – and there is more!

Keep on reading to find the approach to Flipped Learning 3.0!

3. Flipped Learning

The idea about Flipped Learning is not really new but has never been described and defined the way Jon Bergmann did. Modern Flipped Learning is "a child of technical innovation and technology enabled teaching and training".

How Flipped Learning started

Jon Bergmann[4] (with his colleague Aron Sams) was teaching chemistry at a high school in Colorado in 2010. He realized that "…the old model of the teacher as the giver of all knowledge needs to disappear". The modern teacher should act as a coach and guide for students. He started to develop video podcasts that teach specific objectives. Students watch them (at home), get assignments, conduct experiments, and interact with the class Moodle website. This means that they take responsibility for their learning, they start to be active learners.

This short paragraph compiles the basic idea of Flipped Learning as made visible in the graphic.

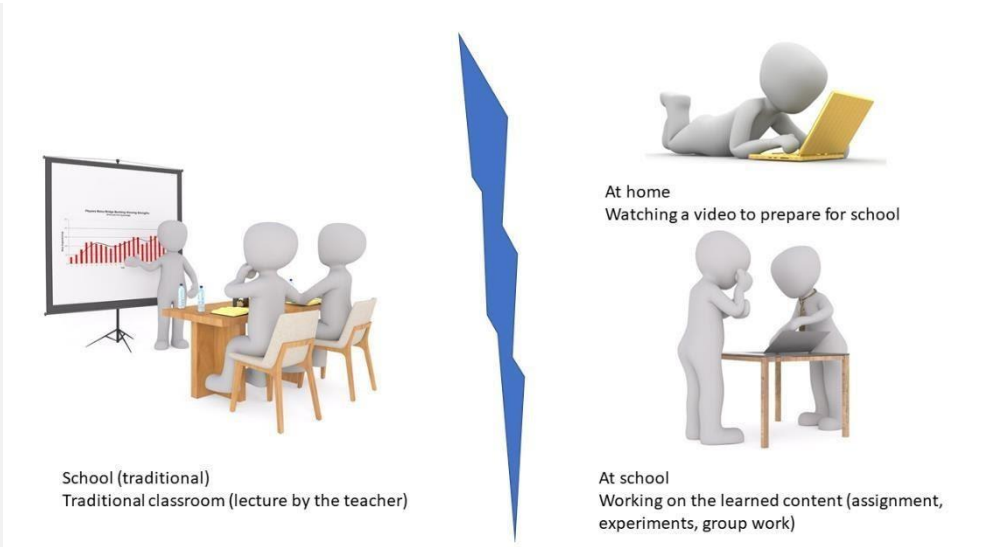


Figure 1: Traditional classroom teaching versus Flipped Learning

The further development

In the next years continuous amendments have been found and implemented into Flipped Learning. Jon Bergmann found out that videos must be short (two to five minutes), organizational issues must be reconsidered, a certain workflow for the development of material must be kept, and other related issues. All this has been done in cooperation with other teachers and shows the necessity of cooperation and teamwork within the teaching staff.

The reached status is shown in the next figure.

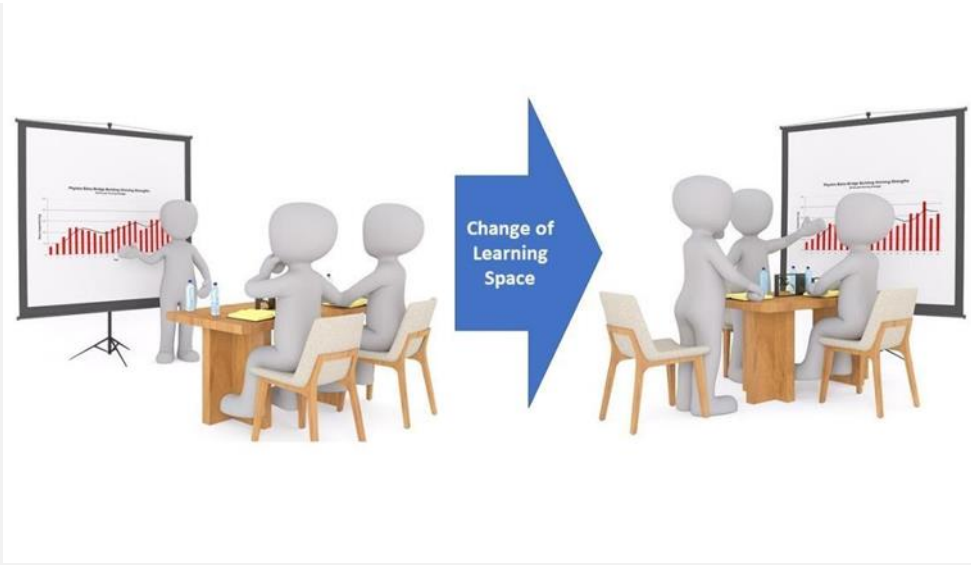


Figure 2: Traditional classroom in contrast to an active learning environment

The traditional lectured lessons have been replaced by the preparatory videos (watched at home) and an active learning environment in the classroom.

Robert Talbert, Professor in the Mathematics Department at Grand Valley State University in Allendale, Michigan USA[5], experienced in teaching with technology, defined the current state of Flipped Learning in 2017 as follows.

> *Flipped Learning is a pedagogical approach in which first contact with new concepts moves from the group learning space to the individual learning space in the form of structural activity, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter.*
>
> Robert Talbert, 2017

Basically, this describes Flipped Learning quite well. But this definition would downgrade Flipped Learning to one teaching method among many. Flipped Learning is more than a teaching or training method, it is a complete framework for teaching!

The Global Elements for Efficient Flipped Learning

The comprehensive description of Flipped Learning – enhanced by the version number 3.0 to show the development – was published in autumn 2017. Based on the Flipped Learning Global Standards Project the Global Elements for Efficient Flipped Learning have been published, along with the Global Standards for Flipped Learning. All this together builds the Framework that we call "Flipped Learning 3.0".

The final definition for Flipped Learning (stat 2021) is formulated as follows:

> *Flipped Learning is a framework that enables educators to reach every student. The Flipped Approach inverts the traditional classroom model by introducing course concepts before class, allowing ·educators to use class time to guide each student through active, practical, innovative applications of the course concepts.*
>
> Academy of Active Learning Arts and Sciences (aalasinternational.org)

The cornerstones for this framework are:

- Flipped Learning is not static
- Flipped Learning is evolving because of research, classroom innovation, and technology
- Flipped Learning is global
- Flipped Learning is opening up opportunities
- Flipped Learning is a Meta-Strategy

Topics in this guide

In this guide, we present an overview of the Global Elements for Efficient Flipped Learning with a specific selection of elements that are crucial for Adult Education. We discuss the benefits of the framework and possible obstacles and problems. As Flipped Learning 3.0 is geared towards active learning, we give an overview of various active learning methods that can be used with adults. Finally, we present a first quality framework that will be helpful to check the course quality. Several best practice examples are given

to help organisations and trainers to get an idea how Flipped Learning 3.0 can be used "as the engine for modern teaching and training".

The Flipped Classroom

In 2008, Jonathan "Jon" Bergmann and Aaron Sams invested $ 50 in the software to record and annotate lessons for absent students. This was appreciated not only by absent students but others: They used the online material as well, mostly to review and reinforce classroom lessons. The idea of the Flipped Classroom was born.

The core idea is to flip the common instructional approach: With teacher-created videos and interactive lessons, instruction (that) used (to occur) in class is now accessed at home, as a preparation for the on-site teaching and taken in advance of class. Classroom teaching developed to the place to work on problems, ask questions, increase the understanding of the content, advance concepts, and engage in collaborative learning.

Some observations of Jon Bergmann were ground-breaking for further development. So, it turned out that the teachers now spend more time with the struggling students. This group of students, who tended to give up on homework, could now work through challenging problems in class. The more advanced students had the chance to use the spare time more freely to learn independently.

Characteristics of a Flipped Classroom

The concept is to replace the typical classroom lectures by teaching with videos. Students are learning the content at home. They come to class well-prepared to apply what they have learned at home. Students learn for and by themselves. The materials reviewed prior to class can take the form of recorded lectures (podcasts), curated videos, reading assignments, video broadcasts — any material that the instructor assigns as relevant to the topic at hand. Therefore, a higher student engagement is expected. More time is available for face-to-face time in class or small group work to clear open questions, deepen knowledge or solve problems in the classroom.

Risks

Several risks must be taken into account using the flipped classroom. These are the technology used in pre-class learning, the need for high motivation of students, the fact that not all students learn well through visual learning (based on videos) and finally that Flipped Learning at home is still homework.

Ways to implement the flipped classroom

The creation of videos by the teacher is considered a standard way. These videos should follow specific guidelines: they should be short (2 - 5 minutes), appealing and interesting, meaningful, planned and well-structured (include two or three main parts).

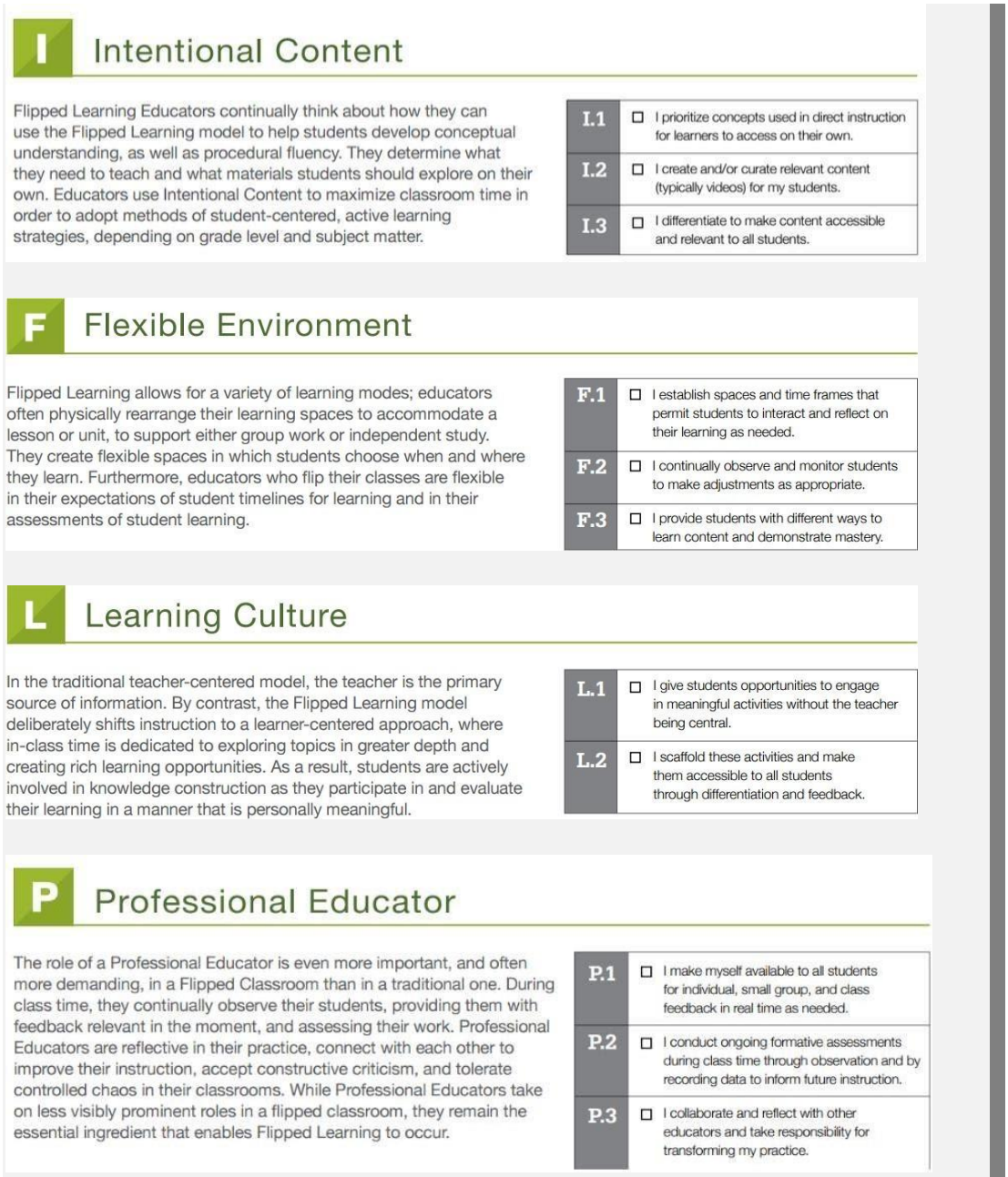
Flipped Learning

Flipped Learning has been defined as a pedagogical approach (in 2012) by the Flipped Learning Network (which has been established by a group of teachers interested in modern and effective teaching.

Their definition of Flipped Learning is:

> *Flipped Learning is a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter.*
>
> Source: https://flippedlearning.org/definition-of-flipped-learning/ (Flipped Learning Network)

The pedagogical approach is based on four pillars:



I Intentional Content

Flipped Learning Educators continually think about how they can use the Flipped Learning model to help students develop conceptual understanding, as well as procedural fluency. They determine what they need to teach and what materials students should explore on their own. Educators use Intentional Content to maximize classroom time in order to adopt methods of student-centered, active learning strategies, depending on grade level and subject matter.

I.1	☐ I prioritize concepts used in direct instruction for learners to access on their own.
I.2	☐ I create and/or curate relevant content (typically videos) for my students.
I.3	☐ I differentiate to make content accessible and relevant to all students.

F Flexible Environment

Flipped Learning allows for a variety of learning modes; educators often physically rearrange their learning spaces to accommodate a lesson or unit, to support either group work or independent study. They create flexible spaces in which students choose when and where they learn. Furthermore, educators who flip their classes are flexible in their expectations of student timelines for learning and in their assessments of student learning.

F.1	☐ I establish spaces and time frames that permit students to interact and reflect on their learning as needed.
F.2	☐ I continually observe and monitor students to make adjustments as appropriate.
F.3	☐ I provide students with different ways to learn content and demonstrate mastery.

L Learning Culture

In the traditional teacher-centered model, the teacher is the primary source of information. By contrast, the Flipped Learning model deliberately shifts instruction to a learner-centered approach, where in-class time is dedicated to exploring topics in greater depth and creating rich learning opportunities. As a result, students are actively involved in knowledge construction as they participate in and evaluate their learning in a manner that is personally meaningful.

L.1	☐ I give students opportunities to engage in meaningful activities without the teacher being central.
L.2	☐ I scaffold these activities and make them accessible to all students through differentiation and feedback.

P Professional Educator

The role of a Professional Educator is even more important, and often more demanding, in a Flipped Classroom than in a traditional one. During class time, they continually observe their students, providing them with feedback relevant in the moment, and assessing their work. Professional Educators are reflective in their practice, connect with each other to improve their instruction, accept constructive criticism, and tolerate controlled chaos in their classrooms. While Professional Educators take on less visibly prominent roles in a flipped classroom, they remain the essential ingredient that enables Flipped Learning to occur.

P.1	☐ I make myself available to all students for individual, small group, and class feedback in real time as needed.
P.2	☐ I conduct ongoing formative assessments during class time through observation and by recording data to inform future instruction.
P.3	☐ I collaborate and reflect with other educators and take responsibility for transforming my practice.

Figure 3: Source: Flipped Learning Network (FLN). (2014), The Four Pillars of F-L-I-P™, CC BY-NC-ND

Is a flipped classroom the same as Flipped Learning?

It is necessary to distinguish between a Flipped Classroom and Flipped Learning. These terms are not interchangeable. A flipped classroom can work using Flipped Learning as a pedagogical approach but must not use Flipped Learning. The core issue is to shift learning from lecture-based school teaching to individual learning at home and using face to face time for questions, practice, group work or other interactive learning methods to deepen and foster the learning results.

Flipped Classroom	**Flipped Learning**
Flipped Classroom is a form of blended learning in which students learn content online by watching video lectures, usually at home, and homework is done in class with teachers and students discussing and solving questions. Teacher interaction with students is more personalized – with guidance instead of lecturing.	Flipped Learning is a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter (Source: Flipped Learning Network)

It is necessary to clear two other terms that are often mentioned in context with Flipped Learning and the Flipped Classroom:

- Blended Learning describes the way learning is delivered. It defines a certain structure but does not refer to any pedagogical approach.
- A pedagogical approach refers to the theory and practice of learning, and how this process influences, and is influenced by, the social, political, and psychological development of learners. It describes how learning is done and the intention behind the learning. It is a methodology of learning and does not define the implementation or the used methods.

Flipped Learning 3.0

Flipped Learning 3.0 describes a modern pedagogical approach of the original version of "Flipped Learning". It is a further developed methodology of Flipped Learning and is based on learner-centered and active learning. It offers more than simple pedagogical advice – it is a complete framework for teaching!

Since the flipped classroom and further on Flipped Learning have been developed from the K-12[6] system (this describes the school system in the United States covering the typical school career from 6 years old pupils to 18 years old students covering 12 years of learning) Flipped Learning 3.0 appears as a versatile pedagogical approach that can be used in all fields of education (School Education, Higher Education, Vocational Education and Training as well as Adult Education).

Flipped Learning 3.0 currently uses the 187 Global Elements of Effective Flipped Learning. These elements are organized and structured in 12 sectors (the core items of effective Flipped Learning). These sectors are (ordered in relevance to Adult Education) the Group Space Mastery, the Individual Space Mastery, Learning Spaces, Student Feedback, Assessment, Communication and Culture, IT Infrastructure, Professional Development, Planning for Flipped Learning, Understanding Flipped Learning, Evidence and Research, and K-12 Focused.

Flipped Learning uses the revised Bloom's Taxonomy[7] that uses verb forms (for the terms defined by Bloom 1956) since 2001. The six categories of Bloom's Taxonomy are: remember, understand, apply, analyse, evaluate, and create. The pre-classroom learning focuses on the first two categories, i.e., remember and understand. These are the basics the learner has to bring into the classroom. The higher categories like apply, analyse, evaluate and create are used in interactive and collaborative work in the classroom monitored and guided by the teacher (as a facilitator of the learning).

Understanding Flipped Learning 3.0

To understand Flipped Learning 3.0, it is necessary to know about some specific terms (and what is behind) and to learn about some cornerstones that describe Flipped Learning 3.0.

In this chapter, we explain briefly the most important terms, give an overview and definition of common descriptions and commonly used names in the education science and set them into Flipped Learning 3.0 context.

Definitions

Here you will find the definitions that are necessary to understand the handbook. Many terms are well-known, but the same terms are used in different contexts and often with different meanings.

These definitions here will enable you to understand the Flipped Adult Education as a well-structured concept based on Flipped Learning 3.0.

Flipped Learning

Flipped Learning is a pedagogical approach in which the traditional teaching using classroom-based learning is inverted. This means that students are introduced to the learning material before class and have to work on the topics on their own (or in groups), while classroom time is being used to deepen understanding through active learning with peers and a teacher (specialized in the topic).

The traditional four columns of Flipped Learning

The "traditional" first approach to Flipped Learning was based on four columns:

- Flexible Environment
- Learning Culture
- Intentional Content:
- Professional Educator

Flipped Learning 3.0

Flipped Learning is a framework that enables educators to reach every student. The Flipped approach inverts the traditional classroom model by introducing course concepts before class, allowing educators to use class time to guide each student through active, practical, innovative applications of the course principles.

Flipped Classroom

This term describes a learning environment in which the learners have a specific approach to learning: They watch video lectures (normally at home) and learn the content from this. Homework is done in class with the teacher. Learners are discussing and solving problems (guided by the teacher, who interacts with the learners in a personal and problem focusing way).

Technology enhanced (or enabled or supported)

The term Technology-enhanced learning (or Technology Enabled Learning, TEL) is used to describe the use of technology in learning and teaching. The term is not particularly defined. Nevertheless, it replaces the extremely diffuse and meaningless term e-Learning. In short, TEL is any technology that enhances the learning experience and process.

Technology plays a varied role in learning:

- It enables the delivery of multimedia-based and interactive content
- It connects teachers/trainers and learners in Distance learning
- It enables the communication among learners (between learners and other learners), as well as between learners and trainers

Technology in learning and training offers added value but also includes the danger of disadvantages. Here are some - non-comprehensive - thoughts about technology in learning and teaching:

+ Benefits

Technology enables easy synchronous and asynchronous communication, enables learners to select their own pace in learning and enables the easy delivery of content.

- Disadvantages

One issue is the dependency on technology. If technology fails you do not have access to the learning platform, you cannot submit the results of your assignments as well as you cannot participate in distance learning assessments.

Multiple Devices

Multiple devices as a term describes (the entirety of) all possible devices that can be used for learning. This may be a desktop PC, a laptop or notebook, a Chromebook, a tablet, a convertible, or a smartphone, as well.

No matter how different these devices are, they all can be used - to some extent - for learning. However, the differences result in restrictions and not all tasks that are provided in technology-supported learning can be carried out (with all devices) equally and, above all, in the same way.

It is in the responsibility of the course provider or trainer to care for content that can be delivered equally with all devices. If this is not possible the restrictions must be communicated to the course participants before the course starts. In the worst case some devices must be excluded as practicable technology in a certain course.

Hint: Currently, no serious studies about the effective use of Multiple Devices are available. The first European study (done in seven European countries) is available from the InterMedia Erasmus+ Project[8] (https://www.intermedia-project.eu).

Possible problems and obstacles

The problems with multiple devices can be reduced to some critical issues

- Screen size
  In a quickly done research using some open questions, a smartphone screen may fit - for complex drawing the screen is too small
- Pointing device
  Many multiple devices work with touch screens and the input is done with fingers. For precise drawing, drag and drop, selection of tiny items on the screen or similar activities the fingers on a touch screen work too imprecisely. Some tablets offer pens to insert data or to select a point on the screen, but this is only a workaround.
- Writing – Typing
  If there are assignments to write a lot of text, to fill in a complex form or do some text processing, a physical keyboard is necessary. It is certainly possible to enter short texts on a smartphone, but these are not a permanent solution (and the large number of emails sent from smartphones that are full of typing errors also prove this problem).

Flipped, blended and traditional Learning

The terms traditional learning, blended learning and Flipped Learning describe modalities of how learning is implemented. We will give a short neutral description of these three approaches to learning.

Traditional Learning

This is what we all are familiar with, as it reminds us of our school time. Traditional classrooms have the blackboard (in front), the teacher working there, running the lecture. Learners sit on tables well-ordered and placed, follow the teacher and take down notes.

Image 4: Typical situation during lectures of the trainer.

Blended Learning

This is a blend of traditional classroom teaching (onsite teaching, face-to-face teaching) and distance learning. Blended Learning is a method to organize the course and describes basically a delivery method of content. Blended Learning does not include any guidelines for used pedagogy or give any regulations for the implementation. Even the distribution between onsite teaching and distance learning is open. The scope varies between 10 % : 90 % and 90 % : 10 %.

Note: Blended learning describes mainly a delivery method of the content.

Flipped Learning 3.0

This is a framework offering all organizational, strategic, and practical guidelines that are necessary for efficient implementation.

Framework means recommendations that should be applied but can be dropped if not relevant (or applicable).

Active Learning

Active learning is a form of learning in which teaching aims to involve students in the learning process more directly than in other methods. Learners must engage to learn and must do more than just listen: They must read, write, discuss, or be engaged in solving problems (dependent on the selected active learning method). In short, active learning requires students to do meaningful learning activities and think about what they are doing. The learners work individually on assignments, or cooperatively in groups. In context with the initially explained physiological process of learning, the brain creates new connections and deepens the existing engrams (that exist due to former done learning).

Instructional Design

In this guide, we present several different active learning methods that can be used and implemented especially in Adult Education.

Instructional design can be seen as the identification of typical gaps in knowledge and skills and to provide, suggest and create learning experiences that will fill these gaps. Instructional design is the creation of learning experiences and learning content in a way that results in the acquisition and application of knowledge and skills in theoretically and even practically.

There exist several well-known and proven models for instructional design (for example the ADDIE Model which resembles a quality cycle).

Flipped Learning 3.0 relies on the use of Bloom's taxonomy. This model is ideally suited to place assignments for learning in a modern and significant way. The approach to Bloom's Taxonomy is explained at the end of this chapter.

The typical element for the development of Flipped Learning 3.0 courses is the so-called Backward design (You will meet this element later as one of the

187 Global Elements of Efficient Flipped Learning). This approach can be seen as the answer to the question: "What is the intended end?".

The goal is not the path, but a precisely described learning goal is achieved through sensible planning of the content taught and the best means to convey the content. Typical design elements are the use of the individual space, where lower Bloom's elements are taught, and the group space, where higher Bloom's elements are conveyed and elaborated in a group.

Blended Learning versus Flipped Learning

The two terms "Bended Learning" and Flipped Learning" often are messed up and mistaken.

Blended Learning

This is often (is) a combination of onsite teaching ("Brick and Mortar") and distance learning (also often messed up with online learning). In any case, it is the "blend" that makes a learning experience "blended". It means a mixture of (minimum two) different teaching and learning methods.

Flipped Learning

This learning method has the origin in changing the various learning tasks. The learners prepare themselves with appropriate learning material (normally "explainer" videos) at home and apply their newly gained knowledge in the onsite learning.

From this early origin the name "Flipped Classroom" derives. (is derived.) Nevertheless, all these learning and training experiences can be seen as ancestors of Flipped Learning 3.0 but are far away from it!

