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INSTRUCTIONAL MANUAL HOW TO DEVELOP MODERN AND ATTRACTIVE LEARNING?

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The context of the project

Many people from the Middle East and North Africa come to Europe, to live and to work. That is not easy. Also 2nd and 3d generation children have problems with integration. Among these groups there are potential valuable workforces, where European population is getting older and shrinking.

To use this potential, integration is important. Integration includes the entry of young children in the educational system, with many challenges:

- Language and culture of the host country,
- Different educational systems,
- Lack of social contacts with neighbours or other representatives of the new country,
- Growing separation and reducing tolerance.

Contacts can be simply created via culinary activities. Multicultural cooking together with children, parents and teachers creates a better understanding. Modern learning tools and materials can help to facilitate these activities. VET students will present it in primary/secondary schools. VET image will improve and more.

Our mission

Using food as a tool to contribute to the integration of Newcomers in Europe.

Main objective

- To develop learning materials about food, both from host countries and the Newcomers their home country.

Specific objectives

- To give Newcomers a better knowledge of the language and culture of the European host countries,
- To stimulate Newcomers to participate more in the educational system, including VET, and feel at home,
- To contribute to a more attractive VET, with more participants,
- To support the participation of Newcomers in the European labour market.

Introduction

Modern and attractive learning tools and materials can help to facilitate the multicultural culinary activities we are going to develop in the project.

Main questions to be answered in this manual

1. What are the latest opinions on modern and attractive learning tools and materials (including social media)?
2. What are the latest insights of the development of these kind of learning tools and materials?

Part A - What are the latest opinions on modern and attractive learning

1. Exploring new forms of teaching and learning

There are different kinds of innovative pedagogies and concepts around Europe with different names and labels like competence-based learning, K-12, NPDL - New Pedagogies for Deep learning) and Big Picture learning.

Most of these pedagogies can be characterized by the following main characteristics:

- Skills development is important like 21st skills or transversal skills
- Technology driven
- Student driven
- Personalised based on interests and capacity
- Real world learning - practical and cross-sectoral
- Learning anytime and every were
- Importance of informal learning

Two nice videos that illustrates the need for these new pedagogies:

[youtube <https://www.youtube.com/watch?v=c0xa98cy-Rw?rel=0&w=560&h=315>]

[youtube <https://www.youtube.com/watch?v=nA1Aqp0sPQo?rel=0&w=560&h=315>]

There is more interesting stuff: just search for modern learning or 21st century education and learning on [You Tube](#)

Sources & further reading

- Innovation Pedagogy 2015 Exploring new forms of teaching, learning and assessment, to guide educators and policy makers - [here](#)
- The future of learning. What kind of pedagogies for the 21ste century? - [here](#)
- Big Picture learning - [here](#)
- New pedagogies for deep learning - [here](#)
- Italian talent abroad - E-learning: the revolution in progress and its impact on training and education in Italy - [here](#)

2. Blended learning

Definition of blended learning

Blended learning is an English term that has been used since 2005 to describe a particular educational vision. It can be defined in different ways, as noted by Oliver & Trigwell in 2015:

- the integrated combination of traditional learning with web-based online approaches;
- the combination of media and tools employed in an e-learning environment;
- the combination of a number of pedagogic approaches, irrespective of learning technology use

The glossary of education reform ([here](#)) states that the term blended learning – also called hybrid learning or mixed-mode learning - is generally applied to the practice of using both online and in-person learning experiences when teaching students. In a blended-learning course, for example, students might attend a class taught by a teacher in a traditional classroom setting, while also

independently completing online components of the course outside of the classroom. In this case, in-class time may be either replaced or supplemented by online learning experiences, and students would learn about the same topics online as they do in class—i.e., the online and in-person learning experiences would parallel and complement one another.

This is just one example. Blended-learning experiences may vary widely in design and execution from school to school. It offers many potential advantages and disadvantages that will largely depend on the quality of the design and execution of a given blended-learning model.

Effects of blended learning

There is a lot of literature and studies on the effect of blended learning, but it all depends on the effect and implementation of a specific design. The teacher or lecturer remains an important factor in the design and can not be replaced by any technology. Technology should be a tool and not an end in itself.

Generally, research has found that blended learning results in improvement in student success and satisfaction as well as an improvement in students' sense of community when compared with face-to-face courses (Dziuban, Graham and Moskal, 2018).

Blended learning is being recognised as a solution to the perceived weaknesses in both traditional learning and e-learning. It represents a real opportunity to create learning experiences that can provide the right learning at the right time, in the right place and at the right level, for each and every individual, not just at work, but in schools, and universities. It can also be truly universal, crossing global boundaries and bringing groups of learners together through different cultures and time zones. In this context blended learning could become one of the most significant developments of the 21st century. (Hassana and Woodcock, 2014)

We can therefore conclude that without any doubt modern and attractive learning is blended learning.