Flipped Learning 3.0

This describes a framework and not a simple teaching method. And it is not just another teaching tactic. Flipped Learning is a meta-instructional strategy because it's a framework that creates *the class time* to enable all other instructional strategies based on active learning and the pre-class time to

prepare for the class time. Flipped Learning also provides the missing roadmap for the effective application of education technology.

From Lecturer to Facilitator

Two of the Global Elements for Effective Flipped Learning focus on the problem of lectures:

Lecturer as Facilitator

This means to develop the understanding of how the role of an educator moves from lecturer to facilitator.

The switch is based on the relationship between Teacher/Trainer and learner and the fact that the learner owns his learning. This means the learner is responsible for his learning, doing and the learning outcomes. The teacher/trainer helps the learner by providing appropriate content, the availability to ask questions, and by accompanying the learner on his way to the learning goal.

Never lecture

As the learner is responsible for himself there exists no need for the teacher/trainer to hold lectures. The learner can acquire all necessary knowledge by doing the pre-class activities and to increase the basic knowledge in the Groups Space. Therefore, the teacher/trainer will never lecture or explain the videos in classroom for those who did not do the pre-class media and use other methods to fill the identified gap in the preparation.

Barriers

Even if Flipped Learning 3.0 is a proven, flexible, and promising teaching and training framework there exist problems and barriers.

- A lack of student discipline

- For learners who haven't had any exposure to Flipped Learning, the less conventional setup can be a challenge
- Lack of teaching resources
- Content is vital to create a successful flipped classroom
- Old-fashioned classrooms or training environments
- Lack of equipment and techniques

Flipped Learning General Standards – Understand Flipped Learning

Flipped Learning 3.0 as a framework is based on several cornerstones. We will list here essential definitions and explain terms that are used in Flipped Learning 3.0. This is always done from the point of view of Adult Education (but intentionally the statements are valid for other educational fields as well).

In the Flipped Learning Global Standards Project, the standards have been defined for Flipped Learning. These so-called standards can be seen as basic rules for implementing Flipped Learning 3.0 in courses.

The statements follow an unusual way of definition, because they do not give any norms but are a kind of assignment because they use a formulation that is linked to a non-measurable condition. These conditions are:

- Know and be able to explain the definition of Flipped Learning
- Understand that Flipped Learning is a framework that supports all other active learning strategies
- Understand the importance of instructional design when planning for Flipped Learning
- Understand the distinction between Flipped Learning and Blended Learning
- Understand how the role of an educator moves from lecturer to facilitator
- Understand priorities and barriers to progress

In this chapter we will go through these sentences step by step and use them to explain Flipped Learning 3.0.

Know and be able to explain the definition of Flipped Learning

The current definition of Flipped Learning 3.0 is published on the webpage of the AALAS (Academy of Active Learning Arts and Sciences)[9]:

> *Flipped Learning is a framework that enables educators to reach every student. The flipped approach inverts the traditional classroom model by introducing course concepts before class, allowing educators to use class time to guide each student through active, practical, innovative applications of the course principles.*

We will analyse these two sentences:

Flipped Learning is not a method, it is a framework. The term framework means "an essential supporting structure". This means that there are no exact rules but guidelines that will cover a broad scope of issues for the learning process. Framework also means the ability to drop items that are not relevant for your course or your organization.

To reach every student (or learner) means that this framework enables a broad scope of teaching so it is possible to teach the content to any learner (that might be able to attend the class or course). The typical classroom model can be described as a lecture in the class (together with other learners) and solve assignments (the so-called homework) at home.

The statement "introducing course concepts before class" means that the learner will prepare him/herself at home to have the basic knowledge to attend the class or the training. This preparation work – called pre-class - focuses on remembering and understanding of basic issues.

The last part explains the shift of both the teacher's role as well as the learning approach of the learners. Teachers or trainers act like facilitators, helpers in the learning process or as "the enablers of the learning" while learners practice active learning (Active learning will be explained intensively later).

For the preparation work before class the term "Individual (learning) Space" is used, for the active learning enabled and supported by the teacher or trainer the term "Group (learning) Space" is usual.

Understand that Flipped Learning is a framework that supports all other active learning strategies

Flipped Learning 3.0 is not "THE" pedagogical method that is used in the learning. As a framework, it describes a list of possible learning methods that are summarized under the term "Active Learning". As the name suggests, all of these methods require the active commitment of each individual learner, mostly in team or group work. To describe these activities and their purpose you may use the words applying (knowledge), analysing, evaluating, and creating. All these verbs address something that is provided by the activity of the learner or is created by it.

You will get more information about active learning and the possible active learning methods in one of the next chapters.

Understand the importance of instructional design when planning for Flipped Learning

In Flipped Learning you have to distinguish between the Individual Space and the Group space. Each of these learning spaces is dedicated to specific tasks (as mentioned before).

This makes it inevitable to think very carefully about the distribution of content and the related tasks to these two learning spaces.

Understand the distinction between Flipped Learning and Blended Learning

Blended learning is a learning method where the lessons are split in a face-to-face part (the so-called onsite teaching) and a distance learning part. So you have a blend, a mixture of two different teaching methods. Even if this sounds similar to Flipped Learning it differs completely from Flipped Learning.

Blended Learning does not have any standards or guidelines how the blend is realized while Flipped Learning defines very precisely that content based

on knowledge and/or understanding is conveyed in the individual Space while all other issues are learned by active learning in the Group space.

However, this means that blended learning can be implemented through Flipped Learning (but not the other way around).

Understand how the role of an educator moves from lecturer to facilitator

One of the crucial sentences you must meet in Flipped Learning is: Never lecture!

What does this mean? Lecture in the classroom is a passive teaching approach and lets the student follow the presentation of a teacher passively. In the Group Space the absolute procedure that must be kept is active learning.

The teacher or trainer is a person of trust and must create a good relationship between her/him and the learners. In the frame of this relationship the teacher can guide, help, assist and encourage the learners in their learning process.

Understand priorities and barriers to progress

Priorities in Flipped Learning are given to several issues:

- Relationship
  This is an essential element that must be created in the learning group (between teachers and learners)
- Active Learning is the grand Meta-Principle
- Give more time for the active learning process
- It is a learner-centered approach that supports learners in their learning process

  "Learners are owners of their learning"

The major barriers are

- Teachers or trainers have problems to change their mindset and still stick to the old schema of the lecturer.

- Time
  When does a teacher/trainer have the time to do all this?
- Training
  Teachers using Flipped Learning must have some basic training for it.
- Technology
  Flipped Learning is closely connected to technology. Both teachers/trainers and learners must know how to use the relevant

Other Standards

In the Flipped Learning Global Standards Project, also standards have been developed for all issues in context with learning. If you are interested to go deeper, you may check the webpage of the project: https://www.fade-in.eu

General Standards

The General Standards are a Flipped Learning roadmap to help educators reach every student in every class every day. These standards save time and support effective implementation of global best practices while avoiding typical mistakes (Source and further information: AALAS[10])

- Understanding Flipped Learning
- Planning for Flipped Learning
- Assessment
- Learning spaces
- Individual space mastery
- Group space mastery
- Student involvement
- Communication and culture
- Professional development
- Evidence and research
- IT infrastructure

Student Standards

The Student Standards are a Flipped Learning roadmap to help educators guide students from passive to active learning. These standards offer essential practices for effective student participation in a flipped class. The guidelines encourage students to take ownership of their learning.

Source and further information: AALAS Webpage

- General Habits
- Individual Space Habits
- Group Space Habits

Training Standards

These standards are developed for trainers to implement a proper training.

- Basic standards
  This part describes and explains the need of well-educated trainers, the use of a consistent framework, guidelines for learners, and other related basic issues.
- Advanced Personal Development standards
  This group of standards care for planning strategies, the delivery of training, group space strategies and others.
- Support and sustainability
  This section covers support of the training (and post-training), items of relationship and collaboration and relies on professional development.
- Currency and professional development
  Here, four items addressing the continuous development of Flipped Learning are mentioned, as well as the need of the trainers' personal development.

Bloom's Taxonomy and Flipped Learning

Besides the general standards of Flipped Learning, Bloom's Taxonomy is another cornerstone in the framework.

Bloom's Taxonomy is a hierarchical ordering of cognitive skills that can help teachers teach and students learn. The original was published in 1956 by Benjamin Bloom as a six-level description of thinking. Over the years, this description has undergone a number of changes, but even after almost 70 years it still has a certain value in the planning and structure of learning. The modern and technology-based taxonomy (often called as Bloom' Taxonomy revised) uses verbal definition instead of terms. But there are still six different levels, ordered to a pyramid (which should show the importance of each verb represented by the width of the element).

In Flipped Learning, we also use Bloom's Taxonomy – but it is altered to fit to the general framework of Flipped Learning 3.0.

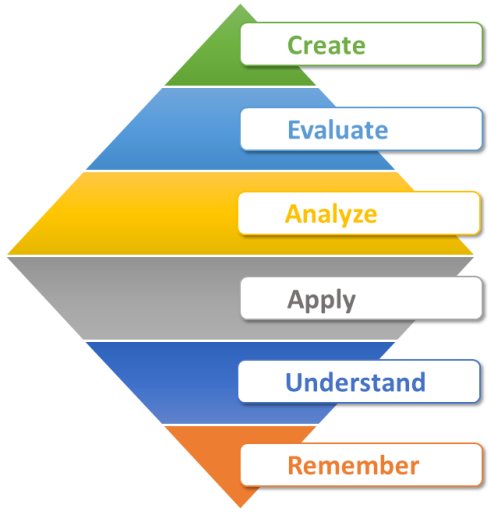


Figure 4: Bloom's Taxonomy is used to select the tasks for the Individual Space and the Group Space:

- Individual Space: These tasks and activities are in context with the so-called Lower Blooms (understand, remember)
- Group Space: Here the so-called Higher Bloom's are used (apply, analyse, evaluate and create).

These tasks are executed by typical active learning tools, if possible, in groups or small groups.

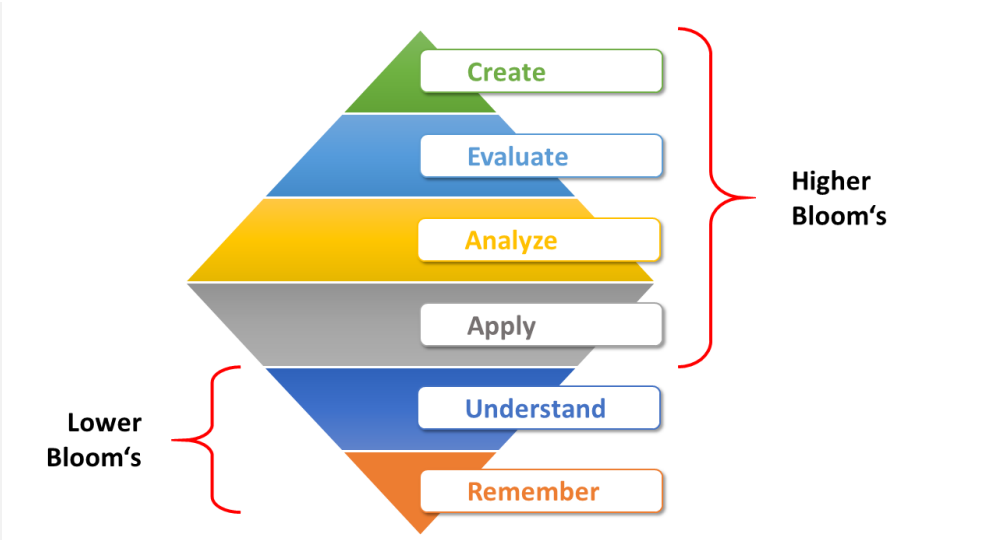


Figure 5: Bloom's Taxonomy - as used in Flipped Learning (with marked Lower and Higher Bloom's)

Educators, experienced with learning theory, may skip the next paragraphs. For all others, we give a short summary of the used terms and add the connected verbs. You will find them also in the attached table.

Here is a short summary of considerations to the various taxonomy elements. To each verb, a list of connected terms is given (with a short explanation of the term's context in the learning process). The connected terms (written in italic) can be used to formulate assignments (that are indicated to a specific element of Bloom's Taxonomy).

Remember

This verb refers to memorizing and is a typical term addressing the storage in the brain.

Activities in context with remember are *recognizing* (for example a certain pattern, animals, or the resume of a popular person) and *recalling* (retrieving information, data, specific terms like vocabulary).

Understand

To understand something means to perceive the meaning of something, to be thoroughly familiar with, to grasp the significance or to assign a meaning to something. To understand something, certain knowledge is necessary, and this can be taken from remembering.

The typical verbs in context with certain understanding for something are: *Interpreting* (provide the meaning of something), *exemplifying* (to show or demonstrate something by an example), *classifying* (to arrange in classes or to assign a classification), *summarizing* (give an overview of something based on knowledge), *inferring* (to come into opposition with something), *comparing* (find or note similarities or differences), and *explaining* (make known something in detail or assign a meaning to something).

Apply

To apply means to make (practical) use of something. This can be *executing* (or carrying out) some tasks or processes based on the understanding gained before or the *implementing* of something also based on the understanding of something.

Analyse

To analyse means to separate something – an idea, a physical material or some abstract entity) into constituent parts. learning to analyse something refers mainly to the critically examination of ideas or other entities to bring out the essential elements or logical items. This needs to *differentiate items or abstract entities*. It also can be *organizing* something (by identifying the structure) or *attributing* which means to consider the quality of characteristics of things, ideas, or other physical or logical items.

Evaluate

Evaluating creates significance and/or values or judges quality. The precondition is knowledge and the skills to analyse something. Some typical verbs in this context may be *checking* and critiquing.

Create

Create something means to cause to come into being. This can be some physical entity (like the creating of a picture) or something abstract (like a new idea).

The typical verbs used in an assignment can be *generating*, *planning,* or *producing*.

Remember	Understand	Apply	Analyze	Evaluate	Create
Define	Annotate	Act out	Appraise	Argue	Adapt
Find	Associate	Articulate	Attribute	Assess	Animate
Highlight	Categorize	Choose	Break down	Comment	Build
Identify	Comment	Determine	Calculate	Criticize	Collaborate
List	Compare	Display	Categorize	Debate	Compose
Locate	Contrast	Examine	Correlate	Detect	Direct
Match	Estimate	Execute	Deduct	Experiment	Manage
Outline	Exemplify	Experiment	Divide	Grade	Mix
Retrieve	Express	Implement	Split into	Measure	Negotiate
Search	Extend	Integrate	Distinguish	Predict	Program
Select	Gather	Judge	Estimate	Rate	Role play
	Group	Paint/Draw	Explain	Reflect	Simulate
	Interfere	Play	Illustrate	Review	Solve
	Interpret	Prepare	Integrate	Score	Video
	Predict	Present	Link	Test	Write
	Relate		Mash	Validate	
	Summarize		Mind map		
	Tag		Organize		
			Question		
			Structure		

Image 5: Table of Bloom's taxonomy and the possible verbs that can be used in the description of assignments.

The 187 Global Elements of Effective Flipped Learning 3.0

Each teaching approach provides specific principles as a characteristic for the teaching process (and the related teaching environment). Blended Learning, for example, uses two major learning spaces: Classroom teaching (or training) done as onsite teaching, and Distance Learning (carried out in most cases using the Internet and multiple devices). These principles are often seen as "a local phenomenon". Nevertheless, learning and teaching is present all over the world, and education is a global need.

Errol St. Clair Smith in his role of director of global development at FLGI conceived and led the development of a list of global elements that are used all over the world in teaching. Not all of them were estimated and evaluated as successful elements and were therefore eliminated from the list. What remained are the 187 global elements of effective teaching in Flipped Learning and these elements are the basis of Flipped Learning 3.0.

In search of a graphical way to present the elements, Errol envisioned a color graphic divided into 12 sections and periodic table like format to depict the primary elements. Errol solicited Jon's expertise as a chemist to help organize the elements into a table.

Later Errol added the 12 sector color wheel as a simple legend order the Elements in groups, and finally, 12 major groups turned out. During the structuring process, 93 entries were used in an element table.

For natural scientists, this table looks very clear, lucid, and tidy. Nevertheless, other people find the table confusing and complex. All this is a problem of the presentation. Therefore, we have created verbal explanations of the relevant elements as well. In this document, we use both: The element abbreviation and its belonging to a group as well as the verbal description.

These elements are the core elements, the other ones are addressing headmasters, the organisations, or other relevant stakeholders.

Errol St. Claire Smith (from the Flipped Learning Global) defined a wheel consisting of twelve sectors as a visualization of the groups.

Figure 6: The 12 groups of Global elements of efficient Flipped Learning (Source: https://flglobal.org/elements/. © FL Worldwide 2020, published with special permission of the FL Worldwide in the Frame of the Erasmus+ Project FAdE Flipped Adult Education 2018-1-AT01-KA204-039224, CC 4.0 BY-NC-ND

These groups are

- Communication and Culture (7 elements)
- Professional Development (5 elements)
- Individual Space Mastery (18 elements)
- Group Space Mastery (15 elements)
- K12 focused (4 elements)
- Evidence and Research (4 elements)

- Learning spaces (5 elements)
- IT Infrastructure (5 elements)
- Student Feedback (5 elements)
- Assessment (7 elements)
- Understanding Flipped Learning (6 elements)
- Planning Flipped Learning (12 elements)

As a consequence, a pattern similar to the well-known periodic system of elements has been developed.

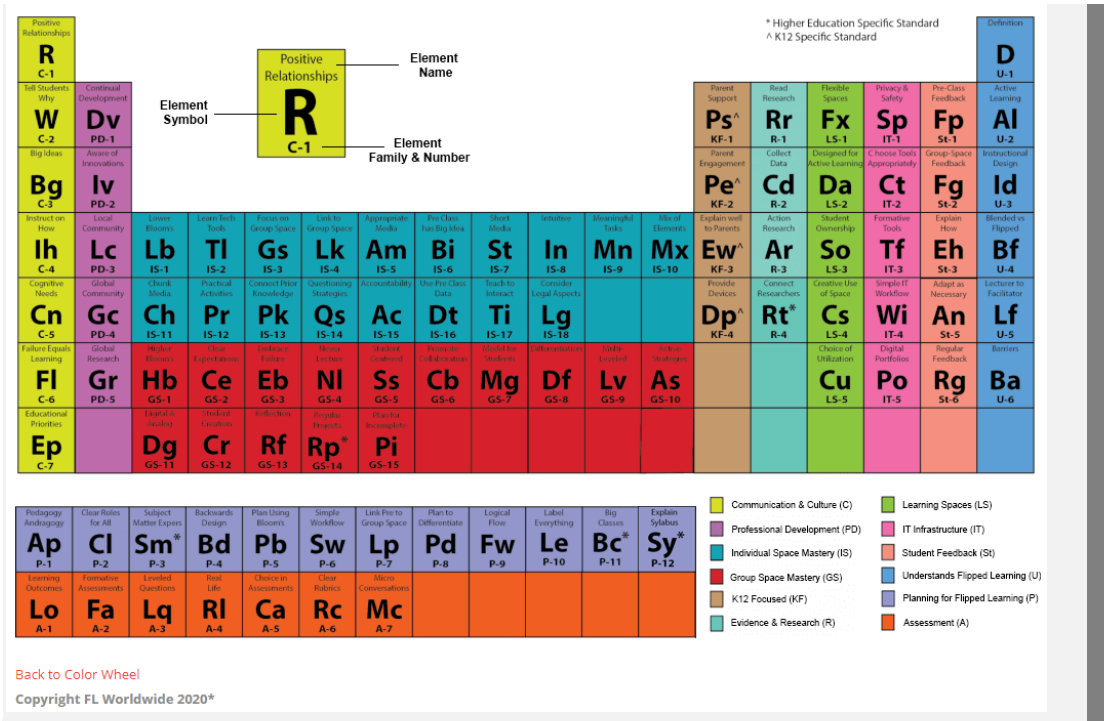


Figure 7: © FL Worldwide 2020, published with special permission of the FL Worldwide in the Frame of the Erasmus+ Project FAdE Flipped Adult Education 2018-1-AT01-KA204-039224, CC 4.0 BY-NC-ND

Not all elements address Adult Education. The K12 Focused Elements for example are not directly related to the use of Flipped Learning 3.0 in Adult Education. To have an overview of the table you will find a short description of all groups here.

How to use this Table?

People often have a different approach to things. While natural science-oriented people prefer short descriptions, formulas, or overview tables, others like verbal descriptions or prefer structured texts.

We will offer here both:

- We use the "chemical" table description of the Elements.
- We describe the various items verbally, so interested people can read the "Big Idea" behind each element. Nevertheless – to enable the context between these two ways of presenting content – we always give the Reference to the element table.

Overview of the various Groups of Elements

The elements are combined into groups that each characterize the significant common properties of the elements.

Communication and Culture (7 elements)

Communication covers the bidirectional communication (between Teachers/trainers and students/trainees as well as student to student). Culture addresses "how" the teaching/training and learning is done. A basic approach to culture is the mutual respect and interaction between each other and the knowledge that making mistakes is not a sign of failure.

Professional Development (5 elements)

Professional development addresses mainly the teacher/trainer. Avoiding any standstill is fundamental here. This means responding to innovations, constant further training, and education, and, as a significant part, networking at local and global levels.

Individual Space Mastery (18 elements)

This group addresses the learner as a single person and the impact of the teacher/trainer on the learner. An essential focus is set on the pre-class

learning and the benefits or added value for the learner as well as the skills the trainer must have to implement in this pre-class training for the learner.

Group Space Mastery (15 elements)

The cooperation and collaboration of learners are the core of the elements in this group. Most elements assembled in this group have a special focus on active learning.

K12 focused (4 elements) *)

K12 has the duty to study. Therefore, the contribution of the parents to the learning success of their children is a crucial continuous thread. Therefore, it is mostly not valid for Adult Education, unless also the life partners of the learners partly take on the role of parents.

Evidence and Research (4 elements)

To be well-informed is a basic duty of any educator. This means, to read research papers as well as to do your own research (as action research in the class or during the Distance Learning phase) and to stay connected with researchers.

Learning spaces (5 elements)

This group cares about the used learning spaces, their practical and efficient implementation in the learning, and the added value for the students.

IT Infrastructure (5 elements)

IT plays an extremely important role in Flipped Learning 3.0: Content and activities are using Multimedia; active learning is also deeply connected with the use of technology, and especially the individual space makes intensive use of ICT. Consequently, it can be deduced that digitization occupies an important place in Flipped Learning and therefore different areas, such as the tools used or the protection of privacy - to name just two topics - are important.

Student Feedback (5 elements)

Feedback and feedback culture have an essential influence on learning success. The five elements in this group determine how feedback should be done to foster efficient learning.

Assessment (7 elements)

Assessment is traditionally used to evaluate the learning success – that is the same in Flipped Learning 3.0. The Elements in this group describe and give suggestions on how effective and useful assessment could be implemented and executed.

Understanding Flipped Learning (6 elements)

Basic considerations and recommendations are the content of the elements in this group. These elements contribute to the understanding of the basic approach of Flipped Learning and are essential to use Flipped Learning 3.0.

Planning Flipped Learning (12 elements)

These 12 Elements provide a summary of the essentials to implement a Flipped Learning approach to teaching. They cover the practical basics that result from the Understanding Flipped Learning Group.

Discussion of the global elements

In this guide, various elements are explained in their specific context so that it is easy to understand them. For example, this guide provides a quality framework based on relevant elements. There are specific examples of training units explained in context with the relevant global elements. Nevertheless, all relevant groups are briefly explained, group by group and their essential role is summarized without going too deeply.

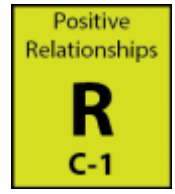
*) **Remark**

A deeper-going discussion is done with elements only that are relevant for Adult Education. So, we will drop the K12-Focused Elements because they are relevant to the American School System (that differs widely from Europe) and therefore is not relevant in Adult Education.

Communication and Culture

Communication and communication culture includes the relations both between trainers and learners and between the learners. To get to know each other, relating as equals and mutual trust are important aspects of a safe learning environment. In this chapter, you can find 7 principles for establishing a good communication culture in the learning environment.

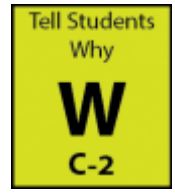
Positive Relationship



Build positive relationships with students.

Trainers must build positive relationships with learners. Trainers must be a person of trust and must accept their learners the way they are.

Tell Students why



Help students understand why they are learning the concepts.

Trainers must help learners to understand why they are learning the concepts.

The trainer must explain why the used framework of Flipped Learning 3.0 brings advantages to the learners. They must realize that – using these concepts – they practice a "deep and sustainable" learning and benefit from the framework.

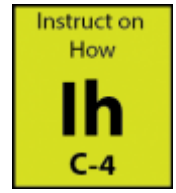
Big Ideas

Help students to see the big ideas.

What is the big idea? If you plan a course, select the content, plan the individual and the Group Space. You must have some intention, how you do this and why the various activities are necessary. These are the "big ideas" behind the course or the unit.

Share this idea with the learner. Explain that for the next unit they have to do something specific and explain to them why this is necessary, explain the added value for them and engage them to follow this "big idea".

Instruct on How



> *Instruct students on how to operate in a Flipped class.*

Learners must know precisely what is expected from them, how they must behave, what they have to do, and how they can manage the course.

Remark: A specific focus must be laid on the awareness of the importance of pre-lesson.

Otherwise, you are in the course with a learner who has no idea about the subject matter to be worked on.

For adults who have a certain learning practice, usually good motivation, and a different basic attitude (compared to young people), this should not be as big a problem as in School Education.

Cognitive Needs

> *Understand each student's cognitive needs.*

Learners are learning because they want to know something, to get experienced, to learn skills, and gain knowledge of something. The cognitive needs of a learner refer to the desire to understand, to solve problems, and to create something (new). It is no coincidence that these needs often comply with items of Bloom's Taxonomy.

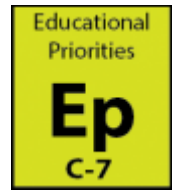
Failure Equals Learning

> *Encourage students to see that failure is a learning opportunity.*

Failure is no shame! If you learn something new you make errors, and sometimes you fail. But in any case, this will make you stronger. Taking a second attempt you will avoid these errors (from the first run) and be more successful.

Remember the situation at school when you got back a test, and you realized that you made a "stupid error". You are angry about the mistake and know that you will no longer make this mistake. Thus, mistakes or "failures" are a contribution to learning and nobody should be ashamed of them - if one no longer makes this mistake!

Educational Priorities



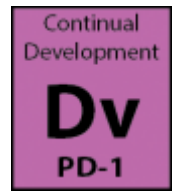
> *Make sure the Flipped Learning vision supports established educational priorities.*

This is an issue for School Education, Higher Education, or Vocational Education and Training. In Adult Education this may play a minor role because adults often want to learn something out of pure interest and without any particular need. Examples are cooking courses or courses about gardening. Nevertheless, established educational priorities should always run in the back of your mind.

Professional Development

Communication and communication culture is an issue between trainers and learners as well as between the learners. In a safe learning environment behaviour among each other, meeting at eye level and mutual trust are important.

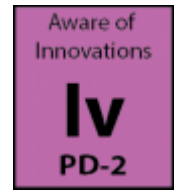
Continual Development



> *Continue to develop your Flipped Learning skills and knowledge*

It should go without saying that a trainer always tries to teach up-to-date knowledge. This does not only apply to the subject matter but also to the training methods. Therefore, it is necessary to be involved in continuous training also in the subject of "Flipped Learning".

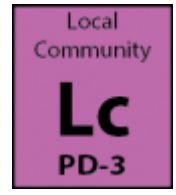
Aware of Innovations



Be aware of current innovations in Flipped Learning.

Continuous training automatically leads to an awareness of innovation and the need to deal with it. The trainer must feel responsible to keep themselves at the current level.

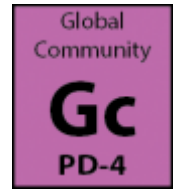
Local Community



Be active in a local community of Flipped Learning educators

Sometimes teachers and trainers feel left alone. This happens if they are not well-connected and so-called "single fighters". Trainers should practice active networking in a local community of like-minded teachers that also use Flipped Learning. The local community starts in the training organization by cooperating with other trainers.

Global Community

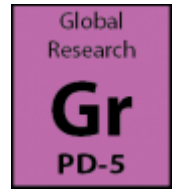


Be active in a global community of Flipped Learning educators.

Flipped Learning is global. It is a good idea to benefit from others. Trainers must connect to a community to learn and benefit from other working conditions or to benefit from intercultural learning in a global world.

It is typical for trainers in other countries to face similar problems. Networking and an international (or global) exchange helps everyone involved.

Global Research



Base practice on the most current global research.

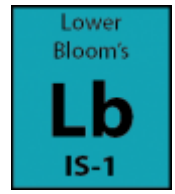
Flipped Learning is global. This applies to both the type of training and research.

International networking enables everyone to participate in global research. Every trainer should take care of these research results and draw conclusions and possible improvements for the training.

Individual Space Mastery

This group addresses the learner as a single person and the impact of the teacher/trainer on the learner. An essential focus is set on the pre-class learning and the benefits or added value for the learner as well as the skills the trainer must have to implement in this pre-class training for the learner.

Lower Blooms



> *Use lower levels of Bloom's Taxonomy (remembering, understanding)*

The Individual Space is dedicated to simple learning mechanisms such as remembering and understanding. In the individual Space essentials addressing knowledge should be conveyed. Basically, videos are used, but it is good praxis to use other appropriate means.

The better solution for videos is interactive videos. You may use special tools (like the H5P framework https://h5p.org/) to make a video interactive. Other options are textbooks, multimedia-based presentations, or slide shows.

Remark 1: Use as much interactive content or approaches to content as possible. You may make a textbook interactive by asking the learner to list the keywords in the text and briefly explain each keyword.

Remark 2: Technology is not everything!

Use only as much technique as you can easily manage. When the need arises, it is a good idea to learn something new (Learn Tech Tools, Continual Development)

Learn Tech Tools

> *Learn how to create flipped videos and other flipped media using the tools at your disposal.*

As mentioned above: Technology is not everything! But: Technology helps. It is a good idea to focus on tools that you are familiar with. Nevertheless, constant further development in working with technical means and learning new useful tools should be a matter of course.

Focus on Group Space

> *Focus on what you want to achieve in the group space when creating the individual space pre-work*

You must develop a "360° View to Learning" – this includes the future Group space as well as the learning outcomes. 360° view means having a complete overview, from left to right, and also knowing what is in your back. With Group Space, the 360° view means that you have everything at a glance, from the beginning to the end, taking into account all factors and influences.

Remark: In the first years, many trainers tend to forget something in the Individual Space that is needed in the Group Space. This explains the need for regular evaluation and amendment of the course (This is an issue also mentioned in the quality framework).

Link to Group Space

> *Ensure there is a strong link between pre-class media and what happens in the classroom.*

Everything you ask the learners to do in the Individual Space must make some sense for the Group Space. Sometimes Lower Bloom's elements are only used to create a basic knowledge – but this must be part of the learning outcomes (if it is not useful for the Group pace).

Appropriate Media

> *Strategically choose an appropriate medium for the pre-class media (text, annotated whiteboard video, screencast, plain video)*

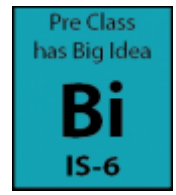
Select the best fitting method to convey the learning content. Videos are an appropriate means and easy to create (as mentioned above: Interactive videos are better). Besides videos there exist other methods and means as well. It is a good praxis to consider some interactivity in the used media. Here are some alternatives to videos:

Textbook: A good old textbook is always an option (if it is well done, contains comprehensively the learning content, and provides graphical material). Interactivity is difficult, but you can ask for annotations, tagging, categorizing of keywords, or similar activities connected with the text or text elements.

Animations: More or less, all people like animations (like animated comics or similar media). The problem is to either find or to create suitable animations.

Images: (Most) Learners can understand connections or complicated content easily with appealing pictures or graphics (this is valid definitely for visual types, but also for other learning types).

Pre-Class has Big Idea



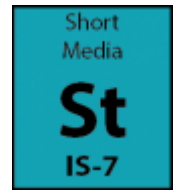
Make sure pre-class media contain the big idea.

Trainers are obliged to think hard about how a subject can best be conveyed. The Flipped Learning framework provides good ideas and practical instructions. But there should be more: a master plan, a brilliant idea: that's the big idea!

The "big idea" also must be seen in context with the answer to the question: "What is the intended end?"

This is basically in line with Simon Sinek's "Golden Circle": "Why ↔ How ↔ What" (The Golden Circle theory explains how leaders can inspire cooperation, trust, and change in a business).

Short Media



Make sure pre-class media are short.

A video should have a length of 2 up to 5 minutes. Studies from the BladEdu Project[11] (*Blended Learning Quality-Concepts Optimized for Adult Education* is a Multilateral Grundtvig Project with the EU project number 539717-LLP-1-2013-1-IT-GRUNDTVIG-GMP) show that this is valid for Adult Education in any case.

Trainers must transfer this principle to other possible media, like slide shows, textbooks etc.

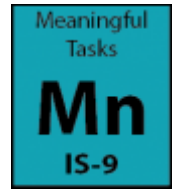
Intuitive

Make sure pre-class media are intuitive.

Learners are neither interested to start big research to find out what they have to do nor are they interested in detective work to be able to use their materials.

The material must be clear, easy to handle, easy to understand, and geared exactly to the learning outcome.

Meaningful Tasks



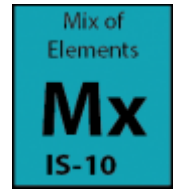
Make sure pre-class tasks are meaningful and hook student interest,

Adult learners are highly motivated to learn – they often learn something they do not really need in everyday life but from real interest. Examples are cooking courses, language courses to speak the local language during their holidays, or pottery courses.

These people do not have any understanding of useless assignments or hardly understanding tasks. This will destroy the relationship to the trainer(s) as well as the learners' motivation.

It must be clear for learners why they do this assignment. If it is not recognizable at first glance it must be explained.

Mix of Elements



Ensure that videos include an appropriate mix of text, pictures, discussions between people, short integrated films, the instructor writing, narration.

In Adult Education, the Mix of Elements (in pedagogy called "change of methods") is a general requirement.

Make videos exciting - also by using humour!

If you use other mediums than video the mix is also necessary! Three pages reading text is annoying – split it into three parts and insert some pictures to

analyses in between. At the end do a closed question-based self-evaluation. Voilà – that is a mix of methods and will lead to good learning results.

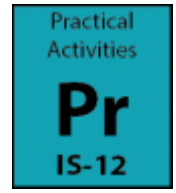
Chunk Media

> *Make sure longer pre-class media are chunked into smaller pieces.*

You know the answer to the question: How to eat an elephant? The answer is quite simple: In small pieces (Remark: We would never eat an elephant – this is only a metaphor).

As mentioned in the element "7 short media" videos (and other multimedia-based tools) must be short. A good strategy is to split them and use some "bracket" to keep them together.

Practical Activities

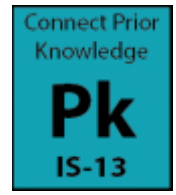


> *Include practical concrete activities that students can engage in during or after the pre-class media and tasks*

Practical activities often take place in labs. If the work is done by a learner alone this lab activity can be seen as a part of the individual space. The same is valid in a pottery course where the learner actively does some hands-on experience.

Remark: In science teaching virtual labs are currently used intensively. The practical experience in this lab helps in the understanding of contexts.

Connect Prior Knowledge



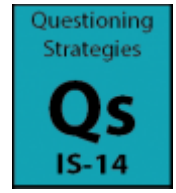
> *Introduce pre-class media with a prior knowledge question to activate student thinking.*

Adults own a lot of prior knowledge. This is valid especially for specialists' courses (for example "Wildflowers of my homeland" or "Advanced digital photography" (only two examples to demonstrate the typical courses where people have a high level of pre-knowledge).

It is necessary to find out the previous knowledge and then offer a differentiated introduction so that the participants without previous

knowledge learn everything they need, but the people with large previous knowledge do not get bored.

Questioning Strategies



Ensure there are questions to test understanding of concepts in the pre-class media.

Trainers should care for well-fitting questions about pre-class training in the frame of the course development. These questions may be used

- For self-evaluation
- As the "starter" to the Group Space learning
- As a means of formative assessment

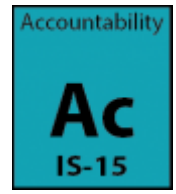
In any case, the check of well-done pre-class learning is necessary to start successful active learning.

Remark: If a learner fails in the learning check, or you find out that the pre-class has not been taken properly the trainer must take measures to bring the learner to the desired level. Under no circumstances may the missed course material be made up for by lecturing in the group space (a well-known serious mistake).

Here is another approach:

When a video is given to the learners in the individual space, they must be provided with some critical questions, concerning the video educational purpose. These can be included in an interactive video. During the interactive video, learners must answer these questions. In an interactive video, direct feedback can be provided immediately. In case of a failure, learners should repeat this part of the video and try again.

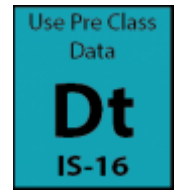
Accountability



Hold students accountable for pre-class work.

In Flipped Learning 3.0, learners are responsible for their learning, and they own the learning. It must be clear for learners that the pre-class work is absolutely necessary and indispensable.

Use Pre-Class Data



> *Use information from students' completion of pre-class tasks to inform instruction.*

Trainers must have an idea of what and how the learners study in the pre-class. This information is an impact on further training in the Group Space. Data can be collected by some kind of user tracking (either enabled by the learning platform or by the tools used by the learners). Additionally, in some tasks, the output is expected from the learners – this also might be used. Self-evaluation in the frame of the pre-class activities is also an option.

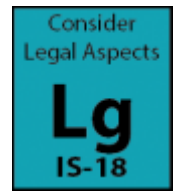
Teach to Interact

> *Teach students how to interact with the pre-class media, including taking notes and preparing questions for class.*

Active interaction with the content is a great means to enable sustained (or deeper) learning. Here are some options (exhausted list):

- Find keywords in the text, collect them and
  - Bring them in a logical order
  - Explain them with a brief statement
  - Cluster them in some way
- Write a short summary
- Take notes (recommended: Cornell system)
- Add keywords to a glossary
- Use interactive videos so that learners won't be passive viewers.
- Language learning: Find verbs with a synonym and name these

Consider Legal Aspects



> *Consider legal aspects in relation to the student's right to privacy and personal data in accordance with the laws of each country.*

Learners' privacy data must be protected. This is very important for children but just as important for adults. Learners' work must be made inaccessible for people from outside. Each publicly available work needs the authorization of the learners.

Group Space Mastery

Learning space defines a physical setting for a learning environment, a place where teaching and learning occurs. The Group Learning Space describes how a group of people learning together manages their learning.

- **The effective Learning Environment**

  An effective learning space should provide creativity, safety, motivational culture and diversity of views.

  Creativity is necessary to develop new ideas, to create content presenting these new ideas, or to create new knowledge or experience.

  Safety means that each learner of the group feels comfortable and where no one is afraid to ask questions and share inner thoughts. Safety also means an atmosphere of trust, existing among learners as well as between learners and trainers.

  Motivational culture relates to the safe space and means that learners or trainees have a deep interest to learn, that they are seriously willing to undertake some effort for their learning. This "will-to-learn" can be influenced and enlarged by a well-organized learning environment.

  The diversity of views is the base for discussion and typically reflects the different personalities of the learners. Learning is a process that benefits from the "togetherness", from the different perspectives, personalities and experiences of the learners.

- **Modern Group Space Elements**

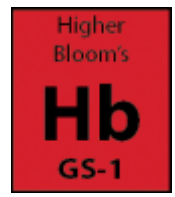
  In 2018, the European SchoolNet[12] published a report about possible future Learning Spaces in schools (Guidelines on Exploring and Adapting Learning Spaces in Schools[13]). The concept is versatile and can be adjusted to Adult Education in combination with a Flipped Learning

concept. The concept foresees the possibility for a group to investigate, create, present, interact, exchange, and develop in the frame of the learning process.

All these items were already published before at the conference in Istanbul on November 13th, 2017.

- **Group Space in effective Flipped Learning**
  The Flipped Learning Global has developed 15 Elements that are relevant to create a modern group space.

Higher Blooms



Use higher levels of Bloom's Taxonomy (applying, analyzing, evaluating, creating)

The figure demonstrates Bloom's Taxonomy. Instead of the classic pyramid, it is shaped in context to priority and importance of the various listed items.

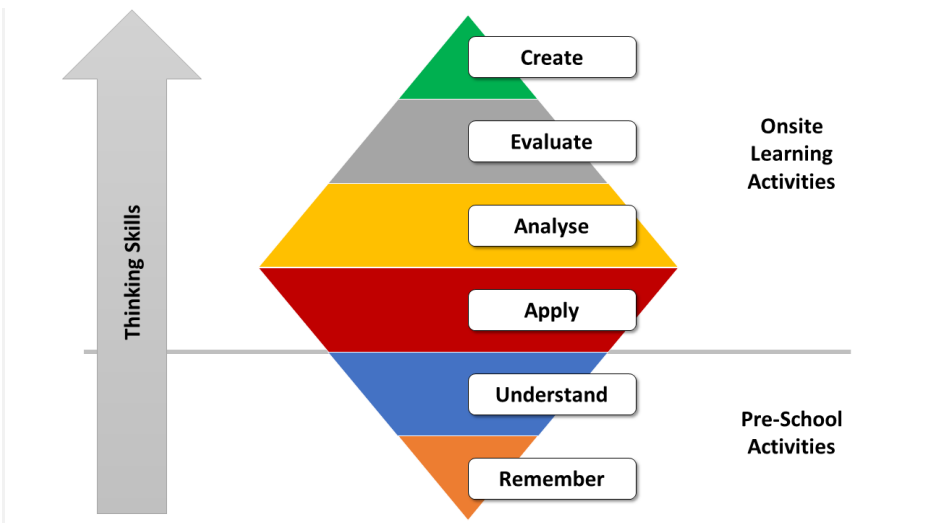
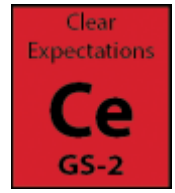


Figure 8: Bloom's Taxonomy, revised and shaped for Flipped Learning

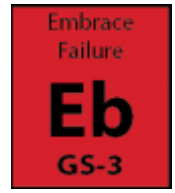
Clear Expectations



Establish clear expectations for student responsibilities during class time

Learners (and trainers) must have clear expectations. This covers mainly the learning or training outcomes. Besides this, it is necessary to clear the procedures of the training from the beginning, who has which responsibility, what must be done, how long the response time in each case is, and all the other organisational issues.

Embrace Failure

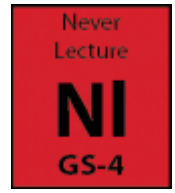


Be willing to fail at new group space activities and try again.

New group space activities (implementing active learning) always include a risk. Working on something new, one cannot follow previous experience, there are no guidelines drawn, it is sometimes problematic to estimate the time frame and it is uncertain whether it will be successful or not.

Nevertheless, "trial and error" is an approach that accompanies innovation and treading new paths. A continual self-evaluation and the will to care for necessary amendments of the newly implemented activity are Important.

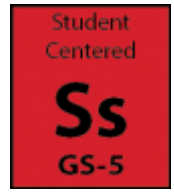
Never Lecture



Never lecture or explain the videos in classroom for those who did not do the pre-class media.

A typical lecture contradicts all ideas of active learning. Learners that are not prepared carefully for the onsite teaching (or training) have to cover their gaps differently, but certainly not by explaining these gaps during working hours in on-site training.

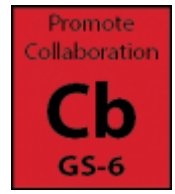
Student Centered



Set up student centered activities that encourage students to summarize the content of the pre-class media.

Student-centered (or learner-centered) learning or training sets the learners and their activities in the middle. The role of the trainer (or teacher) shifts from the Instructor to a facilitator of the learner. The trainer is responsible for the organisation of the environmental issues. Learning is undertaken by the learners (or trainees) in some way independently using various active learning approaches where active group work is included.

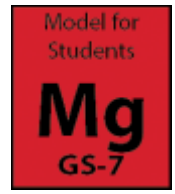
Promote Collaboration



Promote collaborative and group work.

Collaboration in the learning process means to do something together, in order to increase knowledge or to create the expected learning results. Cooperation is multi-layered and offers a whole range of opportunities that can be taken through active learning. Collaboration is the way to use the different experience, personality, ideas or approaches of the learners to come to optimized learning outcomes.

Model for Students



Model group space activities for students before starting the activity.

Modelling of group activities enable the learners to understand their assignments or their expected learning results better.

The ACAT (Analogous Comparison and Transfer) Method is an innovative way of modelling: Some content that is common to the learners is used in a comparison to model an example for the new created knowledge, experience or competence. This prevents the teacher from anticipating the learning outcomes to be worked out, but still enables the learners to get an introduction to the task.

Hint: The ACAT-Method has been published by Peter Mazohl and Harald Makl 2017 at the ICERI (international Conference for Education, Research, and Innovation in Seville[14]).

Differentiation

> *Provide differentiation within the group space (tasks, outcomes, support, and resources).*

Differentiation is a proper way to satisfy the needs and interests of all learners. Differentiation can be done by simple entry learning activities completed with some special ideas that need more going into the deep of the learning content. Learners may decide depending on their interest, available time or other criteria how much they invest into their learning.

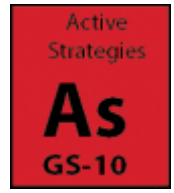
Differentiation also enables less talented learners to come to the expected learning outcomes.

Multi-Levelled

> *Include practice activities at various levels to ensure all students have materials, just above their current ability, to work with.*

Groups of learners often are on different levels. Learning in courses must be planned, structured and arranged so that all learners – even of various abilities – can reach the level of the expected learning outcomes.

Active Strategies



> *Use a variety of active learning strategies in the group space such as Project Based Learning, Inquiry, Mastery, Genius Hour, and Peer Instruction.*

Active strategies mean the use of different active learning methods in relation to the specific group structure or the expected learning outcomes. The selection of the optimized active learning method depends on the content, the learning outcomes and the group structure (here in Adult Education the age of the learners may play a certain role).

The mentioned active strategies describing this element must be seen as an incomplete list of examples. The chapter about active learning gives a better and more comprehensive overview of possible active learning methods.

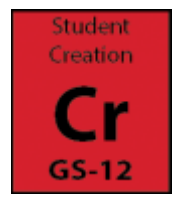
Digital & Analog

> *Use both digital and analog tools to foster students· in class work.*

Technology enhanced learning or training is a modern way of teaching, much appreciated by the learners nowadays. Nevertheless, technology is not the last word of wisdom. Analog methods, like handwriting or creating some scribble with paper and pencil are of the same importance in active learning like the creation of a digital mind map.

Hint: Analog methods can be used by groups, as a way to implement collaborative learning, as well.

Student Creation



> *Include activities that encourage students to create their own content.*

Active learning means that the learners are actively involved. In the learning or training process, the implementation of Bloom's Revised Taxonomy is currently used, challenging activities such as creating content, evaluating, and revising content created by others or simply applying what the learners have learned during the pre-school phase.

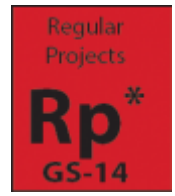
Reflection

> *Require reflection at the end of each lesson.*

Reflection is an essential tool to care for sustained learning results (that means that learning results are long-lasting in the learner's brain). Reflection can be done as an active learning process at the end of the lesson by a learner or trainee.

Reflection is necessary not only at the end of the lesson but continually during the learning process. This can be done by self-assessments as well as by reporting and summarizing to others in the group or by specific assignments in the distance learning phase (or even during the on-site teaching or training).

Regular Projects

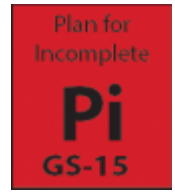


Develop at least one student project throughout the semester.

A project is defined as "an individual or collaborative enterprise that is carefully planned to achieve a particular aim". The keywords: innovative, interdisciplinary knowledge, risk to fail, defined time frame (and a dedicated budget) are typical for projects.

Projects can be realized in Flipped Learning as project-based learning assignments. This means independent work (alone or in small groups) with a certain aim (that might be defined by the learners themselves) with some result (representing the expected learning outcome).

Plan for Incomplete



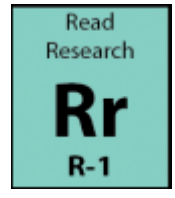
It is essential to have a plan for students who come to class having completed the pre-work but still don't fully grasp the concepts.

Learners who did not capture the quintessence of preparation cannot contribute efficiently and/ or sensibly to the activities performed in the onsite training. For those learners, a "plan B" must be foreseen to bring them on track with the expected learning outcomes of the pre-school class.

Evidence and Research

This group is of minor interest in the frame of Adult Education. Usually, Adult Education trainers are not involved in research (even if it is common that Adult Educators do their training as their "second job" and are teaching somewhere else, for example in a High School or at University).

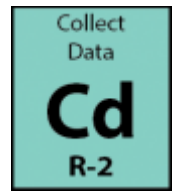
Read Research



Stay abreast of the latest research on Flipped Learning

Flipped Learning is constantly evolving. This is particularly evident in the area of technology. It is therefore imperative to keep up to date with ongoing training and research on Flipped Learning.

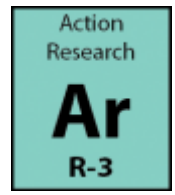
Collect Data



> *Collect data on the efficacy of your Flipped class*

This is a task trainer should always do. It helps to find amendments for your courses, enables the sometimes-necessary shift in emphasis of the course, or simply enables you to evaluate your course.

Action Research



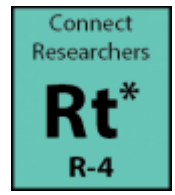
> *Conduct action research on your class and share with the global community.*

This has some relevance in Adult Education. Flipped Learning is global. In the same way, you learn from the local and global community you may supply the community with your experience.

Action research is a simple means of research: You make targeted observations geared towards a predetermined goal, summarize them and share them with the community.

It is important that in this context all data and observations must be processed anonymously to protect the privacy of the learners.

Connect Researchers



> *Build bridges between researchers and practitioners.*

This is a typical issue addressing research institutions and not really relevant in Adult Education.

K12 Focused

This group is of no interest in the frame of Adult Education. It addresses the elements relevant for School Education with a special focus on the American

School System. In Europe, K12 can be translated to "12 years of general education".

Remark: European Compulsory Education covers only 9 (or 10) school years in most countries.