Here is a nice video to illustrate the definition and models of blended learning
[youtube <https://www.youtube.com/watch?v=3xMqJmMcME0?rel=0&start=29&w=560&h=315>]

Sources & further reading

1. Oliver & Trigwell in 2015: Can 'Blended Learning' Be Redeemed? - [here](#)
2. Glossary of Education reform Blended learning - [here](#)
3. Dziuban, Graham and Moskal, 2018: Blended learning: the new normal and emerging technologies - [here](#)
4. Hassana & Woodcock, 2014: Blended learning: Issues and Concerns - [here](#)

3. Social media and Educational apps as part of the blend

The collection of social media and Educational apps is expanding every day and the possibilities to use the tools in an educational setting are innumerable.

Benefits of Educational Apps

Educational apps can never replace the teacher, but they can improve and support the learning process as a tool for teachers, students and even parents.

Some of the benefits of educational apps are

- Individually focused
- Personalised
- Interactivity and engagement
- Active and not passive
- Availability anywhere & 24/7
- Connectivity
- Track progress
- Actual content
- Endless repetition
- Always patience
- No judgement
- ...

How to find the right app?

To overcome the problem of the ongoing development of new apps every day websites arise that help teachers and schools to select the best educational tools based on a ranking, description of good practices and/or a search. Some are commercial, others are for free, developed with public money or highly motivated teachers themselves. Just search the internet and you will find what you are looking for. Here are just some nice examples.

[60 Awesome Educational apps You need to download know](#) They tried and tested every Apple and Android app, researched their educational benefits, and shortlisted 60 top educational apps for all ages.

[The 55 best Freed Education apps for I-pad](#) by Teachthought We grow teachers.

The [Education app-store](#), with over over 3000 certified and classified apps (also free apps). They also keep a list of the best [cooking apps](#): Issa's edible adventures, Grandma's kitchen, Toca Kitchen, My Panda chef.

[Eduapp](#) has launched in The Netherlands just over 2 years ago. Eduapp is a community of ambitious teachers who come together to share their work, insights and inspiration about apps in education. .Currently they have **over 30.000 teachers connected**, sharing and advancing the transformation use of technology in education. The international version will be launched very soon.

Sources & further reading

- Kennisnet - 125 leerzame apps & websites (Dutch) – [here](#)

4. (Online) games as a part of the blend

Educational games

Educational games are games explicitly designed with educational purposes, or games which have incidental or secondary educational value. They can be an important part of a blended learning design and can play different kinds of roles in the learning process depending on the intended learning outcomes and/or the characteristics of the target group. Games can be used to teach or test specific knowledge, expertise or skills.

Game types include board, card, and video games. Games are interactive play that teach us goals, rules, adaptation, problem solving, interaction, all represented as a story. They satisfy the personal need to learn by providing enjoyment, passionate involvement, structure, motivation, ego gratification, adrenaline, creativity, social interaction and emotion in the game itself while the learning takes place.

Video: Every game is a learning game <https://www.youtube.com/watch?v=o6IELVV2xLQ>

The most common types of educational games are:

- Simulations: Digital experience that is meant to simulate real-life scenarios when the real-life scenario is difficult, dangerous, or has cost restrictions.
- Mini-Games: A short game experience existing within or alongside digital course content. Used best when reinforcing singular lesson objectives.
- Playful Tools: Digital tools that are meant to playfully handle logistical needs.
- Interactives: Simple cause and effect interactions used to help the learner visualize or reinforce the key concepts.

Video games

A video game is interactive digital entertainment that you “play” via a computer, a game console (like the Xbox or PlayStation) or a phone or tablet. They can be divided in all kinds of categories like action games, adventure games, role-playing, simulation, strategy games and sports.

James Paul Gee, professor of Literacy studies at Arizona State University, is one of the main researchers in the field of video games, learning and literacy. In Gee’s opinion a video game is just a set of problems that you must solve in order to win.

Paul Gee his vision on the role and usability of video game in learning: see <https://www.youtube.com/watch?v=LNfPdaKYOP>

And

<https://www.youtube.com/watch?v=d0ihK7xGs2M>

Game-based learning

Game-based learning is a type of game play that has defined learning outcomes. Generally, game-based learning is designed to balance subject matter with gameplay and the ability of the player to retain and apply said subject matter to the real world. Children tend to spend hours playing hide and seek, learning the steps of digital games, such as chess, and engaging in creative games. Therefore, it can be said that play and learning are synonymous, leading to cognitive and emotional development inside a social and cultural context. For instance, the game of hide and seek. Good hiders need visual and spatial perspective to define the best hiding places, while seekers must be skilled at searching for cues from the surroundings and choosing the most probable location for the hider among various possible places.

Powerful games in the classroom often include:

- multiple levels or challenges;
- a compelling or intriguing storyline;
- a personalized, unique experience for each learner;
- rewards such as unlocking certain capabilities based upon achievements;
- additional rewards and feedback from the teacher or classroom.

Gamebased learning is often getting confused with gamification. The video of Gamelearn explains the possibilities of gamebased learning and the difference with gamification:

https://www.youtube.com/watch?v=Uj_8C2L9bXI

Gamification

Gamification is the application of game thinking and game techniques in non-game environments e.g. point scoring, competition with others and rules of play. In gamification you use game elements to motivate users and enrich their experience. The principle of gamification is not new. We have been playing games for centuries. In most households video games are played nowadays. In it we experience how effective games are in seducing, gripping, motivating and binding their players. Applying these techniques in the real world is what gamification is about. Gamification is central to stimulate personal behaviour and activities based on intrinsic motivation.

Video What is Gamification by Karl Kapp:

<https://www.youtube.com/watch?v=BqyvUvxOxOM>

Video Meaningful Play – Getting Gamification Right by Sebastian Deterding:

<https://www.youtube.com/watch?v=7ZGCPap7GkY>

The extent to which gamification can be applied can vary greatly. Very small and simple gamification techniques can generate big effects. Think of the LinkedIn progress bar. A bar on your LinkedIn profile that counts how many percent of your profile is filled. If you are only at 25%, that is frustrating! LinkedIn recognizes that and gives you direct tips on how you can increase your status.

If you are going to use multiple gamification techniques in the same environment. Then you get to deal with aspects like flow, just like game developers, the right balance of game techniques and the story. An educational setting where random game elements are pasted to match the intrinsic motivation of the user will not motivate but lead to frustration.

Gamification in Education and useful sources: <https://www.youtube.com/watch?v=nYnbapB5Yl8>

Gamifying Education – How to make your classroom truly engaging

<https://www.youtube.com/watch?v=MuDlw1zlc94>

The video collection from Sebastian Deterding:

https://duckduckgo.com/?q=Sebastian+Deterding&atb=v100-2_&iax=videos&ia=videos&iai=7ZGCPap7GkY

How to find the right game

A group of students and educators have set up a wiki called Gamifi-ed with an online encyclopaedia of educational games. Every game is tested by students and educators. You will find it [here](#).

Furthermore there are all kinds of online lists available of the best educational games. For example the top ten learning games for kids - [here](#)

Sources and Further reading

- Educational game development by Raul Kubarsepp – [here](#)
- Gamebased Learning by Martin Sillaots – University of Tallinn- [here](#)

- The Gamification of Learning and Instruction: Game-based Methods and strategies for training and education by Karl M Kapp - [here](#)
- Applying Gamification in an Online Course of Computer Hardware", Master Thesis - [here](#)
- Learning, Education and Games Volume One: Circular and Design Considerations- [here](#)

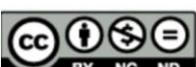
Part B - What are the latest insights on development methods of modern and attractive learning?

1. Methodological issues: open access, participation and co-creation

The dynamics of the development of learning materials is changing rapidly. It is all about Open Educational Resources (OER), participation, co-creation and prototyping. The worldwide OER movement is rooted in the human right access highly-quality education. The Open education movement is not just about cost savings and easy access to openly licensed content; it's about participation and co-creation. Open Educational Resources offer opportunities for systematic change in teaching and learning content through engaging educators in new participatory processes and effective technologies for engaging learning.

The open resources are teaching and learning and research resources that reside in the public domain or have been released under the intellectual property license that permits their free use and re-purposing by others. OER includes full courses, course materials, modules, textbooks, streaming video, tests, software and any other tools, materials or techniques used to support access to knowledge.

[Creative commons](#) facilitates this development through the arrangement of different kinds of licenses.

LICENSES	TERMS
	 Attribution BY Others can copy, distribute, display, perform and remix your work if they credit your name as requested by you
	 No Derivative Works ND Others can only copy, distribute, display or perform verbatim copies of your work
	 Share Alike SA Others can distribute your work only under a license identical to the one you have chosen for your work
	 Non-Commercial NC Others can copy, distribute, display, perform or remix your work but for non-commercial purposes only.
	

For further explanation see this video - [here](#)

As an example in the Netherlands we can introduce Groen Kennisnet (Green Knowledge net), a life long learning platform for educators, students and workers. With almost half a million sources of knowledge, Groen Kennisnet is the largest Dutch-language collection of current and reliable sources of knowledge for the food and green domain. Groen Kennisnet facilitates researchers, lecturers and students in accessing, searching and finding sources of knowledge and learning materials in the field of food and greenery using the latest technology.

The intended users are teachers and students in green education (agriculture vocational colleges, green higher professional education and Wageningen University) and in education with green aspects in education, researchers, entrepreneurs and other interested parties.