The elements listed here are the KF-01 Parents Support, KF-02 Parent Engagement, KF-03 Explain well to Parents, and KF-04 Provide Devices.

Learning Spaces

This group addresses the learning environment and how this can be optimized to Flipped Learning 3.0 needs.

Flexible Spaces

Flexible Spaces
Fx
LS-1

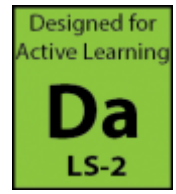
> *To the extent possible, make the physical space flexible to accommodate a variety of deeper learning strategies.*

The two pictures contrast a traditional school class with a class with dissolved group work (the photos show school classes are good examples of the different structures)

Flexible spaces meant that it must be foreseen to reorganize and restructure the physical alignment of furniture and working spaces individually best fitting to the assignment.

This includes the possibility to split groups in different rooms (or minimum different places in the room), and to have the possibility to create individual working groups.

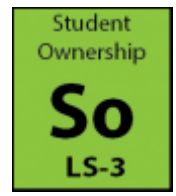
Designed for Active Learning



> *Design your physical space for an active classroom.*

The activities suggested later need specific working environments as well as a set of tools. This can be a jointly used projector for presentations, technical equipment like a laptop, scanner, or printer or a simple flip chart to create posters, or a big table to glue together a construction, a pin wall to create clusters of specific terms, or a simple free space for a role-play or other equipment and settings to fulfil the activity

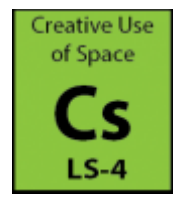
Student Ownership



> *Create active learning spaces where students own and drive their own learning.*

The two previously mentioned elements enable the learners to select the best learning environment for their task or activity. They decide on their own – they are responsible for their doing and therefore they "own their learning". This must be seen with self-responsibility (of single learners or – mostly – of a group of learners).

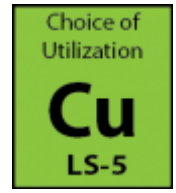
Creative Use of Space



> *Creatively use the physical space you have to maximize active learning.*

In education, available means are usually limited. This promotes the creativity of the learners and they must - in addition to solving the task - also provide a suitable environment (which represents a new dimension of learning)

Choice of Utilization



Allow learners flexibility and autonomy in how they use the physical space.

For many problems there does not exist ONE solution – the selected solution for problems depends on creativity, pre-knowledge, and other issues (like a cultural background) of the learning group.

The result of the activity normally is presented or evaluated in the frame of the Group Space. This enables all to compare their work, learn from other solutions, and expand their ability to self-organization.

Remark: Normally the self-organization level of adults has a high level and – due to their experiences in everyday life – they manage the utilization of the available means and the given physical space without long discussions and problems.

IT-Infrastructure

This group addresses the necessary infrastructure and the use it. This must be seen from two different points of view: the Trainer's view and the learner's view. While the trainer (or training organization) must make every possible effort, the learners should use their private equipment. This has the advantage that they are familiar with it and the trainer must not explain unknown tools.

For both stakeholders the sentence is valid: Keep it small and simple! This means that technology is not an end in itself but it supports the teacher in his work and the learners in their learning.

Remark: Recently the problem of multiple devices has developed. Multiple devices mean the entirety of all possible devices that can be used for learning (Desktop PC, Laptop, Notebook, Chromebook, Convertible, Tablet, and finally Smartphones). The InterMedia Erasmus+ Project[15] cares about this issue and offers a guide to use properly the various devices in the different learning environments (InterMedia Erasmus+ Project 2020-1-AT01-KA204-078005).

Privacy & Safety

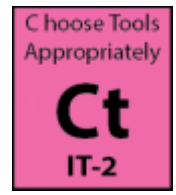
Carefully select tools that protect student privacy and safety.

It must be clear that the learner's privacy must be protected – in all educational fields.

Here are some examples where privacy must be kept:

- **Learning Platform**
  The platform must be password-restricted for enrolled users only. Search machines must be kept away so that it is not possible for them to provide content.
- **Published Material and Presentation**
  Must be kept private (Exception: All involved learners agreed to the publishing in writing)

Choose Tools Appropriately

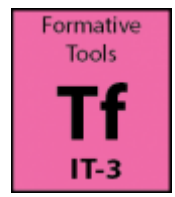


Choose technology tools which work both in your school and on students' devices.

This addresses the problem of multiple devices (as mentioned before). It is necessary to deliver the training material (for both the Individual Space as for the Group Space) in a way that covers the average amount of the possibilities of all devices.

Remarks: That might be browser-based materials based on HTML 5[16] right now. The mixture of the "Microsoft World" and other technical environments may lead to problems. Basically, it is possible to read a Word document with an Android smartphone, but that needs some special training and maybe an app.

Formative Tools

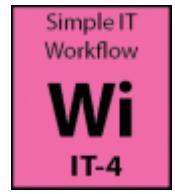


Choose tools which have the capability for formative and diagnostic assessment.

All assignments may be used for assessment. Formative assessment is the continuously done evaluation of the learner's progress. If possible, use tools that support this type of evaluation.

Example: If you use an interactive video you get two pieces of information: Did the learner watch the complete video and how did he solve the inbuilt assignments.

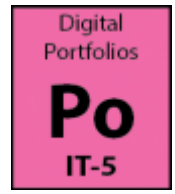
Simple IT-Workflow



Plan simple workflows for video creation that work within your existing IT infrastructure.

As mentioned before: The work with ICT should be kept small and simple. It does not make sense to have a great effort to produce a simple video.

Digital Portfolios



Use a digital portfolio for both teachers and students.

Digital portfolios are great stuff in longer-lasting courses and training as a school year. In Adult Education courses often end after 8 weeks (with one weekly Group Space activity). This makes the creation of digital portfolios challenging. Nevertheless, the use of a portfolio summarizing the done work should be done in a suitable way.

Remark: A digital portfolio for a short course may be a kind of digital diary supported with some videos taken during the training.

Students Feedback

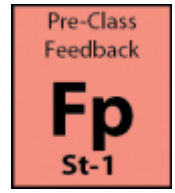
To give feedback means to offer a helpful response to someone's work or idea. Three types of feedback are well known: positive, constructive, and negative. All three types may be used selectively in Flipped Learning.

(Most) Adult learners have attended schools providing traditional teaching (lectures combined with homework). Their feedbacks were marks, periodically given during the school year. Flipped Learning is something

completely new for them. Instead of test formative evaluation is used (something they know from their professional life) and some learned to get feedback in so-called staff meetings, organised between supervisor/chief and employee.

A new kind of feedback is the so-called collegial feedback, which is always positive feedback.

Pre-Class Feedback



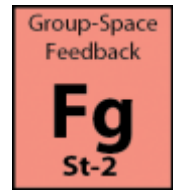
Get feedback from your students on pre-class media.

This must be understood as a two-levelled feedback.

[1] One level addresses the learning success: Did all learners understand the content and message of the pre-class learning? Were they able not only to understand but will they also remember? Feedback can be obtained by asking a few specific and well-considered questions at the beginning of group space learning. Attention! This is by no means intended to be a repetition or a summary of the pre-class learning material!

[2] Collect feedback also about the learning material from your students. This can be used for amendments (for example more differentiation options, better explanations how to run the pre-class media, missing content, unclear wording in explanations, and other related issues).

Group-Space Feedback

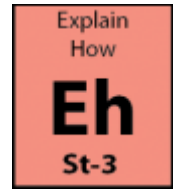


Get feedback from your students on group-space activities.

This is also to be seen differentiated. The more important feedback is about the learning success and the reaching of learning outcomes.

Nevertheless, the quality of the activities, the information about the acceptance and appreciation of specific activities as well as the handling and the used timeframe is useful for trainers.

Explain How

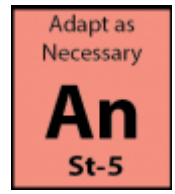


Explain to students how they can become effective Flipped Learners.

This is a crucial element in Adult Education. Flipped Learning is for adult learners like "discovering a new continent". However, some facts make it easier for them to change their learning style: they are used to taking on personal responsibility, they are more mature than young learners, and they are also highly motivated.

Nevertheless, the approach to Flipped Learning 3.0 is new land for most of them, and it takes some time to bring Flipped Learning 3.0 "on track".

Adapt as Necessary



Constantly monitor students' attitudes and achievement and adapt as necessary.

Adult learning groups can be extremely different. This addresses basic education, lifestyle, experience horizon, professional activity, and other experiences and influences. A well-structured course that worked well with the last group may become a disaster in another group. Therefore, it is necessary to collect feedback (in all levels as mentioned before) and to use corrective measures and adapt them to the respective group structure. This concerns less the "what" than the "how".

Regular Feedback

Plan regular times during a semester/year to get feedback from students.

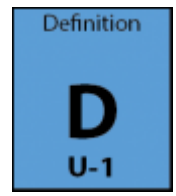
This is an easy issue in School Education (and comparable learning environments and training situations) but it is difficult in short-termed courses that last only for 5 weeks.

Nevertheless – the planning of well-structured and time-based feedback is a must.

Understanding Flipped Learning

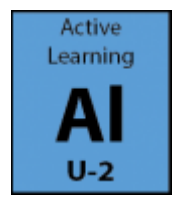
Know and be able to explain the definition of Flipped Learning

Definition



Flipped Learning is a framework that enables educators to reach every student. The Flipped Approach inverts the traditional classroom model by introducing course concepts before class, allowing educators to use class time to guide each student through active, practical, innovative applications of the course concepts.

Active Learning



Understand that Flipped Learning is a framework that supports all other active learning strategies

There exists an interesting experiment everybody may repeat and evaluate the results: the so-called "Corkscrew experiment" (Link: https://www.fade-in.eu/web/sustained-learning-the-corkscrew-experiment/). It focuses on the quick learning of five foreign language terms meaning a corkscrew. The words are only made visible for 30 seconds and people must memorize them.

One hour later the people are asked to write down the five words correctly. The result is not astounding: Almost no one remembers more than one word, the majority is not able to write down even one word correctly.

The corkscrew experiment is a prime example of passive learning.

Active learning supports effective learning and proves higher learning outcomes. Besides this – it makes it more fun, is mostly used as group learning or cooperative learning, and includes a social component.

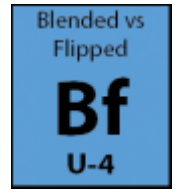
This guide offers a list of well-defined and described active learning tools that can be used in Adult Education. The list is not complete – there are certainly other methods that can be used.

Instructional Design

Understand the importance of instructional d1esign when planning for Flipped Learning.

Instructional design is the base to develop the Individual Space and the Group Space. It draws on the idea of Benjamin Bloom, the creator of a pioneering taxonomy. The Individual Space should use the two lower Taxonomy elements (remember and understand), while the Group space should focus on the higher elements (apply, analyse, evaluate, and create).

Blended Learning vs Flipped Learning



Understand the distinction between Flipped Learning and Blended Learning.

Blended Learning combines two different learning spaces: The onsite teaching/learning space and the distance learning space (Hint: Often this learning space is called online learning – but this is not correct because it restricts the learning to the Internet – and this can be done during onsite teaching as well). The blend is done by mixing face-to-face learning or training (onsite) with the learning at another place – wherever this may be.

Blended Learning mainly describes two different learning spaces and a delivery method.

Flipped Learning 3.0 is a framework offering a comprehensive way of modern, technology-enhanced, and learner-centered teaching and training. All this is not part of Blended learning: There is no defined pedagogical approach, no guidelines for the different learning spaces, and so on.

Remark: Blended Learning can be seen as a skin filled with Flipped Learning in the implementation - the reverse of this idea is not possible.

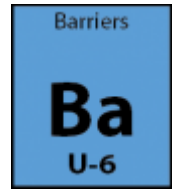
Lecturer to Facilitator

Understand how the role of an educator moves from lecturer to facilitator.

In Flipped Learning 3.0, lectures do not exist. They are excluded because they are passive teaching and training methods and Flipped Learning 3.0 promotes learner-centered (active) learning. But this also requires a change in the teacher's role – the teacher shifts from "spreading of knowledge" to a facilitator of the learning (which is owned by the learners as they are self-responsible for their learning).

Sometimes the question appears: Is it possible to do lectures in some way? The answer is yes, but you must be designed for active learning. You will find several examples for this in the "activity list" (see chapter "Active Lecturing").

Barriers



Understand priorities and barriers to progress.

There are some priorities that should be considered from the moment where Flipped Learning 3.0 is dedicated to the new method in teaching and training.

[1] Education and training of the trainers
It is not possible to change the learning method from one day to the other and to get the necessary background information about Flipped Learning 3.0 from some blogs on the internet. This guide gives good first instruction and enables one to understand Flipped Learning 3.0, but there must be more.
Our recommendation is to take the course for the Flipped Learning 3.0 Level I master that is provided by the Flipped Learning Global (link: https://learn.flglobal.org/).

[2] Another crucial step is to restructure courses completely (the best solution: take the content and create the course completely new) and to pay special attention to the individual and group space as well as active learning.

Barriers can be found in the missing education of the trainers, the time you need to switch to Flipped Learning, the missing technology, and a lot of other issues.

Planning for Flipped Learning

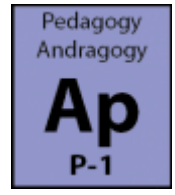
Planning for Flipped Learning starts with the use of a planning tool. You may use some digital tool for planning but writing down your notes by hand is recommended. It is simply necessary to have something written to review and revise the concept after the course is finished.

After selecting the course, you may start to think about the resources, their context in the class, and their use in the course (technology-based or without technology).

An essential step is to define the "intended end of the learning process" to start an excellent backward design. It requires a well-done decision on what content may be used in the Individual Space and what will be done in the Group Space (based on Bloom's taxonomy). You must choose appropriate activities for each learning space. When you have the complete plan, you may start with content creation and other tasks to have all course implementation material.

Here are the related elements in context with the planning.

Pedagogy & Andragogy



Understand the principles of andragogy and pedagogy in designing courses and lessons.

Andragogy simply expressed means the understanding of the science and practice of adult learning. This contrasts with pedagogy which focuses basically on children's learning (even if pedagogical knowledge is useful to teach all ages). Nevertheless, there are overlapping areas.

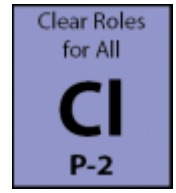
One of the major differences is the higher level of maturity of adult learners. This is visible in all educational fields with adults (Higher Education or Vocational Education and Training).

Typical elements of andragogy are (in brackets the reason is mentioned)

- Self-directed learning (existing self-responsibility)
- Self-driven and independent personality (maturity)
- Increased experience
- Increasing readiness to learn (maturity or special needs)
- The shift from an application on subject to problem-oriented
- Internal Motivation to learn

You can use all these mentioned items to motivate learners and the planning of the learning process.

Clear Roles for All



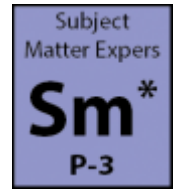
> *When possible, define clear roles for everyone involved in creating Flipped Learning courses (subject specialist, instructional designer, technologist)*

Many people (in different roles) build the group to create the learning course in bigger organisations. The different roles may be (incomplete selection)

- Administration
- Course designer
- Content creator
- Multimedia specialist
- Technician (responsible for the learning platform and technical support)
- Trainer

In smaller organisations fewer people care for the course planning. Nevertheless, in a smaller organisation, people must cover all the necessary roles as well (and bring in the necessary expertise).

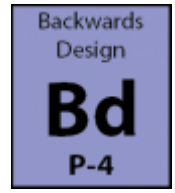
Subject Matter Experts (valid in Higher Education)



> *Ensure courses are designed with input from subject-matter experts and instructional designers.*

This element is not directly valid for Adult Education and is listed for the sake of completeness).

Backwards Design



Use Backwards Design to plan effective flipped lessons and units.

The term "Backward Design" describes a Top-Down planning process. This type of planning is also typical for software development:

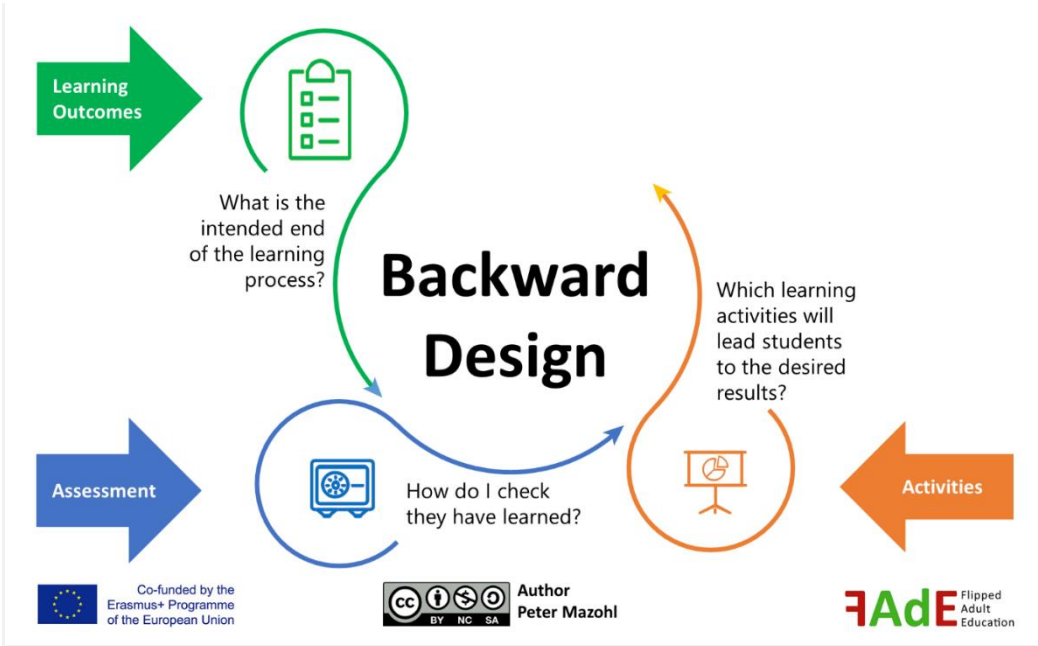
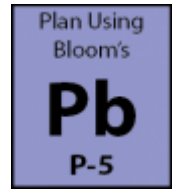


Figure 9: Approach to Backward Design

Plan Using Bloom's



Use Bloom's taxonomy to plan: lower Bloom's levels go to the Individual Space, and higher levels to the group space.

To focus on Bloom's is an essential task in the planning. You may use our verb table to decide which activity is assigned to lower and higher Bloom's.

Here are examples of keywords for Lower and Higher Bloom's.

Lower Blooms

Knowledge: Define, Identify, Describe, Recognize, Tell, Explain, Recite, Memorize, Illustrate, Quote

Understand: Summarize, Interpret, Classify, Compare, Contrast, Infer, Relate, Extract, Paraphrase, Cite

Higher Blooms

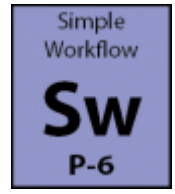
Apply: Solve, Change, Relate, Complete, Use, Sketch, Teach, Articulate, Discover, Transfer

Analyse: Contrast, Connect, Relate, Devise, Correlate, Illustrate, Distil, Conclude, Categorize, Take Apart

Evaluate: Criticize, Reframe, Judge, Defend, Appraise, Value, Prioritize, Plan, Grade, Reframe

Create: Design, Modify, Role-Play, Develop, Rewrite, Pivot, Modify, Collaborate, Invent, Write

Simple Workflow



Use a simple workflow template.

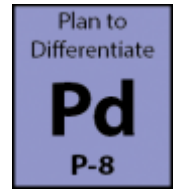
The term "simple workflow" applies to all tasks in the course. In the beginning, it is a good idea to care about the KISS principle ("Keep It Simple and Stupid") in context with any workflow: Keep It Small and Simple.

Link Pre- to Group Space

Ensure that pre-class media link directly to learning outcomes and group space activities.

A huge mistake is to start from the activities and plan them first. The correct approach is to classify and relate the topics according to Bloom's taxonomy. This procedure ensures that the pre-learning phase (from the Individual Space) is directly related to the Group Learning Space. After fixing this relation, you may select the appropriate activities.

Plan to Differentiate



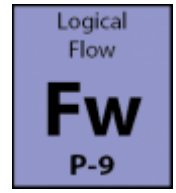
Plan to differentiate in both the group and the Individual Spaces

Differentiation is an essential step in planning. Differentiation makes it possible to support the learner in a variety of ways.

Here are some hints of what you may do:

- Always create a transcript for your video. Some people do not like to hear only; they want to read the spoken text.
- Create an alternative to complex content, for example, a short, written summary
- Create additional content going into the depth as a voluntary assignment

Logical Flow



Present course content in a logical and consistent fashion.

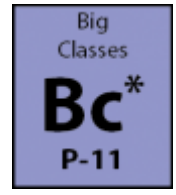
The structure of the course is a cornerstone of well-planned and structured courses. In most cases, a linear structure serves well. Learners like clear and stringent designs and do not want to get lost in a complex net of activities.

Label Everything

Label all artefacts as pre-class, in-class, and post-class.

A good course structure helps learners. Additional help is information about each individual part of the course. Learners want to know what it is for and what to do with it at the start of each part. Besides, the labelling of the individual components and areas enables you to keep an overview.

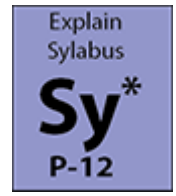
Big Classes (valid in Higher Education)



Adapt flipped instructional techniques to make them effective with large groups.

Big classes is an issue for Higher Education where the number of learners in courses far exceeds the average number of learners in Adult Education courses.

Explain Sylabus (valid in Higher Education)



> *Explain Flipped Learning in your syllabus, including the benefits, and a short summary of the research supporting Flipped Learning.*

This element is another specific issue for Higher Education

Assessment

The term assessment refers to the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students.

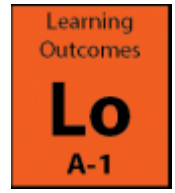
In Flipped Learning, formative assessments are a cornerstone to evaluating the learning process.

[1] **Formative assessments**
Formative assessments are in-process evaluations of student learning that are typically administered multiple times during a unit, course, or educational program. The overall purpose of formative assessment is to offer educators in-process feedback about what students are learning or not learning in order that instructional approaches, teaching materials, and academic support are often modified accordingly.

[2] **Summative assessments**
The intention of summative assessments is to evaluate student learning at the conclusion of a selected instructional period — typically at the top of a unit, course, semester, program, or academic year. Summative assessments are typically scored and graded tests, assignments, or projects that are applied to determine whether

students have learned what they were expected to find out during the defined instructional period.

Learning Outcomes

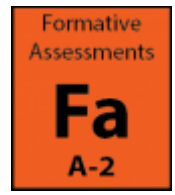


Align all assessments with learning outcomes

A well-done Backward Design enables to determine the expected learning outcomes. Appropriate designed (and defined) activities will use the typical terms connected to Bloom's taxonomy. All these issues are now used to create the assessments.

Here is an example: An activity is defined with "the learner can categorize the given examples to specific groups". So, you can estimate that learners are able to do this categorization now. You may create an assessment where the learners must assign different elements to the appropriate group. If learners fail they have to repeat or review the assignment, otherwise, they can start with their next assignment.

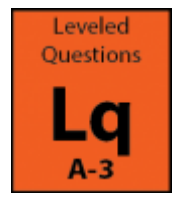
Formative Assessments



Use frequently formative assessments

Formative assessments are an important and useful tool to check the learning progress during the learning process. You may do this in the Individual space using multimedia-based and interactive assessments or ask specific questions at the beginning of the Group Space lesson. You also may use a specific assignment, like a role-play, to assess the learning progress. There are actually no limits to integrating meaningful assessments into the course in a creative way. Which paths are selected as assessment depends on the learning topic, the amount of time, and the composition of the learning group?

Levelled Questions



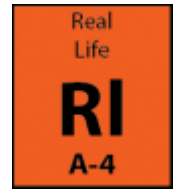
Select different types of questions according to Bloom's Taxonomy

Especially in formative assessment you may select levelled questions for assessment. You can mix a knowledge-based question with an

activity where learners must apply their new knowledge to evaluate specific contexts using the gained knowledge.

Assessment and question creating is a creative and sophisticated work to come to appropriate results with a minimum high outlay and effort.

Real Life



> *Provide assessments that involve the creation of a real-life product or the use of real-life skills.*

In Adult Education learning and training content often has roots in real-life situations or environments. The inclusion of situations of daily life in the course content should be done to the same extent as these situations are used to create assessments.

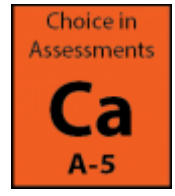
Here is an example:

Adults learn in a language course how to order food in a restaurant.

As an assessment, a role-play is created where the learners take over the role of guest and waiters. They get the assignment to order food following a certain scheme. The trainer follows the role-play and gives points for well-done actions and orders.

Another option are case studies. This is a powerful learning tool is ideal for smaller groups of people for solving real-world organisational problems. Case studies often are open in their results but deepen the understanding for solving problems.

Choice in Assessments



> *Design assessments where students have a choice in how they will present their mastery of the concepts.*

Small formative assessments will be unique for all learners.

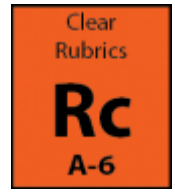
More important assessments may be done by selecting an individual task or assignment.

Example:

In a Language course about tourism three different assignments are foreseen:

1. Two learners may create a role-play where one learner is a tourist and the other is a fruit and drink seller at the beach. They have to present a dialogue running for a minimum of three minutes.
2. The learner must create a menu of a typical restaurant in the language-related restaurant. Each plate needs a short description in the learned language.
3. A multiple-choice test with 40 questions about national food, order of food, selling refreshments at the beach must be carried out with 70 % of correct answers.

Clear Rubrics



Provide assessments with clear rubrics.

Assessments must be defined with clear rules, unique and easy-to-understand descriptions, and a clear description about the passing of the assessment.

The course may use clear rubrics or other rules for the evaluation of the assessment.

Example:

To pass the course minimum of 50 % of the questions must be answered correctly, to get the certificate of successful completion of the course a minimum of 85 % of the assessment points must be reached.

Micro Conversations

Use a large portion of teacher class time to engage in structured micro-conversations with students.

Micro conversations are short interactions with learners (in the Group space). The trainer asks short questions and starts a conversation where the learners can ask back (a situation almost impossible in the Individual space).

These micro conversations must be

- Well prepared
  Plan exactly what you will ask the students, especially in context with assignments of the Individual Space.
- Open-Ended
  You never know what the learners will answer. It is the task of the trainer to guide the conversation and keep it on the expected path and level. This "guiding of learners" needs some experience of the trainer and a good relationship with the learners.
- In a Safe Environment
  Learners must be sure that they act In a closed group. It must be impossible for learners to blame in public – everything must be held in this safe environment in mutual trust.
- In an environment where also the learners can ask questions.

4. Active Learning

Theresa is a nine-year-old child celebrating her birthday. In one of the gift parcels, she finds a book about nature: "Nature around you". She is enthusiastic about the many illustrations and the pictures of many animals that live in the forests and meadows in her home's vicinity, but that she had never had the opportunity to see them in real. Her all-time favourite is the Lynx. She would like to know more about it.

Image 6: The Lynx: A new learning experience of a young schoolgirl!

Her family owns a smart TV. She asks her dad to find videos about lynxes. Watching her dad finding videos on YouTube, she takes over the remote control and searches for more videos. Comparing the videos, she finds out a lot about the Lynx: how it lives, how it raises the young, which food it prefers, and much more. She shares her knowledge with a schoolmate, and both decide to go to the zoo to watch a lynx there.

What is described here is typical for active learning: Learning is driven by interest, Theresa owns her learning and is responsible for it, she is actively involved in the learning process, shares her new knowledge with others, and finishes the learning experience in a collaborative way. The example also shows a typical learning approach of kids. The role of Theresa's dad is also interesting: He is the facilitator of the learning, supporting his daughter in her learning development.

The situation in a traditional school is different: One teacher lecturing, and the pupils listen and keep down some notes. We call this passive learning.

Is active learning the "better way to learn"?

The answer is yes (in most cases). Active learning is "deep learning" with a higher result of learning outcomes. It is more intensive learning – and it is (in most cases) – fun (and emotions in general play a significant (positive) role in learning).

Active learning is a generic term that describes a specific pedagogical approach. This approach is in contrast to content-based learning.

Is passive learning bad?

There are no "good" or "bad" approaches to learning. Passive learning is a method where learners receive information and try to memorize it, or rote learn it. In our example this would be the information taken from the book: The lynx is a type of wild cat, lives in European forests, has characteristic ears, has a weight between 18 and 30 kg, lives solitary. Female lynxes give birth to one up to four kittens each year.

We can call this lexical knowledge. On the one hand, lexical knowledge is still essential (as basic knowledge). On the other hand, it can be retrieved easily today by searching the internet.

Image 7: Learning in a group – solving a problem (Problem Based Learning PBL, a typical active learning method)

Advantages of active learning

Active learning involves students doing things and thinking about the things they are doing. This is closely related to watching, listening, discussing, taking notes, reflecting, and other activities. Active learning can create personal connections to the material for learners (in context with higher motivation to learn), allows learners to practice essential skills (collaboration, self-esteem, self-paced learning, sense of community with peers and trainers), and finally leads to better learning outcomes.

This simplified synopsis of active learning should clarify why active learning plays such a significant role in Flipped Learning 3.0. In this chapter, several

proven Active Learning methods are described to help trainers to find an appropriate and well-fitting activity in the Group Space.

Project-Based Learning

Project-Based Learning (PBL) may be a pedagogical method, during which students learn by actively engaging in real-world and personally meaningful projects. For some others, it is just a method of structuring curriculum around projects. Nevertheless, It must be emphasized that projects are focused on the process of learning itself. This is done by offering authentic, inquiry-based activities for learners to access content, share ideas, and revisit their own thinking.

Differences between a Project & Project Based Learning

Projects	Project-Based Learning
The audience is among the trainees	The audience is in the real world
It has predetermined concrete planning	It is flexible and open-ended
It is organised on directions and criteria	It is organised on purpose and inquiry
Trainees are just… trainees.	Trainees undertake an authentic role
The final recipient is the trainer	They are displayed in the real world
They are based on models and task assignment	They are based on problems & opportunities

Types of Project-Based Learning

[1] Challenge-Based Learning/Problem-Based Learning

This type of learning is an engaging multidisciplinary approach to teaching and learning. It encourages trainees to make good use of the technology they daily use to solve real-world problems.

It is often considered a similar version of Problem-Based Learning. In both cases, trainees have to find solutions to a problem set, while they structure their assignments in a project.

Figure 10: Source: (https://digitalpromise.org/initiative/cbl/)

Place-Based Education

This type of education engages trainees in issues of the local heritage, cultures, landscapes, opportunities, and experiences. All these are the basis for the study of language arts, mathematics, social studies, science, and other subjects across the curriculum. It also promotes participation in service projects for the local community as a means of learning. It is obvious that someone could learn through a Place-Based Education and not do projects at all. Behind this, is the idea of performing authentic work in nearby communities, that leads to Project-Based Learning

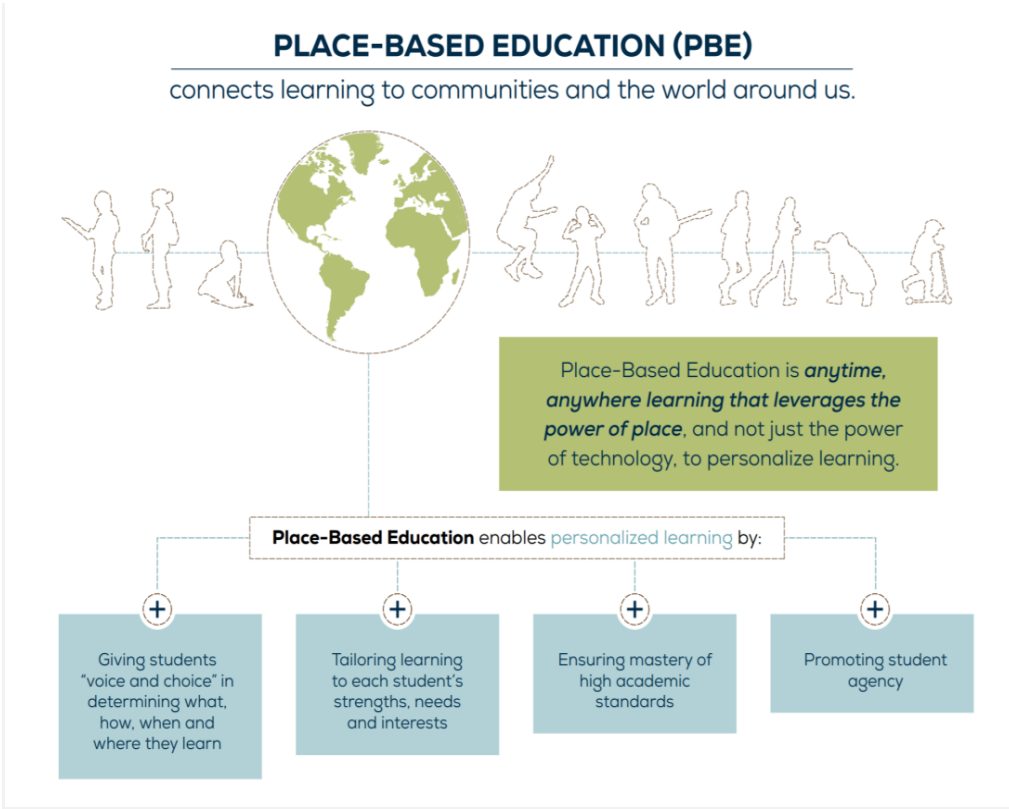


Figure 11: Source: https://remakelearning.org/blog/2020/01/28/you-are-here-the-power-of-place-in-learning/ (CC BY-NC-SA 4.0)

Activity-Based Learning

Activity-Based Learning takes a kind of constructivist approach, the idea being students construct their own meaning through hands-on activities, often with manipulatives and opportunities to experiment.

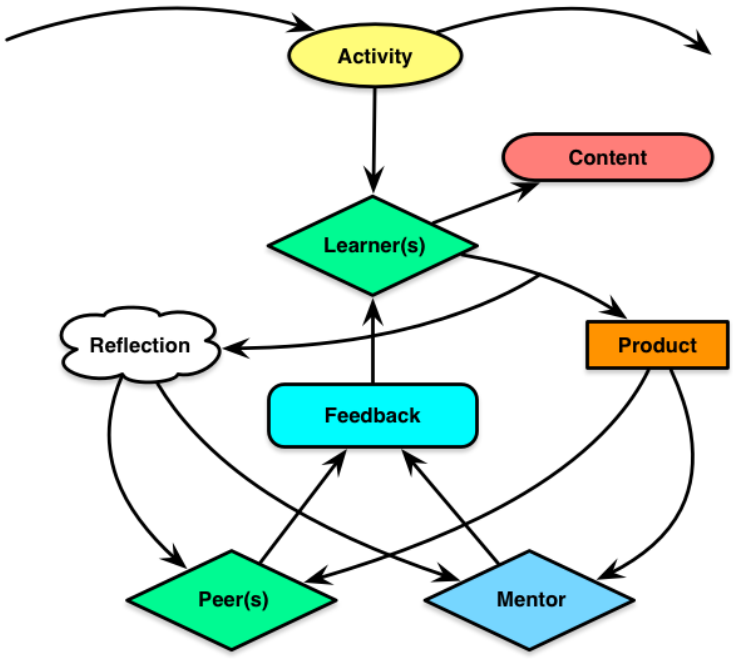


Figure 12: Source: https://blog.learnlets.com/2016/03/the-activity-curricula-experience/ (CC BY-NC-SA)

Planning phases

There are several phases within PBL. Each phase must be completed in a timely manner. Thorough and careful planning is essential to the flow of the project and the success of the student.

Trainees, having designed the project phases from scratch, activate their creative abilities, no matter how they work, individually, in pairs, or in groups. It is almost guaranteed that the activity will be interdisciplinary, after implementing a project-based learning strategy.

The role of the trainer is:

- To coach the trainees
- To guide them to use a variety of resources
- To employ a motivating strategy and
- To uncover all the dimensions of the content.

Planning a project-based learning, we can break it down in the following steps

1. The trainer-coach sets the stage for trainees with real-life samples of the projects they will work with.
2. Trainees take on the role of project designers. They can create a forum for display.
3. Trainees collect and discuss all the needed background information.
4. The trainer-coach and trainees negotiate the project's evaluation criteria.
5. Trainees organize the collected materials that are necessary for the project.
6. Trainees create their projects.
7. Trainees prepare the presentation of their projects.
8. Trainees present their projects.
9. Trainees reflect on the process followed and using the criteria decided in step 4 evaluate the project.

Advantages of the Project-based Learning

Goal setting helps trainees to learn how to manage their own time. It is important for the trainer to communicate regularly with trainees. In this way, he/she ensures that trainees are on track and fully develop their ideas and skills. These skills are critical for future success. Trainees with PBL learn liability through the daily goal setting, as well as through expectations of their peers. When they work collaboratively, there is an expectation that each person will equally contribute to the project.

The group dynamic creates an interdependent team where each trainee works on his/her own part. As a result, those students that do not demonstrate accountability, a natural consequence exists—others may no longer want to be paired with trainees who do not do their fair share. Therefore, peer pressure contributes to the accomplishment of ongoing group tasks

throughout the learning process and the culmination of a successful final product.

Trainees become more self-conscious because they must complete their project in the set time. They can be incredibly resourceful when time matters. Accountability to peers often has greater consequences. It provides more motivation for trainees than if they were only responsible to the trainer. They do not want to let their friends down.

References and further reading

Researchers like Barron[17] have shown that project-based Learning (PBL) can enhance students' motivation and foster higher order thinking skills, as well as enable students to gain deeper understanding and valuable content knowledge. Project-based learning offers all students the opportunity to investigate authentic topics of interest to them, thus engaging them in the learning process in ways that traditional instruction does not.

There is not only one accepted definition of project-based learning. However, the Buck Institute for Education (BIE) defines standards-focused project-based learning as a systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks.

According to Katz & Chard (2000:2), the term project is an in-depth study of a particular topic, usually undertaken by groups of learners. A project is an investigation where learners, either by themselves or with the help of their teacher, seek answers to questions formulated as the investigation proceeds.

Project based learning can be learner-driven, where pupils learn what they need to learn when they perceive they need to learn it, allowing for learning-to- learn skills to become habitual. It can also be customized learning, tailored to pupils' interests, needs, and/or weaknesses (Anagnostaki, 2007). Project-based learning finally can be collaborative learning, where individual learning can be shifted away from the individual to group work (Newell, 2003:8-9).

Taking up the role of the guide, the teacher can support students to attain their goals and control frustration or anxiety. In this learner-centered orientation, the role of the teacher, as a source of knowledge and direction, alters and takes the characteristics of a consultant and guide for learning. (Richards & Rodgers, 1986:25).

Peer Instructions

According to the research data cited by Kathleen P. L. Fulton (Time for Learning: Top 10 Reasons Why Flipping the Classroom Can Change Education 1st Edition), although their data show improvement in the percentage of students reaching proficiency through flipped teaching compared to traditional teaching, results were even more dramatic when teachers combined flipping with peer instruction.

Peer Instruction, a modern aspect in the education field and a proven active learning approach, is a structured teaching practice that requires students to examine their own and as well their classmates' reactions to and analysis of the learning content.

Description

There exist several approaches to peer instruction. One of the most popular is based on a voting system. Peer instruction avoids lectures of the teacher (following the global element NL Never Lecture of the Group Space).

It is a simple but effective way to engage learners. The instructor, instead of simply lecturing and then having a discussion, periodically asks students to consider a carefully designed "concept" question, related to known areas of common confusion or misunderstanding. The next step is that students take a few minutes to formulate their answers to these questions and then work in small groups to arrive at a consensus. The main advantage of this method is that group discussion often results in students explaining the concepts and providing clarifications to their teammates who may have answered it incorrectly at first. The next step is that the instructor facilitates a full class

discussion, providing additional modelling of concepts and further clarification as needed.

Peer instruction concept questions

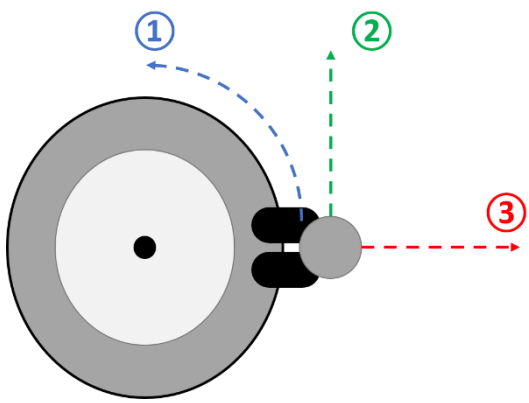
Good peer instruction questions should (selection of issues)

- Provide Clarity: For the learners, the question must be bear without the necessity to figure out what is asking.
- Be in context with the learning content
- Be inline with learning outcomes
- Have a well-fitting level of difficulty: Is the question too easy (and therefore annoying the learners) or is it too difficult, so students will fail in finding answers?
- Stimulate a thoughtful discussion

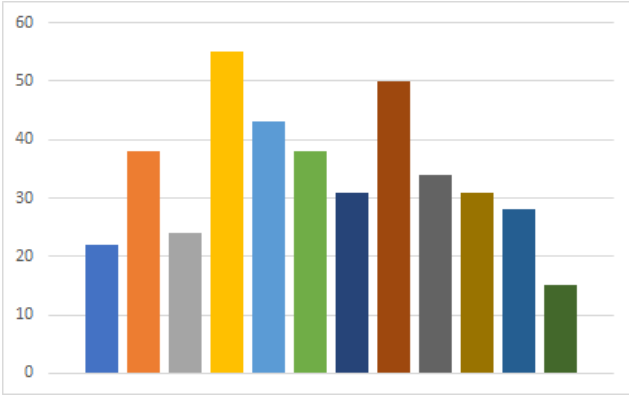
Peer instruction concept question examples

Here are two examples of questions:

1. A kid's roundabout moves with three children. A child opens the hands and lets go. What will happen?
   There are three options displayed in the graphic. Which of the possibilities will occur? The three options are marked with ①, ②, or ③.



2. There is the graphical presentation of statistic values as a histogram. Which value will be larger: The mean or the Median?



a. Mean

b. Median

c. It's not possible to tell without knowing the exact numbers

Background Considerations

To ask a learner to create a carefully designed "concept" question engages the learner and forces him to formulate a question from the range of knowledge he already knows. The other learners are involved in the development of answers in cooperation with their peers and the creating of relevant answers. During these phases, the learners participate in a learning process that is sustainable. This is one of the reasons for better learning outcomes.

Peer Instruction Diagram

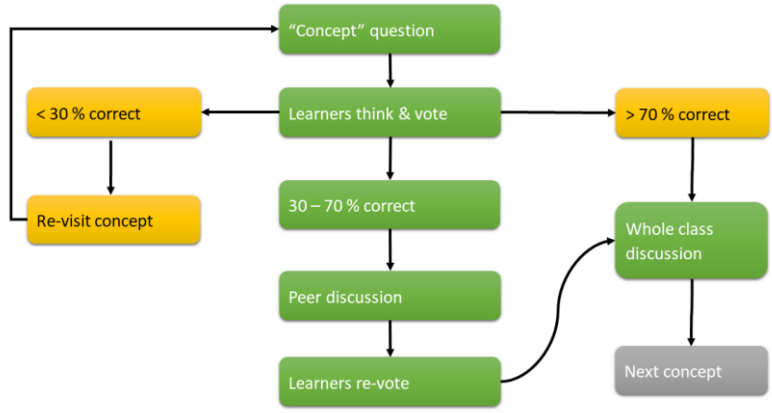


Figure 13: Developed based on "Integration of Peer Instruction in Online Social Network to Enhance Higher Order Thinking Skills", Norasykin Mohd Zaid, Fatimah Sarah Yaacob, Nurbiha A Shukor, Mohd Nihra Haruzuan Mohd Said, Aede Hatib Musta'amal, Desi Rahmatina (2018)
Link: https://online-journals.org/index.php/i-jim/article/view/9672

Summary and Conclusion

Peer Instruction is a typical active learning method belonging to the group space. From the viewpoint of Bloom's Taxonomy, it belongs to "Applying and Understanding". Students are asked to use information in new situations (this is the given question), and to solve the topic by finding relevant answers or interpreting content. They are asked to compare, examine and find relations (using their pre-knowledge) to give the relevant answers.

A final group discussion cares for the transfer of created content or knowledge to all learners.

Debating

What is debating and why debate?

Debate can be defined as "a way of arriving at a reasoned judgment on a proposition" and is usually performed with two or more people having or taking on different perspectives on a specific topic[18]. It is widely recognised that debating is an important tool to develop competences such as critical thinking, perspective-taking, verbal skills and listening. It is particularly helpful in providing experience in developing a convincing argument. But debating is also much more, creating the foundation of modern democracy and political decision-making, from state level and international affairs to local councils in tiny villages. Although occupations vary in the demand, they put on debating skills, it can be argued that debating is a key component to active citizenship.

Debating with adult learners

Debating in adult training will often take a different format than among children, adolescents, or university students. Adults will normally have different interests in debating, such as learning more about a topic, whereas younger debaters often practice the rhetoric aspects just as much as the content itself. Therefore, it is essential to put special attention to the topic which is being debated in the context of adult learning. The best is if it is a topic that the adult learners can readily transfer and use in their everyday professional development. A good way to create the right conditions is to make the learners choose the topic(s) themselves.

Debating and Flipped Learning

Debating is often used in the Flipped Learning framework, as implementing a debate in the classroom challenges each student to be active in discussing the chosen topic in a way that facilitates deeper learning. In a debate, the learner him/herself tests out their understanding by putting forward arguments and is thus developing in the higher taxonomy elements in Bloom's taxonomy: apply, analyse, evaluate and create.

Figure 14: Common questions in the frame of debating in a group. The colours indicate the Bloom's taxonomy related context (Grey = apply, yellow = analyse, blue = evaluate and green = create).

Debating is not only an activity for the group space, because an unprepared debate will most likely be shallow and lead to accomplishing fewer learning goals. To have a good debate the learners must first remember and understand the topic, prepare basic arguments and do exercises such as asking themselves which arguments the other side might put forward, refute their assumptions and do the same with their own arguments. In the Flipped Learning framework, these tasks would typically be undertaken in the individual learning space (at home). The learner could for example watch videos or do research in the selected topic, do an informal survey where they ask people in their surroundings what they think about the topic, watch political debates etc. etc. It is common to prepare a set of notes with main arguments for the debate itself.

Classroom discussion: evaluate the debate to increase learning

The debating activity is not necessarily finished when the debate itself is terminated. A lot of learning can be made by having the learners evaluate their own performance and the debate as a whole. Was the preparation useful and adequate? Did the debaters use the notes? How was the debate?

The content of it? What about other important rhetorical skills such as style, speed, tone, and volume? What can be done differently next time (this is especially useful feedback if you are planning another debate with the same learners). Depending on how the debate was structured, the evaluation can take many shapes - using individual time, group discussion, having a group of "observers" who can make a presentation for the debaters, and many more. It is also possible to film the actual debate and go through it together afterward.

Challenges and risks

Debating is a challenging activity, as it demands a lot from the learners. It is very important for the trainer to foster a positive learning environment and be sensitive to different learner's needs and fears. Especially in the evaluation part, it is important that the learners take this as a constructive activity, not a space for mere self - and others - criticism. There is a risk that if the learners are unsure and nervous about the debate itself, the individual space tasks might not be done or done only partially.

What are the Benefits of Debating?

(This is a non-comprehensive list taken from https://howdoihomeschool.com/classical-homeschooling/benefits-debating-education-importance/)

The benefits of debating are as follows:

1. Improved critical thinking skills
2. People acquire better poise, speech delivery, and public speaking skills
3. Increased people retention of information learned
4. Improved listening note-taking skills and increased self-confidence
5. Enhanced teamwork skills and collaboration
6. More confidence to stand up for the truth when a discussion is promoting falsehoods or inaccuracies.
7. Learning better ways to graciously state one's point with gentleness

8. Helping adults identify holes in their theories and concocting more balanced arguments
9. Helping adults' better structure their thoughts
10. Debating is lots of fun!

Role-play

Role play is an educational tool, which can be used to make trainees adopt a situation they are aware of, and they are emotionally involved in it. It is usually applied to complex situations, which challenge trainees and demand special communicative skills or behaviours.

Trainees take up their theatrical roles, and they are given the chance to act authentic everyday scenes in a protected environment, where trials, mistakes and practices are permitted.

Trainers create a complete scenario, where the trainees' roles are precisely described. For example: trainees are familiar with the basic questions of an interview of their choice, nevertheless, only when they are acting, they are given the opportunity to discover difficulties they might face, their strong and/or weak points.

According to certain studies, role-playing might be suitable for relaxing and/or creative activities, but it is not advisable for technical subjects, such as software.

Steps to follow

1. Script writing. The trainer has prepared a clear scenario or story, where the aims and objectives are described, along with the roles each player will take.
2. *The group preparation*. The trainer needs to prepare and encourage the team to play their roles. The general framework and the objectives of the activity will be presented, the script with each role separately will be distributed, light will be shed to any difficulties that might arise. A warm

and convenient environment is vital to be created, where the participants will feel free to participate.

3. *Selection of the players*. In this stage, there must be decided who will take a role and who will be an observer. The roles can be appointed either voluntarily, or by the trainer, or a draw can be used. It depends on the team and the educational objectives. Nevertheless, the roles should be shared among the participants after their personal consent, so as to avoid inconvenience. Each role can be played by more than one person. The game for example can be played in pairs, which can swap roles, therefore, all trainees can play a role in the story.
4. *Preparation of the players*. Time is given to the "actors" to prepare themselves for the role. Each player is prepared in a private room. He is given written instructions with the description of the person he will play his characteristics and all the information that can help him understand his role and his contribution to the play.
5. *Observers' preparation*. While the actors are getting prepared, in a separate room, the trainer explains to the observers the importance of their role and appoints them specific tasks. They are asked to keep notes during the play, so as they can give their feedback, when the play is completed. The points they need to observe are explained to them, and they are advised not to interrupt during the action. They can also be divided in groups, for example, a group to pinpoint the positive elements in different behaviours, another group to keep down notes on elements that need improvement, etc.
6. *The players act their roles in the story*. The story is unfolded without interruptions or comments, until the case comes to an end or the conflict is solved. Then, the trainer thanks the participants for their contribution (The play can be video recorded for the players themselves to have the chance to check their performance and commend on their roles).
7. *The players start de-rolling*. It is given time to the players to de-role, before the evaluation takes place. The trainees, mostly in groups, are working on the issues that have been spotted by the trainer before the beginning of the play.

8. *Comments.* First, the players comment on their feelings during the play, their thoughts, how they "saw" themselves through their roles.
9. *Comments on the role-play in plenary*. The trainer asks the observers to present their comments, according to their notes. The comments should refer directly to the basic objectives of the play and stay focused on them. Once the comments are completed, the trainer can express his own views, can offer feedback and summarize the main points or the conclusion of the play.

Role-play rules and guidelines

Role playing has been around as a learning tool for a long time and is a well-known technic for learners. To create efficient results some rules and guidelines must be implemented.

1. The script, the rules of the game and the instructions given to the players and the observers must be clear and precise.
2. The play must be tightly connected to the educational objectives.
3. The team should be connected, should have created mutual trust and the trainer should be familiar with each member. Therefore, it is not recommended implementing role-play in the beginning of a meeting or in the first unit of a daily training program.
4. The framework of the game should be close to the interests and the real experiences of the trainees, in order to secure their involvement and participation.
5. The "actors" should be guided by the trainer to react spontaneously during the play, adapted to the reactions of the other "actors" they are playing with.
6. The trainer should have the knowledge to encourage and lead the team.
7. There should be no interruptions during the play with comments from the part of the observers or the players.
8. It is advisable to act role-playing when the trainees are fresh and creative.

Advantages of role-playing

Role-play is a typical activity in School Education but can be used in Adult education as well. Especially in language teaching, role-plays have their

justification. Creating role-plays develops communication and language skills, brings learners into real-life situations and helps to learn about different cultures.

This list summarizes some of the major advantages of role-plays.

1. It is one of the most active methods in adult training.
2. It can be applied on trainees of all levels.
3. Authenticity reinforces learning.
4. It leads to creative interaction among trainees.
5. It gives space to views and behaviours, which might not be expressed otherwise.
6. It is one of the most successful methods to reach training goals, as it leads trainees to deep understanding and critical thinking.
7. It helps the trainer to evaluate trainees' progress in relation to the expected educational outcomes.

The points the trainer should focus attention.

Role-plays are initiated by the trainer and performed by the learners. The responsibility of the learning is at the trainees. Here are some obstacles and failures that may happen. Trainers must be aware of these issues.

1. In some cases, it is difficult for the trainees to act their roles successfully.
2. It should be noticed that the script must be authentic.
3. How the role-play is evolved is not always predictable.
4. Enough preparation time for the trainer and the trainees is demanded.

Conclusion

Role-plays can be a well-fitting activity in many courses but are not versatile. They are useful in language learning as well as in intercultural learning.

Group Cooperation Learning

Many instructors from disciplines across the university use group work to enhance their students' learning. Whether the goal is to increase student understanding of content, to build transferable skills, or some combination of

the two, instructors often turn to small group work to capitalize on the benefits of peer-to-peer instruction. This type of group work is formally termed cooperative learning and is defined as the instructional use of small groups to promote students working together to maximize their own and each other's learning (Johnson, et al., 2008).

Cooperative learning is characterized by positive interdependence, where students perceive that better performance by individuals produces better performance by the entire group (Johnson, et al., 2014). It can be formal or informal, but often involves specific instructor intervention to maximize student interaction and learning. It is infinitely adaptable, working in small and large classes and across disciplines, and can be one of the most effective teaching approaches available to college instructors.

Background

In this short "lesson" I have chosen to focus on the nature of cooperative learning as a way of introducing some current concepts and topics which can be useful when thinking of introducing cooperative (or collaborative, as it is also called) learning in online learning environments.

I draw on my experience of adult learning as a source of "evidence" about cooperative learning but also refer to research carried out into cooperative learning in schools. The relationship between the two is not trouble-free and certainly poses some interesting problems and issues for us to consider.

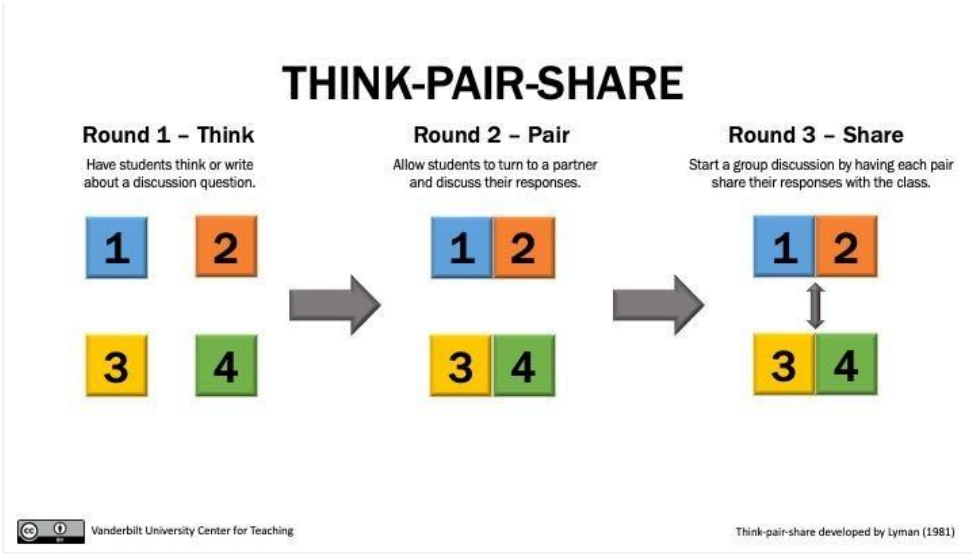


Figure 15: Think-pair-share model

Think-pair-share

The instructor asks a discussion question. Students are instructed to think or write about an answer to the question before turning to a peer to discuss their responses. Groups then share their responses with the class.

Peer Instruction

This modification of the think-pair-share involves personal response devices (e.g. clickers). The question posted is typically a conceptually based multiple-choice question. Students think about their answer and vote on a response before turning to a neighbour to discuss. Students can change their answers after discussion, and "sharing" is accomplished by the instructor revealing the graph of student response and using this as a stimulus for large class discussion. This approach is particularly well-adapted for large classes.

Jigsaw

In this approach, groups of students work in a team of four to become experts on one segment of new material, while other "expert teams" in the class work on other segments of new material. The class then rearranges, forming new groups that have one member from each expert team. The members of the

new team then take turns teaching each other the material on which they are experts

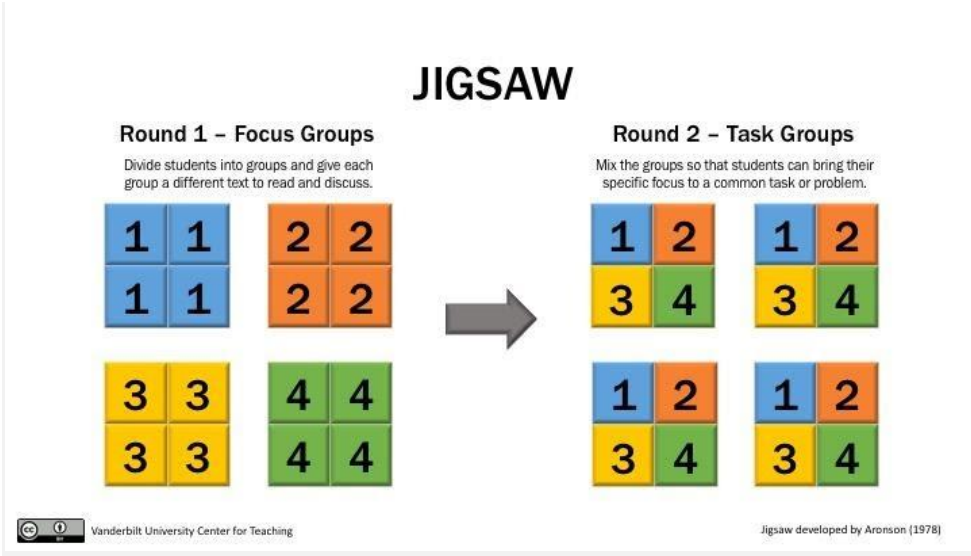


Figure 16: Johnson, D.W., Johnson, R.T., and Holbeck, E.J. (2008). Cooperation in the classroom (8th edition). Edina, MN: Interaction.

Conclusion

This "lesson" has looked at what cooperative learning is and how its benefits learners, both individually and collectively. Although the label "cooperative learning" is used to describe a variety of seemingly diverse activities and has perhaps different meanings and purposes in different contexts and cultures, there is a common belief that it is a highly beneficial form of learning.

In summary, we can say that cooperative learning

- Helps clarify ideas and concepts through discussion
- Develops critical thinking
- Provides opportunities for learners to share information and ideas
- Develops communication skills
- Provides a context where the learners can take control of their own learning in a social context
- Provides validation of individuals' ideas and ways of thinking through

Active Lecturing

The Global Elements of Effective Flipped Learning contain one essential: Never Lecturing. So many people think that lectures are bad.

They are too, but only if they are badly made!

What are lectures?

Definition: A lecture (from the French lecture, meaning reading) is an oral presentation intended to present information or teach people about a particular subject. Usually, lecturing is done by a "Lecturer" talking to the people, maybe presenting some multimedia material. The audience is quiet and listening. Lectures often are used to present learners' information that might not be learned on their own.

This is classical passive learning and does neither lead to sustained learning results nor is interesting for learners (in most cases).

This is the reason why lectures are frowned upon in Flipped Learning 3.0.

Nevertheless, lectures can be an interesting training means - if they are well-done, well-structured, and kept actively.

Active lecturing

As lecturing is teacher-centered learning the first step is to switch the role: The teacher (or trainer) must become the initiator and mediator of the training, while the learners take over the active part.

Here is an example:

Individual Space	Group Space
The learners have passed the pre-learning with two knowledge-based videos where they had to learn specific terms related to the new content.	The trainer presents a PowerPoint slide with a graphic and 4 lines of related text. The learners are asked to read the text, find out the keywords, and write them down. When finished, the trainer asks one of the learners to name one keyword and to explain why this is essential for the content. When finished the other learners are asked if they agree or not - and they must explain their feedback. This can be continued with several other slides where learners are included in the presentation and have to explain, create content, or argue. All these activities belong to the higher Bloom's and contribute to the learning success.

Conclusion

In some cases, active lecturing is a possible way to teach effectively. The precondition is a well-prepared Group Space with appropriate Individual Space activities. The essential issue for the trainer is to switch from the role of the lecturer to a group moderator.

Practical Hands-on Learning (Experiments or Lab Work)

The power of hands-on experiments is the possibility to create a trial-and-error experience for learners. Learners benefit from their mistakes and understand the potential gaps between theory and practice.

Hands-on experiments let learners' minds grow and develop. Experiments complete the learning content by practical experience and enrich the learning process. The practical experience also cares for sustainable learning results and in most cases for a deeper understanding.

Learning theory states that hands-on learning engages both sides of the brain. The involvement of several senses leads to deeper learning results. Combining several learning styles based on the involvement of several senses finally creates deeper connections (or engrams) in the brain and information as well as personal experience (including related skills) are stored more intensively and sustainably.

How to plan hands-on training or experiments?

The comprehensive approach always needs an answer to the question: "What is the intended end of this activity". The question of the purpose of the activity, the compatibility with the learning outcome, and other planning requirements.

From the point of view of Flipped Learning 3.0 you should start with backward design and find out the intended end of the activity.

How to prepare hands-on training and experiments?

The preparation is similar to any other active learning experience:

- Define the learning outcomes (Backward design)
- Define the assessment
  Hint: Formative assessment by observing learners and do some micro-conversation with each of the learners is a good approach.
- Preparation of everything that's needed:
  - Materials

- Equipment
- Working places
- Security issues
- If necessary: Group splitting
- If station work is done - select stations and the possible flow between the stations
- Define the time frame
- Create plan B for learners that fail with their result

- Create instructions (if necessary) in writing
- Create additional web-based material
- Plan and structure the pre-learning material (and provide it to the learners in advance and timely).

Possible obstacles or problems with solution proposals

Working with experiments or hands-on training needs some experience. Plan your first hands-on training using the KISS method (Keep It Small and Simple). Learn from your experience and create larger hands-on environments after some practice time.

The group is too big

Split it into smaller groups using different dates. You can learn from the first group and make it better in the next group. Groups are also resource-efficient because you don't need the necessary materials in such large numbers.

There are not enough working places (resources) for the complete group class

You must split into groups (see above)

Another option is to do the training as paired teams. You must check the teams during the training experience that both partners are involved equally in the training.

Learners cannot handle the equipment

This situation is awful but occurs often. In this case, you may use buddies (people that have passed the course and assist the "clumsy" learners, or you build groups.

Advantage of hands-on training and experiments

The most important advantage of this activity is the benefit of learners by connecting theory and praxis. They also may go deeper into the content and try out additional thongs exceeding the given practical training.

For trainers, the observation of the learners is a good way to learn more about the personality of each learner. Micro conversations during the activity may create a closer connection to learners and increase the level of relationship (which is a crucial item in the Flipped Learning 3.0 Framework).

Hands-on courses

Many courses in Adult Education are based on hands-on activities. An example is a pottery course where some theoretical knowledge (based on lower Bloom's, like material knowledge or skills to identify tools) is necessary, the most time is used for practice. The situation is similar in painting courses, cooking courses, dancing or other sport.

Examples

Here are two examples of well-known training that demonstrate the use of hands-on practice.

- **Chess**

  Chess is a recreational and competitive board game played between two players. ... The object of the game is to checkmate the opponent's king, whereby the king is under immediate attack (in "check") and there is no way to remove it from the attack on the next move. There are also several ways a game can end in a draw.

  The lower Bloom's may be identified as:

  - Knowledge of figures

- Knowledge of move of all figures
- Knowledge of specific situations (The "big rochade", for example).

The higher Bloom's focus on the applying of the knowledge, the creating of good play strategies (in other cases this corresponds to the design and development of content).

- **Italian Cooking Course**

  This course focuses on two specific dimensions: The raw materials and foods that are used and the preparation of dishes.

  The first one of the Lower Bloom's. You have to know what it is about, be able to pronounce things correctly (example: spaghetti), know the availability, and also know about the possible replacement of unavailable foods

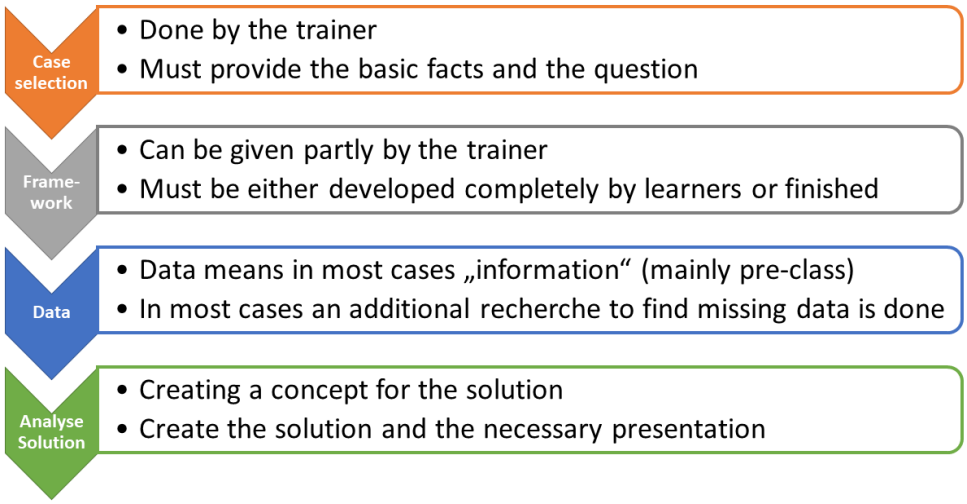
  The second dimension is the practical work addressing higher Bloom's.

Build case studies

A case study is a detailed study of a specific subject, such as a person, group, place, event, organization, or phenomenon. It can be used in real situations as well as on abstract entities.

Description of the case study as an active learning method

Case studies are a research design to gain concrete, contextual, in-depth knowledge about a specific real-world subject. The focus is to explore the key characteristics, meanings, and implications of the case.



The following description is done from the learner's view: You may use it for the instruction of your learners on what they should do.

A typical case study can be structured with four major segments:

5. Select a case (fitting to the assignment)
   This should explain what the study is about
6. Build a "theoretical framework"
   This sounds very scientifically – but it means that you take a look at some real-life samples and learn what makes each one effective or fitting to your assignment.
7. Collect your data
   In the frame of learning, this means that you care for facts, descriptions, and other necessary information for your framework. This basically means research work and to access the content that was developed in the pre-class.
8. As you work in a group you may split the various identified research tasks and put them together in the end.
9. Describe and analyze the case
   The collected data is brought into a "story" giving the answers to the assignment.

Preparation

As a trainer, you must care for the appropriate preparation of the assignment.

[1] Connect the individual space with the Group space
The Individual Space is used to prepare the case study. All content that complies with Lower Bloom's ("Remember" and "understand") must be done as qualified assignments. This may be videos but with other means also (for example textbook, keywords search, and similar assignments).

[2] Define the Assignment for the Group Space
Plan the learners' working groups and prepare the case study assignment providing all necessary material. Define your assignment precisely and comprehensively. It is crucial to clear the expected outcomes.

[3] Recommendation for use
You can use case studies for all situations where knowledge and new insights should be brought into some practical context. This context can describe some behaviour, some conclusions formed from individual learning content or similar situations.

[4] Assessment methods
You may use Formative Assessment and questions for the evaluation of the outcomes.

Some ideas for the formative assessment: It may focus on cooperation, on the development of creative ideas, of the use of pre-class learning, or the quality of the presented result (all this depends on your definition of learning outcomes).

In any case, it is binding to explain the assessment techniques before the assignment.

Example

Here is an example that should help to get a suitable picture of the method.

Working with images

Expected learning outcomes: Learners know about image formats and the possibilities to create an image repository. Besides, they can organize such a repository inside a family.

Pre-class: Learners get teaching material about images (interactive and multimedia-based preparation), image sources (scanner, camera, smartphone), and the creation of a repository in a Google Drive (video). A short reading conveys the problem of privacy on the Internet and possible solutions.

Group Space: Learners get a case to build a case study upon it and to solve the given questions. The expected outcome is a structured document created by each group. Each group must present their solution in a plenum discussion ("collegial feedback").

Assignment
Family Smith (Pa Smith, Mum Smith, Grandma Smith, Lucy 16 years old, Francis 22 years old) has a problem: Francis is doing a semester abroad in New Zealand. This makes it difficult to keep in contact and to keep the complete family updated about their daily life. All family members own smartphones, additionally, Pa Smith has a big & fat DSLR camera, and Grandma Smith often uses a digital compact camera.

Develop a satisfactory solution for this family to keep in contact and exchange images easily.

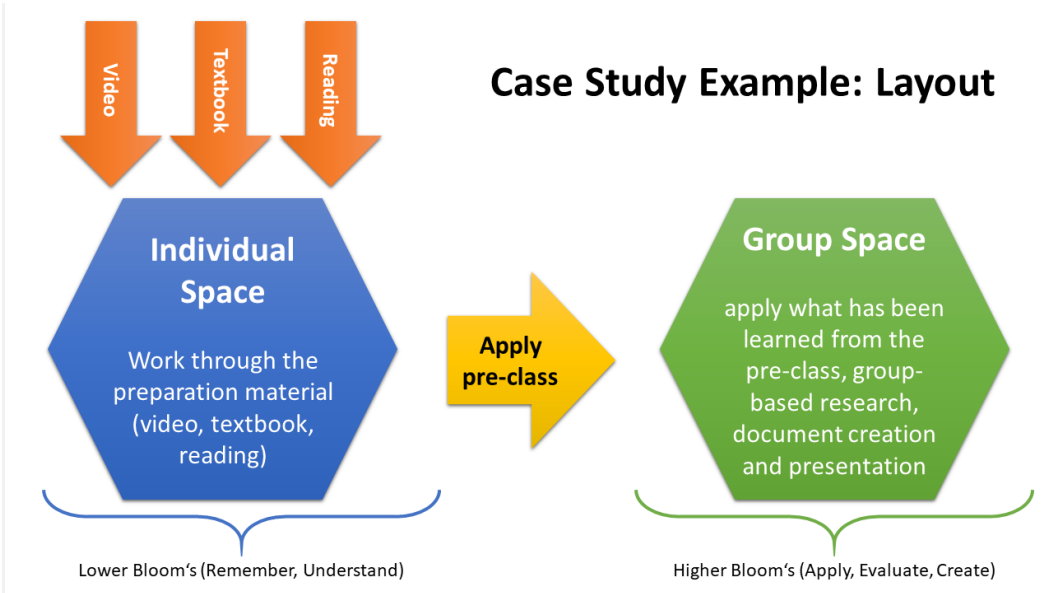


Figure 17: Case study activity concept for Flipped Learning 3-0

Conclusion

Case studies provide detailed information focusing on the learning outcomes and can give insight for further learning material. They combine given facts from daily fife with investigations. They are often open-ended and do not offer a pre given solution. Therefore, case studies can work as an opener for group-based discussions or evaluations.

Problem-Solving

The idea

The idea behind this way of learning is to learn something that seems to help the learners solve a concrete problem. There are no instructions from the teacher or trainer – the learners should solve the problem collaboratively. Often such issues do not have an obvious solution but are examples of challenging, open-ended problems faced in our world today.

Problem-based learning (PBL) is a learner-centered pedagogy in which the learners learn about a topic through the experience of solving an open-ended problem found in trigger material.

Problem-based learning

A real-world problem is the starting point of learning. To find a solution for this problem, or to create a result as an "answer to the problem" can be done either as an individual task or as collaborative work. The second way is always the better choice. The challenge is the complexity of the problem, which needs the experience, knowledge, and ideas from a bigger - if possible, not too homogeneous - group.

Image 8: Working in groups - a typical way of learning in problem-solving

Problem-based tasks

These are single tasks in context with a specific problem. This type of learning is often done in science teaching (mathematics problems, physical open questions, and similar issues). Learners can solve these tasks individually.

Outcomes

The outcomes are often so-called "skills for life". With solving the problem, no concrete learning results are often available, but this kind of learning often focuses on personal development. Therefore, not the solution is in the middle

of the teaching, and it is the learning process itself that counts. Considering the facts mentioned before means the hands-on practice of group work, the organization of collaborative work that leads to an outcome, and other similar effects. Here is a short, not comprehensive list of expected results:

- Understand the subject matter, rather than just learning by rote
  You deepen your knowledge concerning the problem's subject and increase your understanding of the problem's environment.
- Collaborate with partners and small teams
  You learn (or practice) the collaboration within a small group.
- Think critically to solve problems
  Analysing the problem sharpens critical thinking. This happens when you follow others' ideas or start an amending process with these ideas.
- Study and work independently
  Even if the work is done as collaborative work in groups, the individual learning process is started. This impact happens when you check some proposal, cross-check an idea or a calculation, search for some confirmation for an opinion on the internet, or setting similar activities.
- The theory will come to life.
  Working actively on real-life issues, the theory sticks better in the learners' minds, and you learn to apply your knowledge to all sorts of questions.

Image 9: Typical research and group work phase (in a small group of learners)

The strategy

Seven possible steps to implement this type of learning are:

- Present the case, discuss it and make sure everyone understands the problem
- Identification of the questions that need to be answered to bring light on the case
- Analysis of available knowledge and experience bring up what the group already knows and helps to identify potential solutions
- Analysis and first structuring of results of the group's knowledge
- Express and formulate what is needed to acquire the knowledge that is still lacking
- Perform independent study
  This task can be done individually or in smaller groups and means reading articles or books, following practical's, running some specific research, or attending lectures to gain the required knowledge.
- Describe and summarize the findings, discuss them, and create a solution proposal.

Project-based learning versus problem-based learning

Projects are bigger, need a specific structure to be managed and finished successfully. Projects focus more on the reaching of the project aims. Problem-based learning focuses more on how to solve the problem.

In project-based learning, the goals are fixed or set, and the teaching delivers an outcome. In problem-based learning, the problems are often open-ended, possible solutions are presented to the teacher or trainer and discussed with them.

Group Based Learning - Collaborative Learning

Group-based Learning is an instructional strategy that can be easily implemented in Flipped Learning. It is a typical active learning method assigned to the group space. According to this strategy, a small group of learners works together in a series of activities in order to achieve a

shared learning objective. The idea of working in small groups gives to learners the opportunities to:

- Articulate ideas and understandings,
- Uncover assumptions and misconceptions, and
- Negotiate with others to create products or reach consensus.

Group-based learning can be implemented in the face-to-face phase as well as in the distance learning phase.

Group-based learning is assigned to the group space

Theoretical Background

An analysis of the theoretical background of group-based learning was provided by Patricia Hrynchak & Helen Batty (2012)[19]. They argue that group (team)-based learning incorporates the main elements of constructivist learning, in which the "focus is on the mental representation of information by the learner":

1. The teacher is a guide to facilitate learning.
2. Learners should encounter inconsistencies between preconceptions and new experiences to provide a basis for developing new understandings.
3. A focus on relevant problems accompanied by group interaction promotes learning.
4. Learning requires reflection.

Group-based learning is following all of these four elements. The teacher establishes the learning objectives and chooses the students' problems; then, he acts as a guide while teams work toward their solution to the problem. A careful choice of the issues can help reveal common student misconceptions. Simultaneously, the constant interaction and debate among team members allow learners to compare their current understandings with those of other team members and construct new understandings. Group interaction and a focus on relevant problems are an inherent element of team-based learning. Furthermore, group-based learning provides several opportunities for reflection: during the group

readiness assessment test, while hearing other teams' conclusion reports; and during the peer evaluation process, which often includes self-evaluation.

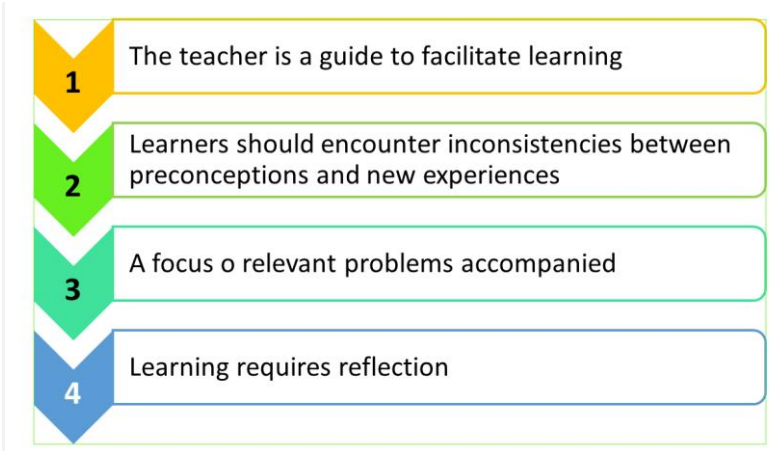


Figure 18: Main elements of constructivist learning

Group activities enable students to discover a deeper understanding of the content and improve thinking skills.

Implementation

The innovation of Group (or team)-based learning emphasizes student preparation out of class and application of knowledge in class. Students are organized strategically into diverse teams of 5-7 students who work together throughout the class (in the Group pace). Before each unit or module of the course, students get prepared to study independently (prior to the class using the Individual Space).

Applying this structured form of small-group learning serves as preparation for the in-class application activities that complete the module. In order to make the teams succeed in their educational goals, it is required to make a specific choice of a significant problem. The critical point is that all teams work on the same problem and report their decisions simultaneously. Working in this way, the teams must articulate their thinking and, consequently, evaluate their reasoning when confronted with different choices the other groups may take. An essential part of team-based learning is peer evaluation. Peer

evaluation is necessary for keeping students accountable to their teammates.

Figure 19: Collaborative Learning concept

Good practices

One example of good practice was given by Richard Hake (1998). He gathered data of 2084 students in 14 introductory physics courses taught following traditional methods. The traditional method means that the instructor offered primarily passive student lectures and algorithmic problem exams. This practice allowed him to define an average gain for students in such courses using pre/post-test data. Then, he compared these results to those seen with interactive engagement methods. These were "heads-on (always) and hands-on (usually) activities which yield immediate feedback through discussion with peers and/or instructors"[20] for 4458 students in 48 courses. The results of this research showed that: Students who followed interactive engagement methods exhibited learning gains almost two standard deviations higher than those observed in the traditional courses.

Another example of good practice was performed by Levine and colleagues[21]. They incorporated group-based learning into a psychiatry clerkship curriculum, replacing half of the lectures with Task-Based Learning

(TBL) activities, including readiness assurance tests and application exercises. Following group-based learning, students performed significantly better on the National Board of Medical Examiners psychiatry subject test. They also scored higher on attitudes about working in teams and reported the team learning activities to be more effective learning strategies.

5. Best Practice Examples

In this chapter we present some examples demonstration the implementation of the Flipped Learning Framework in practical course environments.

Language Learning

This case study is an example of the development of a learning unit for the topic of fruits. This unit consists of a MicroLearning unit for the vocabulary, a training unit for the vocabulary, a joint distance learning unit for writing a dialogue, and a face-to-face unit for practising (focusing on pronunciation).

Description of the unit

The unit focuses on language learning to know about fruits. The preconditions are the basic knowledge of the language (simple sentences, colours, shapes).

- Target group

  Language Learners in Adult Education

  Hint: Might be used for Language students and Language training of the second language in VET as well.

- Competences

The learner can name various popular fruits, describe them in simple words, and use the terms practically (for example to buy them in a shop).

- Technical Issues

  The unit uses interactive multimedia-based tools, like hotspot images and interactive video.

Structure of the course

The structure shows the concept of the course split into face-to-face training and the (technology-enhanced) distance training.

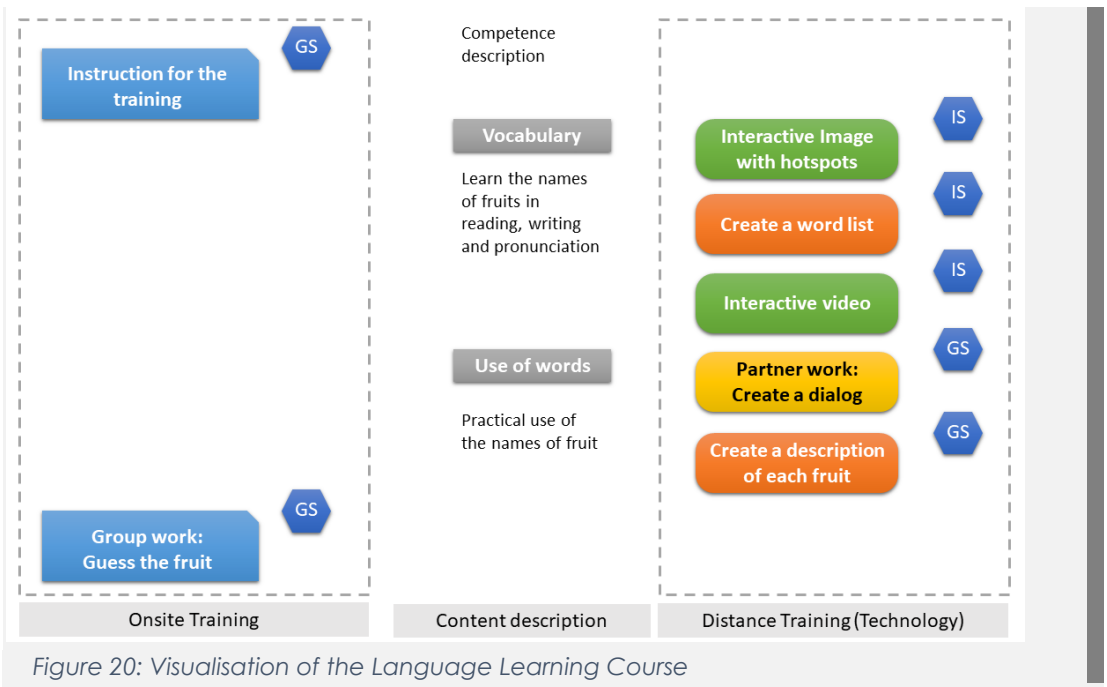


Figure 20: Visualisation of the Language Learning Course

- Instruction for the training

  The instruction of the training unit must be comprehensive and must include all assignments' descriptions and explain each activity that must be done individually or in groups. This description may include a checklist

to help the learners to be aware of which activities have been finished successfully.

Technical implementation: H5P framework[22].

- Interactive image with hotspots

  An image showing the fruits that should be learned is provided with hotspots. Each hotspot displays the name of the fruit and some significant further information.

  Technical implementation: Word processing program (word document)

  Hint: This document will be used later again!

- Wordlist

  The word list summarizes the words learned from the interactive image. This list intent to practice the writing of the names. Activities like these foster what has been learned. They are useful to reflect the content and to repeat the new knowledge. Activities like this show the correct writing and spelling to the learner.

- Interactive video

  The interactive video allows the learner to hear the correct pronunciation of the various new learned fruit names. Besides this, it provides complete sentences and some phrases using the new fruit name in some related context.

  Technical implementation: EdPuzzle[23], H5P framework, or YouTube

- Create a dialogue (Partner work)

  This activity sounds easy but is difficult for the learners: they have to organize their work; each learner is dependent on his learning from the other partner. Besides this the activity has an open-end – this is always a challenge for learners.

  This activity forces the learners to become active and to engage the partner in the learning. It also forces the learner to understand what others develop with the new learned fruit names as keywords in a dialogue.

Technical implementation: Use a joint working space to develop the text (Google Drive) or in Moodle (Collaborate - Collaborative document editing).

Technical implementation: Use the Word-List (2.3) and complete it with the description

- Description for each fruit

The description of each fruit is a summarizing individual activity and forces the learner to reflect on the newly gained knowledge. As it is done in writing the correct spelling I practice as well as the correct building of sentences in the foreign language. Guess the fruit

Guess the fruit is a social activity (in a group). It is interactive and forces the learners to listen very carefully to solve the riddle. For the person presenting the fruit, it is also a challenge in speaking correctly and pronouncing during the presentation.

This activity needs minimum a moderator from the group. Besides this, the trainer should be available to assist learners in open issues and to correct the presenting learner (if necessary).

Possible Implementation

This chapter describes a possible implementation in a real course.

Platform: Moodle

Devices: Desktop PC, Laptop, Notebook, Chromebook, Convertible, Tablet
Smartphone only with restriction (due to the small area where to select the fruit and the missing precise pointing device, the writing of longer text – as requested for the dialogue, is also an obstacle for smartphone users).

Used tools: H5P to implement the multimedia content
Moodle standard modules

- Instruction for the training
  Instruction is given in a face-to-face session and summarized as an assignment in the Moodle course.
- nteractive Image with hotspots
  Interactive images with hotspots can be realized with H5p
- Wordlist
  The word list must be written individually by each learner using either handwriting or a word processing tool. This list should be used for reflection and repetition.
- Interactive video
  Interactive videos can either be realized with H5P or YouTube. These interactive videos can be used for pronunciation combined with some context-related questions.
- Create a dialogue (Partner work)
  This partner work can be implemented using the messenger system of Moodle. The result is a textile.

  Hint: Learners should be allowed to select their preferred partner(s). Partner work groups should not exceed the number of three partners.

- Description for each fruit
  The description of each fruit is an individual work for each learner. A word processing tool can be used. If the assessment is used for this activity the text can be uploaded to the Moodle server and be evaluated.
- Guess the fruit
  This is a joint group activity, performed during the face-to-face phase of the training. One learner is chosen and has to describe a fruit. The first person that guesses the described fruit first will then present a new fruit.

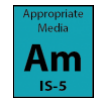
The Use of Flipped Learning

This unit makes intensive use of the 187 global elements of effective Flipped Learning. Here is a short summary of which elements are relevant to the various activities.

- Interactive Image with hotspots

  This activity makes use of

  - Appropriate Media
    The selected interactive and multimedia-based activity uses an appropriate medium for the pre-class media.

  - Pre-class has Big Idea
    This activity contains the big idea of the pre-class (the visual presentation of images of fruits combined with interactivity and text)

  - Focus on Group Space
    Focus on what you want to achieve in the group space when creating the individual space pre-work.
    Expected result: be prepared for the group space activity "Guess the Fruit".

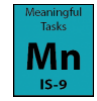
  - Intuitive
    Make sure that pre-class media is intuitive

  - Meaningful Tasks
    Make sure that pre-class tasks are meaningful and hook to student interest

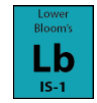
  - Learn Tech Tools
    Learn how to create flipped videos and other flipped media using the tools at your disposal

- Wordlist

  This activity makes use of

  - Lower Bloom's
    Use of lower levels of Bloom's Taxonomy (remembering, understanding)

- Intuitive
  Make sure that pre-class media is intuitive

- Link to Group Space
  Ensures there is a strong link between pre-class media and what happens in the classroom.

- Interactive video

This activity makes use of

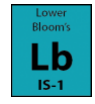
- Chunk Media
  The media does not exceed the well-known limit of 5 minutes and makes sure that pre-class media is available in smaller pieces.

- Use pre-class data
  Due to the technical background (Moodle) this activity provides information from learners' completion of pre-class tasks to inform instruction.

- Focus on Group Space
  Focus on what you want to achieve in the group space when creating the individual space pre-work.
  Expected result: be prepared for the group space activity "Guess the Fruit".

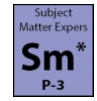
- Intuitive
  Make sure that pre-class media is intuitive

- Lower Bloom's
  Use of lower levels of Bloom's Taxonomy (remembering, understanding)



- Link to Group Space
  Ensures there is a strong link between pre-class media and what happens in the classroom.

- Short Media
  Make sure that pre-class media are short.



- Learn Tech Tools
  Learn how to create flipped videos and other flipped media using the tools at your disposal

- Teach to interact
  Teach students how to interact with the pre-class media including taking notes and preparing questions for class.

- Create a dialogue (Partner work)

  This activity makes use of

  - Promote Collaboration
    This activity brings learners to cooperate (in small teams) and to create new content together.

  - Student Creation
    This activity addresses to include activities that encourage learners to create their own content

  - Higher Bloom's
    In this activity higher levels of Bloom's Taxonomy are used (applying, analysing, evaluating, creating).

- Description for each fruit

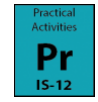
  This activity makes use of

  - Reflection
    In this activity a reflection is done (combined with creating new content) at the end of the learning

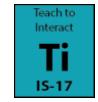
  - Focus on Group Space
    Focus on what you want to achieve in the group space when creating the individual space pre-work.
    Expected result: be prepared for the group space activity "Guess the Fruit".

- Link to Group Space
  Ensures there is a strong link between pre-class media and what happens in the classroom.

- Practical Activities
  Include practical concrete activities that students can engage in, during and after the pre-class media and tasks.



- Teach to interact
  Teach students how to interact with the pre-class media including taking notes and preparing questions for class.



- Guess the fruit

  This activity makes use of

  - Active strategies
    This element describes the use of a variety of active learning strategies in the group space

  - Clear Expectations
    This means establishing clear expectations for learner's responsibility during class time (face-to-face training).

  - Digital & Analogue
    In this activity, both digital and analogue tools are used to foster learners in their classwork (face-to-face training).

  - Higher Bloom's
    In this activity higher levels of Bloom's Taxonomy are used (applying, analysing, evaluating, creating).

  - Student Centered
    This is a typical student-centered activity that encourages (in some way forces) the learners to summarize the content or the pre-class media

Vegetarian cooking class

This case study is an example of a course for teaching adults how to cook vegetarian meals. It has been estimated that around 10 % of Europe's population are vegetarian or vegan. Becoming vegan or vegetarian is increasingly popular, due to for example concerns for animals, criticism to the meat industry and climate change mitigation.

This particular example is designed to teach people basic vegetarian recipes and cooking skills. The course consists of an individually done preparation phase and a training unit done in the group space.

Description

The unit focuses on teaching basic vegetarian cooking skills such as preparation of soya-based products, beans, traditional vegetarian dishes as well as meat-look-alike dishes. The preconditions are basic knowledge of using a kitchen, all through an extensive experience with cooking is not needed.

- Target group

  The target group is adults interested in learning how to cook vegetarian. It is important to note that the participants don't have to be vegetarian themselves, as many people can be interested to learn how to cook for vegetarian members in a household etc. The course can also be adapted to target more specific groups, such as people who want to become vegetarian, elderly men living alone or any other group.

- Intended competences

  The learner can prepare ingredients that are typical components in vegetarian dishes, such as rice, kidney beans, chickpeas, red and green lentils, soya granules and tofu. In addition, the learner knows some vegetarian recipes, such as chili sin carne, beans and rice, veggie burgers ratatouille with bulgur. The learner also understands how to make a wholesome and nutritious vegetarian meal with focus on proteins. At the

end of the course, the learner should be able to improvise meals around basic recipes.

- Technical Issues

  The unit uses interactive multimedia-based tools, such as interactive videos, quizzes, and collaborative online cookbooks. We suggest a number of free software, but we advise using only 1 or 2 that covers the need of the course in order to not make the participants confused with a large number of possibly new technical software.

Structure of the course

The structure shows the concept of the course split into face to face training and the (technology enhanced) distance training.

- Instruction for the training

The instruction of the training unit must include all assignment descriptions and explains each activity that must be done alone or within a group. It should provide clear descriptions of how to access and edit the collaborative cookbook, what will be the topic of each lesson. This description may include a checklist to help the learners to find out which activities have been finished successfully.

Technical implementation: Pdf-document or word document sent by email.

- Ingredient lists
  This is a list over all the ingredients that will be used during the course. The list is not comprehensive by the beginning of the course as it allows for the learners to add new items and update it during the course. The list can include basic information about the ingredient, such as preparation time, where to buy it and price level.
- Interactive videos
  The interactive video gives the learner the opportunity to watch how the course recipes are prepared before they make them in the group space. The videos can be divided into two categories: characteristics and preparation of core ingredients (such as beans, tofu and seitan) and full

recipes. The first category includes information about nutritional value, different ways to cook the ingredient and which food it typically is used with. The second category gives the learner the chance to see a recipe being made from start to finish. All videos encourage the learner to write down core information and any questions that might pop up. These notes and questions are then later used for the quiz (5) and in the group space. This allows the learners to be prepared for the cooking in the group meetings, without spending unnecessary time on theoretical work.

Technical implementation: for example, Vidzor, H5p or Vimeo or Youtube.

- Quiz

  After having seen the videos at home, they are asked to write three questions for a quiz that will take place at the beginning of each lesson. It is very welcomed that the learner writes down questions he or she does not know the answer to. That way they will be answered in the group space in the beginning of the lesson. If the learner doesn't have any particular questions, he or she can invent some questions based on the information in the video. Hint: the number of questions can be modified depending on the number of participants.

  Technical implementation: for example, Collabora, Notejoy, Quip, Paper, Google docs.

- Cooking together

  After this careful preparation at home, the learners are ready to come together to try out what they have prepared! This part is very important as it gives a hands-on experience which will provide deeper learning than the previous steps. The first step in this meeting is to go through the prepared quiz-questions together in order to clear unanswered questions so that everybody has the same understanding. The learners are then divided in small groups where they will try to prepare ingredients and make some of the recipes. The trainer is here just facilitating by walking between the groups to assist them. At the end everybody comes together to eat what has been prepared and evaluate the cooking process.

The steps 1-5 can be repeated several times with different content to broaden the learner's knowledge. By the end of the course the learners are invited to collaborate on making their own recipes and experiment with what they have learned. This step is perhaps the most interactive part of the course.

- Collaborative cookbook
  An intended output of this course is that it will lead to an online based collaborative cookbook put together by all of the participants.

  Technical implementation: collaborative documents such as Etherpad, Draft, Quip or other.

Examples of recipes

This chapter gives some examples of the countless recipes that can be used.

Chili sin carne[24]

Ingredients list:

1	tablespoon olive oil
½	medium onion, chopped
2	bay leaves
1	teaspoon ground cumin
2	tablespoons dried oregano
1	tablespoon salt
2	stalks celery, chopped
2	green bell peppers, chopped
2	jalapeno peppers, chopped
3	cloves garlic, chopped
2	(4 ounce) cans chopped green chile peppers, drained
2	(12 ounce) packages vegetarian burger crumbles
3	(28 ounce) cans whole peeled tomatoes, crushed
¼	cup chili powder
1	tablespoon ground black pepper
1	(15 ounce) can kidney beans, drained
1	(15 ounce) can garbanzo beans, drained

1 (15 ounce) can black beans
1 (15 ounce) can whole kernel corn

Directions

Heat the olive oil in a large pot over medium heat. Stir in the onion, and season with bay leaves, cumin, oregano, and salt. Cook and stir until onion is tender, then mix in the celery, green bell peppers, jalapeno peppers, garlic, and green chile peppers. When vegetables are heated through, mix in the vegetarian burger crumbles. Reduce heat to low, cover pot, and simmer 5 minutes.

Mix the tomatoes into the pot. Season chili with chili powder and pepper. Stir in the kidney beans, garbanzo beans, and black beans. Bring to a boil, reduce heat to low, and simmer 45 minutes. Stir in the corn and continue cooking 5 minutes before serving.

Image 10: Photo source: https://www.allrecipes.com/recipe/72508/the-best-vegetarian-chili-in-the-world/

Ratatouille with kidney beans and bulgur[25]

Ingredients list

2 onions
2 cloves of garlic
2 courgettes
1 big aubergine
4 tomatoes
2 red peppers
1 can kidney beans
1 teaspoon fresh of dried rosemary
Olive oil
Salt and pepper
3 dl of bulgur
3 dl vegetable stock

Directions:

Cook the bulgur according to the instruction video. Use vegetable stock for more taste.

Clean and rinse, courgettes, pepper and aubergine. Peel the onions and dice the aubergine, onion and courgette. Cook the veggies in olive oil in a pot for 5-7 minutes on high heat, while you stir with all your might.

Add kidney beans, chopped tomatoes, pressed garlic, thyme and rosemary - add a little at a time, and taste as you go. Stir well and let the lot simmer for 10-15 minutes or more. The longer you let the ratatouille lounge on the stove, the softer the veg will be. Season with salt and pepper and serve.

The Use of Flipped Learning

The vegetarian cooking course uses many of the 187 global elements of effective Flipped Learning. Here is a short summary which elements are relevant to the various activities.

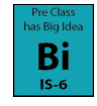
- Ingredients list

  This activity makes use of

  - Appropriate Media
    The selected interactive and multimedia-based activity uses an appropriate medium for the pre-class media.

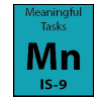
  - Pre-class has Big Idea
    This activity contains the big idea of the pre-class

  - Intuitive
    Make sure that pre-class media is intuitive

- Meaningful Tasks
  Make sure that pre-class tasks are meaningful and hook to student interest

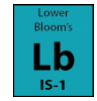


- Learn Tech Tools
  Learn how to be an editor of the ingredients list by using a possibly unknown software

- Interactive videos

  This activity makes use of

  - Focus on Group Space
    Focus on what you want to achieve in the group space when creating the individual space pre-work.



  - Lower Bloom's
    Use of lower levels of Bloom's Taxonomy (remembering, understanding)

  - Intuitive
    Make sure that pre-class media is intuitive

  - Link to Group Space
    Ensure there is a strong link between pre-class media and what happens in the classroom.

  - Chunk Media
    The media does not exceed the well-known limit of 5 minutes and makes sure that pre-class media is available in smaller pieces.

- Quiz

  This activity makes use of

  - Focus on Group Space
    Focus on what you want to achieve in the group space when creating the individual space pre-work.

  - Digital & Analog
    In this activity, both digital and analogue tools are used to foster learners in their class work (face to face training).

- Link to Group Space
  Ensure there is a strong link between pre-class media and what happens in the classroom. The quiz will be directly used in the group space

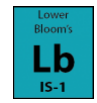
- Practical Activities
  Include practical concrete activities that students can engage in, during and after the pre-class media and tasks.

- Teach to interact
  Teach students how to interact with the pre-class media including taking notes and preparing questions for class.

- Expected result: be prepared for the group space activities.
- Student Centered
  This is a typical student-centered activity that encourages (in some way forces) the learners to summarize the content or the pre-class media

- Intuitive
  Make sure that pre-class media is intuitive

- Lower Bloom's
  Use of lower levels of Bloom's Taxonomy (remembering, understanding)



- Short Media
  Make sure that pre-class media are short.

- Learn Tech Tools
  Learn how to add questions into a collaborative software, as well as see what others have added.

- Teach to interact
  Teach students how to interact with the pre-class media including taking notes and preparing questions for class.

- Cooking together

  This activity makes use of

  - Use pre-class data

- Promote Collaboration
  This activity brings learners to cooperate (in small teams) and to create new content together.

- Active strategies
  This element describes the use of a variety of active learning strategies in the group space

- Student Creation
  This addresses to include activities that encourage learners to create their own content

- Higher Bloom's
  In this activity higher levels of Bloom's Taxonomy are used (applying, analyzing, evaluating, creating).

- Collaborative cookbook

This activity makes use of

- Reflection
  In this activity a reflection is done (combined with creating new content) at the end of the learning

- Link to Group Space
  Ensure there is a strong link between pre-class media and what happens in the classroom.

- Clear Expectations
  This means to establish clear expectations for learner's responsibility during class time (face to face training).

- Digital & Analog
  In this activity, both digital and analog tools are used to foster learners in their class work (face to face training).

- Higher Bloom's
  In this activity higher levels of Bloom's Taxonomy are used (applying, analyzing, evaluating, creating).

- Student Centered
  This is a typical student-centered activity that encourages (in some way forces) the learners to summarize the content or the pre-class media

Blended Learning Course for Youth Workers

This case study is an example for the development of a learning unit for the topic "Blended learning course for youth workers"

Description of the course

This course aims to achieve three goals with one action: (1) Improve the competencies of youth trainers/learning facilitators in areas that are typically left untouched in training processes, so that they can develop and offer high-quality learning projects to their organizations' learners, while (2) employing the principles of Intercultural Dialogue to do so. And at the same time, (3) using an innovative, blended learning format in order to engage the participants and achieve the greatest learning impact possible.

- Target group
  Youth workers and facilitators working in the field of youth
- Competences
  Improve trainer competencies on successful Learning Design when developing, leading/facilitating, and evaluating training projects, with a special focus on the particular qualities, values, ethics, and style which are typically missed in other training-of-trainers' courses

  Advance the participants' knowledge and skills on the topic of Intercultural Dialogue (ID) and on how to use ID principles in their work

Technical Issues

It is a blended learning course, based on two distance learning phases and one on-site phase.

First Distance Learning phase

- Instructions
  for the registration on the Educational Platform
  Element: Learn Tech Tools IS-2

- Participants register themselves on the platform
  They add their personal details. They present themselves and their

organisation in a creative way (video, poster, picture album). The trainers present via video the objectives of the course
Element: Intuitive IS-8

- Initiate the learning process
  A self-evaluation questionnaire: Participants' expectations from the course. The basic documents of the course are uploading on the platform: 2nd info pack + final programme. Competence Model of Trainers
  Element: Pre-Class has Big Idea
- Presentation of the «Competence Model of Trainers».
  Element: Lower Boom's IS-1
- Manual – Facilitation of Intercultural Dialogue.
  Proposal for live communication of the participants in pairs using tools like messenger, skype etc.
  Element: Link to Group space IS-4
- Evaluation of the first distance learning
  Element: Giving feedback

Onsite Training

The onsite training covers various group activities.

Elements: Clear Expectations. Instructional Design, Continual Development, Tell Students Why, Promote Collaboration, Active strategies, Reflection, Model for students, Multi-levelled, Designed for Active Learning

Follow-Up (Second Distance Learning)

- Activities like:

  What "sticks" with you after the face-to-face meeting? What have you already shared with others? What do you believe has still remains unprocessed after the meeting? Which have been the immediate after-effects of the meeting on you personally and professionally? Have you made any adjustments in your learning design processes since you returned to your country of residence?
  Elements: Collect Data, Regular Feedback

- Final product (assessment)
  The final product "Model Evaluation Questionnaire»" is uploaded on the Learning platform and shared to the project partners.
  Elements: Formative Tools, Learning Outcomes
- Quiz & Questionnaire
  Elements: Formative Tools, Explain How, Regular Feedback
- Recommendations for improvements
  Project partners answer to the following questions: If they involved the project's participants as trainers or facilitators in their projects/activities, the number of learners that directly benefited from the improved competences of the trainers
  Element: Regular Feedback

6. Ideas, Guidelines and Tools

The partners in this project developed several ideas and guidelines during the project's lifetime.

Ice-breaking activities

Course participants often do not know each other in Adult Education. For these cases, the course provider should consider a so-called ice-breaking activity during the first onsite training session.

The consortium proposes some activities that might be used for this purpose.

Drawing activity

We all come with different backgrounds, personalities, interests etc. that shapes our perception. This experiment can be referred to later when having discussions in the group, to encourage tolerance for others' perspectives and views.

- Find an object that looks different from different angles (e.g., a shoe, a book standing up, a teddy-bear…). Put it on a table and let the learners sit around it. Hand out paper and pencils and give them10 minutes to draw the object from where they are sitting.
- Afterwards, put all the drawings on a wall or table and ask the learners to reflect on the drawings… their similarities, differences, spontaneous reactions.

- Have a conversation about how one object can look very different depending on the perspective you see it from. In addition, people sitting next to each other most likely focus on different details.

Hint: If possible, select an object with direct context to the training.

Egg activity

This is a nice exercise to foster cooperation, and can be used as a metaphor for discussing interesting topics such as group dynamics, creativity, communication, time pressure etc. Only imagination sets limits!

- Divide the learners into groups of 4-5 people in each group.
- Beforehand, prepare, according to the number of groups, sets with the following objects: 3 pages from a newspaper, 2 clothing clips, 2 meters of thread, one t-shirt, scissors and 3 balloons.
- Give the groups one egg each. Ask them what this egg represents and let them give the egg a name. Every group then shares this to the rest of the learners.
- Give each group the set of objects. Say that the egg will be dropped from 2. floor/some high tree/some high place in the surroundings.
- Give them 30 minutes to construct, from the material given, something that will prevent the egg from breaking.
- Then try it!

Presentation activity

Select pairs of two. A well-proven method is to select play cards with two colours. As an example, you may chose heart and spade and build pairs of the heart king and the spade king. Make as many pairs as possible that there are cards for all participants.

Each participant selects a card and searches for the well-fitting partner.

Each pair gets two big sheets of paper and two "Edding pens". Each pair gets some time to talk to each other and find out some personal issues. Additionally, each person draws a portrait of the partner.

In the plenum each person mounts the drawing on a pin board and uses it to introduce the partner.

Blended Learning as a delivery method

Many course providers select Blended Learning as a delivery method for the Flipped Learning 3.0 course. Here are some recommendations how to implement the course using Blended Learning.

The recommendations mainly focus on the involved and responsible trainers.

Selection of the trainees

The selection of the trainees should be done with strict criteria, according to their affinity with the course goals. Compromises in the selection terms should be limited.

Selection of the trainers (tips)

Trainers should have cooperated with the organization previously, in various aspects. They should be experienced in the exact field of the course.

During the training course, when instructions are given, and there is no response, there should be given clarifications, accompanied by examples.

Be flexible. When a day's schedule cannot be followed the way it has been planned, change it with a plan b.

Environment

Take care of the logistics (comfortable seats, good ventilation, water/fruits easy to access.

Avoid tensions among trainers. When they happen, cover them carefully.

When you are working on-line, be prepared in case there is a network failure or other technological problems.

Quality of the Trainer.

The quality of a trainer has a crucial impact on the quality of the training activities he/she designs and delivers. In a Training of Trainers course, the

trainers in charge of the course should have the skills (perceptiveness, knowledge, experience, intuition) to practically demonstrate and model what they are "preaching" for, and to clearly explain their learning design choices, if those are questioned.

The competences a trainer should have, based on the ETS Competence Model for Trainers, are the following:

(1) Understanding and facilitating individual and group learning processes.

- Skills to select, adapt or create appropriate methods for supporting the learning process and engaging the participants
- Skills to improvise, adjust and deal with ambiguity, unknown and unpredicted situations, especially those related with emotional reactions and frustrations
- Knowledge of individual and group dynamic processes and how those are affected by the trainers' energy and input
- Knowledge of how to create an inviting learning environment that caters to the participants' needs and their feeling of safety in the hands of a professional team
- Knowledge of how to support, challenge and confront learners in a way that is useful to the learners
- Ability to empathize with the participants and share own emotions and insights honestly, respectfully and ethically
- Knowledge of environmental and relationship factors that support and block creativity and participation
- Knowledge of ethical boundaries towards the learners

(2) Learning to learn

- Self-awareness and self-assessment capacities as facilitator/trainer
- Ability to understand how learning can be organized in an effective and meaningful way
- Ability to encourage learners to take responsibility for their own learning and for contributing to each other's learning
- Ability to understand and value feedback as a mechanism of personal/professional development

(3) Designing educational programs

- Skills to identify learners' needs and expectations and matching those to the training plan
- Skills to clarify their own training intentions
- Ability to manage comfortably when the contents, knowledge and values of the training program are being challenged by the learners
- Skills to select and apply various evaluation processes and methods of impact assessment during and after the educational project
- Skills to set up distant learning processes and to engage and support learners in their use
- Willingness to support and empower learners

(4) Cooperating successfully in teams

- Knowledge of one's possibilities and limits
- Openness and readiness to accept challenges to their own competences
- Skills to recognize disagreements and apply methods to deal with them
- Receiving and phrasing criticism respectfully, honestly and constructively
- Driving collective and individual emotions towards a resolution
- Tolerance for interpersonal tensions, dealing with frustration in a constructive manner

(5) Communicating meaningfully with others

- Ability to maintain a non-judgmental and engaging attitude
- Ability to acknowledge the experience of the learner and empathize with him/her
- Ability to show a clear understanding of feelings and emotions and their impact on others
- Ability to create a safe environment where feelings and emotions can be freely and respectfully expressed
- Ability to encourage sharing and support within the group

Skills of sensitivity and openness to diversity and working effectively with learners from diverse backgrounds

More specifically in relation to **Intercultural Dialogue principles**, and based on the **Toolkit for Conducting Intercultural Dialogue**, the project's participants should be supported to advance in the following skills:

- Exploring self-awareness and personal identity
- Creating a safe space of mutual participation
- Advancing shared ownership of this project's results
- Using honest communication to face challenging issues
- Listening to the Other – whether that is the Learner or a Fellow Trainer/Participant
- Developing reflective and critical thinking capacities

7. Quality Framework

Well-done training needs control and regularly done quality enhancement. The control of courses can be done by the feedback (of learners as well as of the involved trainers).

Currently no usable and common quality frameworks exist for Flipped Learning courses. Nevertheless, the 187 Global Elements of Efficient Flipped Learning enable to create a simple quality framework that might be used for Flipped Learning 3.0 courses and trainings in Adult Education.

This proposed framework focuses on 5 major issues:

- Course design
- Content creation and Content development
- Course implementation
- Course evaluation and
- General quality issues

Course Design

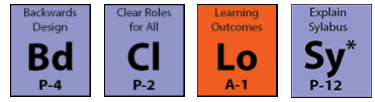
Introduction

Course design is the process and methodology of creating quality learning environments for learners. Successful courses require careful planning and continuous revision and amendments.

Course design should define the course goals (or learning outcomes), teaching or training approach, course content basics, teaching methods, and course policies, as well as specific responsibilities for trainers.

The focus of course design is to put together the optimal learning experiences for learners in an environment that is supportive and appreciative of learning and intellectual development.

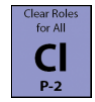
Learning outcomes



Learning outcomes must be defined and described properly, in line with the guidelines of Flipped Learning 3.0 (and match the Global Elements of Efficient Flipped Learning).

Defining learning outcomes, it is necessary to take into account several issues:

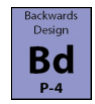
Clear Roles for All



When possible, define clear roles for everyone involved in creating Flipped Learning courses (subject specialist, instructional designer, technologist). This means a cooperation of several people in the creating process, where each person has a certain role.

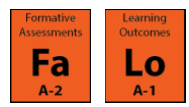
Hint: In small organisations, one person may take more than one role.

Backward Design



In teacher's education one of the most important issues is "Always consider the intended end". In Flipped Learning 3.0 this principle is called "Backward Design". It means to start from the expected learning outcomes and to develop the course step by step to the starting point. This enables always to keep an eye to the goal or target of learning.

Assessments



Flipped Learning 3.0 requires regularly performed assessment (through formative assessments). These assessments must be foreseen, planned and structured from the beginning. In general, these

assessments need to be geared towards learning outcomes (in the frame of the Backward Design).

SMART approach, based on Meaningful tasks

Define your learning outcomes to be Specific, Measurable, Achievable, Relevant and Time Sensitive.

- Specific

  Specific means that learning/training outcomes should be concrete. Do not use common phrases that cover a large scope. Example: "The learner should be able to work with images" should be replaced with "the learner is able to create, edit, and upload images to a social media platform".

- Measurable

  It is necessary to define an appropriate system to collect data about the learning progress and success of the learners from the beginning.

  Example: You may provide formative evaluation during the course using assignments or tasks done by the learners.

- Achievable

  Always select learning programs, assignments, tasks, activities, and tests that are realistic for the learners.

  Example: Keep it simple and small, do not combine two tasks in an assignment - split them into two smaller tasks and care for the necessary time for the learners to manage these tasks.

  Hint: If you used the word AND, in your outcome, you may have written two outcomes in one.

- Relevant

  Courses should be designed in a way that aligns with the initial purpose. The learning outcomes must be valuable for the learners, useful and help them to reach the course aims.

- Time sensitive

Time sensitive is always to be seen in the context of the answers to questions like: When? What is manageable in the timeframe of .... days/weeks/months? What will be the learning success in .... days/weeks/months? What is possible to do in one day?

Hint: The term "time sensitive" may be replaced by time-based, time limited, time/cost limited, timely, or time bound.

Learner-centered approach

The course should take into account a learner-centered approach, based on active learning.

Remarks

The plan and the structure of the course is based on learner-centered activities that encourage students to summarize the content of the pre-class media.

From good praxis you should define your learning outcomes using the phrase "At the end of the course (unit, activity) learners should be able to ..." followed by the description of the expectations. If possible, describe competences (in terms of knowledge, skills, and attitudes).

The learner-centered approach includes the focus on active learning as well.

Means of course delivery

Means for the course are selected cautiously. Specific issues that must be considered:

- The priority must be given to pedagogical considerations.
- All means must focus on the expected outcomes and must not be an end in itself.

Remarks

This addresses techniques and the used tools.

Choose Tools Appropriately

Choose technology tools which work both in your onsite teaching and on learners' devices. It is absolutely necessary to respect this issue, otherwise the learners will fail. It is a good praxis to explain before the course which devices can be used (and to exclude unsuitable and inappropriate devices). This item addresses the term "multiple devices" which means that the delivery of the course must be possible with various devices that behave identically (other devices must be rejected).

Appropriate Media

Strategically appropriate medium must be chosen for the pre-class media (text, annotated whiteboard video, screencast, plain video, or other multimedia-based tools). One danger, however, is that multimedia becomes an end in itself. Therefore, serious considerations must be done to select the best media (best can refer to easy access or best presentation of the content or similar)

Teamwork with experts

The course design includes experts in

- The course subjects
- The technical background

Remarks

In (small) organisations the personal resources are not available in the expected number. In many cases the trainer is the course developer as well as the technician in charge to implement all technical solutions for the course.

Well-structured Individual and Group Space

The planning and structure of activities dedicated to the two major learning spaces is crucial and must be considered very seriously from the beginning.

Content Creation and Content Development

Introduction

Content development describes the process of collecting the material that will be used in the course.

This may cover the research, the preparation and writing of the content. In this context it addresses all types of material (for example text, multimedia material, assignments).

This must include all areas of possible content, like texts, multimedia materials or special materials for practical work (hands-on exercises or praxis).

Content creation describes the process to prepare the material for the practical use in the course.

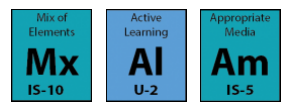
Content requirements

The basic content requirements should be spotted and realized.

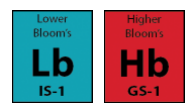
Remarks

Content can take many forms; therefore, it is necessary to define the way the content is delivered to the learners. For the content creation, it must be considered if it will be used individually or in groups.

Appropriate Media

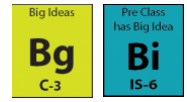


Strategically choose an appropriate medium for the pre-class media (text, annotated whiteboard video, screencast, plain video) Hint: This is valid for media used in Group Space as well.

- **Active Strategy**
  Content must be connected to activities (specifically in the group space).
- **Appropriate dedication of Bloom's Taxonomy**
  

  The content must be developed respecting lower and higher Bloom's taxonomy in the two learning spaces.

The Big Idea



The course contains a "Big Idea" that is the base to create course content and to implement the course.

Remarks

Each course should have something called the big idea). This Big Idea should include

- Learning outcomes
- The Use of (Lower and higher) Bloom's
- A Mix of Elements
- The connection to learners' prior knowledge
- Use of digital and analogue methods
- A Selection of appropriate tools

A pedagogical plan must be developed and seen as the "master plan" or "the big idea", how to present the content to the learners. The most promising method must be selected finally to create the highest level of learning outcome. The content creator must be well-educated in active learning and able to describe the delivery method that will be used (or - in small organisations - must be able to create the learning activity on his own).

As Flipped Learning 3.0 is in close context with technology, the material must be prepared for the appropriate delivering method.

Differentiation

The course content enables differentiation of learning content.

Remarks

Independent learning material is used to provide learners with regular feedback (Independent means that there will not be a direct dependency between various learning material). This might be done with self-assessment activities or well-created test material. This can be the option to select from "dual content presentation" (video and textbook) or different levels (in context with the pre-knowledge).

Interactivity

Materials should provide sufficient interactivity, to encourage active engagement of the learners. This enables learners to test and practice their knowledge, comprehension and skills. Interactivity refers to student-to-content as well as student-to-student actions.

Remarks

Interactivity addresses to (incomplete sample list)

- Interactivity of videos (for example in pre-class)
- Intuitive and interactive tools
- Learner-based content creation

Open Educational Resources (OER)

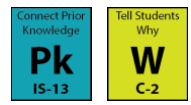
Open Educational Resources are used (when fitting to the big idea and other defined issues).

The use of OER can be useful and should be done in any cases, where an added value is visible. OER must be translated in most cases and a necessary adaptation to the learning objectives must be carried out in any case. They must fulfil the basic approach to Flipped Learning 3.0, mainly in the frame of active learning.

Course Implementation

Course implementation addresses the Individual space and the group space.

Preparatory information to the learners

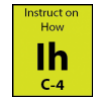


Learners are prepared for the course by information given timely before the course starts.

Remarks

This must cover questions about the competences that will be enforced, the use of the foreseen devices during the training, previous knowledge, the presence of the necessary infrastructure (this can be Wi-Fi Access, suitable devices, ...)

Preparatory training for learners



Learners are either well experienced in all issues concerning their participation in the course or get sufficient training before the course to master all technical, administrative and practical issues.

Remarks

This is a crucial issue if a learning platform is used in the course. Course participants must be practised in the key tasks that they have to be able to do in the course. Some examples: Uploading data, submitting the result of assignments, using tools for collaboration and other related issues.

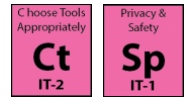
Learners must be well-prepared and have to learn to use the learning platform and the necessary tasks (e.g., upload of the assignments, communication with others).

Central Access

All used tools, assignments, material, communication channels and other relevant items must be able to be accessed from a central point (normally the learning platform).

This concerns the Individual Space as well as for the group space.

Technological issues



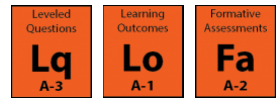
The course provider must ensure an adequate technological infrastructure and a safe virtual learning environment. This cover

- Privacy and Safety
- Choose the appropriate tools
  All used tools must be in a safe environment and inaccessible from outside.

Remarks

Using a learning platform, you must care that all materials can be accessed from this learning platform (even if they are hosted on other places in the internet). The embedding or accessing the material from the platform is a crucial issue and must be considered very carefully.

Appropriate Assessments

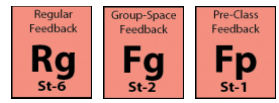


During and/or at the end of the course various assessment measures are provided. Assessments always must be in alignment with the learning outcomes.

The course should use various assessment techniques:

- Formative Assessment
- Levelled questions
- Focus on Learning Outcomes

Feedback



An appropriate feedback culture is to be foreseen for the course and communicated with the learners. This covers

- Feedback of learners on pre-class (Individual Space)
- Feedback of students on Group Space
- Constantly monitoring of learners' attitudes and achievements
- Strict time plan to get feedback from the learners during the course

Course Evaluation

A final course evaluation is foreseen. This evaluation includes learners as well as trainers.

The evaluation focuses on the preparation of the course, the implementation of the course, the content, the trainer's performance, and the overall performance.

Remarks

Course evaluation must be done from both sides: Learners as well as trainers. Here answers to the questions should be given:

- How did the learners do?
- What feedback have you received?
- What changes will you make (must be done)?

Learners: Their impact helps to increase the quality of materials, their performance in the course, and to improve the materials used and processes in the course.

Trainers: Their impact cares for a continuous further development of the course, the development of better and progress customized material.

Course evaluation may start with the course, the process must be implemented in time to get the learners' (and trainers') feedback.

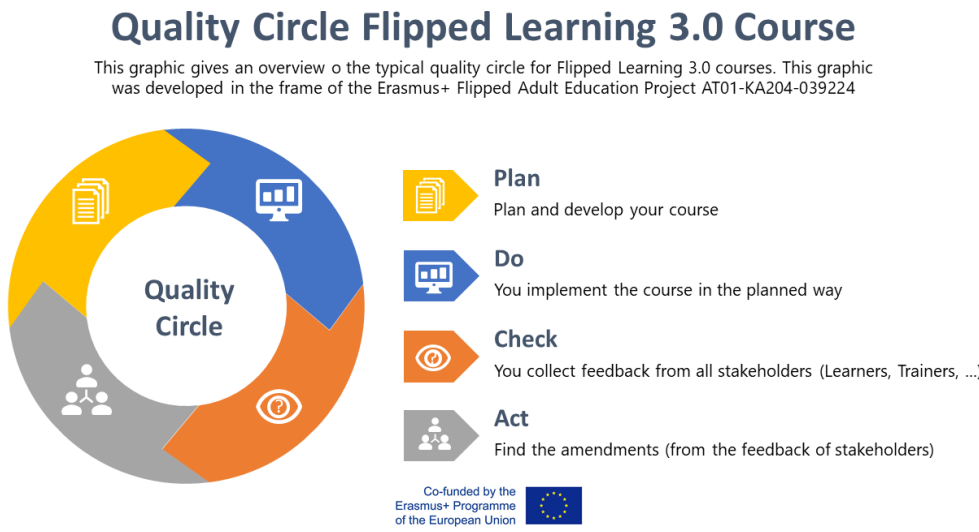
Appropriate methods must be foreseen for a qualified feedback in time. This may be questionnaires, guided interviews, lessons learned sessions, other methods and also a combination of methods. In any case, a precise definition of the evaluation aim must be given (Backward Design).

General Quality Issues

For each course, a qualified documentation exists, based on the feedback of stakeholders.

Remark

The documentation must be used to increase quality (in the frame of a quality circle).



Get feedback from learners and trainers dealing with the course content and implementation. This covers the three course stakeholders.

(1) **Learners**

- Materials used
- Available time
- Assessments

(2) **Trainers**

- Materials used
- Group space (group building, cooperation, means provided)

(3) **Organisation**

- Technical issues
- Requirements & satisfaction
- Tools provided.

8. Further Readings

To increase the knowledge and for better understand the background of Flipped Learning 3.0 we recommend here some reading sources.

- **Flip Your Classroom: Reaching Every Student in Every Class Every Day**
  This is the first book of Jonathan Bergmann and Aaron Sams and focuses on the flipped classroom – the first step to the Flipped Learning Framework (2012).
- **Flipped Learning 3.0: The Operating System for the Future of Talent Development**
  Jon Bergmann and Errol St. Clair Smith (2017) summarized the development of Flipped Learning. The next step was the presentation of the 187 Global Elements for Efficient Flipped Learning.
- **Flipped 3.0 Flipped Mastery Learning: An Insanely Simple Guide**
  This book offers an overview of the instructional strategy behind Flipped Learning. Author Cara Johnson is a former high school science teacher

Blogs and web-based material

- Jon Bergmann: https://www.jonbergmann.com/
- Flipped Learning Network: https://flippedlearning.org/
- Flipped Learning Global Initiative: https://www.flglobal.org/

[1] R. Gagne, The Conditions of Learning and Theory of Instruction, Holt, Rinehart and Winston, 1985

[2] Adapted from "The brain from Top to Bottom", https://bit.ly/3qhfEYN (accessed on 1/6/2019)

[3] Technical Innovation in Blended Learning, Erasmus+ 2017-1-ES01-KA202-038256 Web page: https://www.tibl-project.eu/

[4] Jon (Jonathan) Bergmann https://en.wikipedia.org/wiki/Jonathan_Bergmann

[5] Robert Talbert, Ph.D, http://rtalbert.org/about/

[6] K-12 is a term used in education and educational technology in the United States and Canada. It is a short form for the publicly supported school grades prior to college. These grades are kindergarten (K) and the 1st through the 12th grade. In Europe this covers primary education and (upper and higher) secondary education.

[7] B. Bloom: Taxonomy of Educational Objectives, David McKay Company. 1956

[8] InterMedia Project, Erasmus+ Project 2020-1-AT01-KA204-078005, https://www.intermedia-project.eu/web/results/multiple-devices-in-learning/

[9] AALAS: https://aalasinternational.org/updated-definition-of-flipped-learning/

[10] AALAS Standards: https://aalasinternational.org/aalas-general-standards/

[11] https://www.blendedlearning-quality.net/

[12] http://www.eun.org/

[13] http://fcl.eun.org/icwg

[14] P. Mazohl, H. Makl (2017) Teaching Science Subjects to Girls – The Analogous Comparison and Transfer Method (ACAT), *ICERI2017 Proceedings*, pp. 1951-1958.

[15] https://www.intermedia-project.eu/

[16] HTML5 is a page description language whose acronym stands for Hyper Text Markup Language. With HTML you can display text combined with multimedia-based content easily on a web page.

[17] https://www.jstor.org/stable/1466789

[18] Steinberg, D.; Freely A (2014): Argumentation And Debate: Critical Thinking For Responed Decision, Cengage

[19] P. Hrynchak, H Batty (2012): The Educational Theory basis of team-based learning, DOI: 10.3109/0142159X.2012.687120

[20] Hake R (1998). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *American Journal of Physics* 66: 64-74

[21] Levine RE, O'Boyle M, Haidet P, Lynn DJ, Stone MM, Wolf DV, and Paniagua FA. (2004). Transforming a clinical clerkship with team learning. Teach Learn Med 16: 270-275.

[22] About H5P: H5P makes it easy to create, share and reuse HTML5 content and applications. H5P empowers everyone to create rich and interactive web experiences more efficiently. Link: https://h5p.org/

[23] Edpuzzle is an easy-to-use platform allowing you to engage every student, one video at a time. Link: https://edpuzzle.com/

[24] Source: https://www.allrecipes.com/recipe/72508/the-best-vegetarian-chili-in-the-world/

Video of recipe: https://www.allrecipes.com/video/935/the-best-vegetarian-chili-in-the-world/

[25] Recipe adapted from: https://mambeno.co.uk/recipes/ratatouille-with-kidney-beans-and-bulgur/