The participants of co-creation

Co-creation doesn't mean that educators are the only participants. It gets even more interesting when researchers, experts, entrepreneurs, workers and students themselves are participating in the co-creation! A big advantage of involving students is that some of them are very handy with all the new technologies available online to develop all kinds of appropriate tools for learning like interactive presentations, videos, animations, apps or games. In addition, it is much more fun and exciting to work together for example on an animation than a written paper! You can even do it with partners online all over the world.

Sources and Further reading

- Open Education and Co-creation by Lorna Campbell- [here](#)
- Co-creation MPP news - [here](#)

2.Designing (blended) learning environment

The requirements of your design

Before starting to design the learning environment it is important to analyse the requirements you need to consider before designing the learning activities.

The target group

What are the main characteristics of your target group? Gender? Age? What educational level? Is it homogeneous group? Their preferences? Learning style? Think of all the characteristics that might be relevant related to the target group.

The learning outcomes

Which learning outcomes the student has to reach?

In writing learning outcomes it is important to focus foremost on what a student should know and be able to do and the ways in which this knowledge and skill might be demonstrated through evaluation or assessment. When writing learning outcomes we should bear in mind:

- the kind of knowledge and skills that are involved;
- the level of understanding it is desirable for students to achieve;
- how this learning is to be demonstrated.

A common way of approaching this is to use Bloom's taxonomy of knowledge.

Remembering	Recall facts and basic concepts	Define, describe, draw, find, identify, label, list, match, name, quote, recall, recite, tell, write
Understanding	Explain ideas and concepts	Classify, compare, exemplify, conclude, demonstrate, discuss, explain, identify, illustrate, interpret, paraphrase, predict,

		report
Applying	Use information in new situations	Apply, change, choose, compute, dramatise, implement, interview, prepare, produce, role play, select, show, transfer, use
Analysing	Draw connections among ideas	Analyse, characterise, classify, compare, contrast, debate, deconstruct, deduce, differentiate, discriminate, distinguish, examine, organise, outline, relate, research, separate, structure
Evaluating	Justify a stand or decision	Appraise, argue, assess, choose, conclude, critique, decide, evaluate, judge, justify, predict, prioritise, prove, rank, rate, select, monitor
Creating	Produce new or original work	Construct, design, develop, generate, hypothesise, invent, plan, produce, compose, create, make, perform, plan, produce

Another well-known requirement for describing learning outcomes is that you have to write them SMART:

- **Specific:** Is it clear what the participant will learn?
- **Measurable:** How can we measure whether the training objective has been achieved?
- **Acceptable:** Does the participant believe in the training objective?
- **Realistic:** Can the participants achieve the training objective in the specified time?
- **Time:** What are the time parameters for the training objective to be achieved?

The pre-knowledge

What pre-knowledge is already available concerning the learning outcomes? The language skills of your target group? Their IT skills? And when the pre-knowledge is completely unknown you might have to integrate some part in your design in which you measure or assess the pre-knowledge of the students.

The learning setting

What is your learning or training setting? Is it formal, non-formal or informal?

Formal learning is a carefully controlled and structured training which is organised and delivered by a school or institute. Non-formal learning is purposive but voluntary learning that takes place in a diverse range of environments and situations outside the school situation e.g. at home, at sport club, visiting a museum, etc. Informal learning on the other hand from the learner's standpoint at least is non-purposive learning which takes place in everyday life contexts in the family, at work, during leisure and in the community. It does have outcomes, but these are seldomly recorded, virtually

never certified and are typically neither immediately visible for the learner nor do they count in themselves for education, training or employment purposes.

The learning conditions

What are the terms and conditions that has to be taken into account? For example, the resources that are available or regulations that has to be followed.

When you have analysed all these requirements you can start designing the learning environment.

Designing your learning activities or interventions

There are a lot of resources available on how to design learning activities, learning environments, learning interventions, e-learning etc.

The video from Education Elements give you some inspiration on blended learning models - [here](#)

Main thing while designing the learning intervention it is very important that the learning intervention matches the learning outcomes. Which learning interventions are suitable therefor depend on the learning outcomes and the can vary a lot.

The company anewspring (website – [here](#)) a specialist in learning with technology has developed an inspiring open source cookbook on how to develop blended learning. They distinguish the following learning interventions related to knowledge level, skill level and attitudinal level.

Selection of appropriate learning interventions

Knowledge level	Skill level	Attitudinal level
Book or e-book	360° feedback	360° feedback
Forum	Game-based learning	Coaching
Game-based learning	Testing	Game-based learning
Collaboration	Training	Intervision
Job aid	Serious game	Serious game
Knowledge module		Testing
Memotraining		Self-assessment
Quiz		Self-reflection
Seminar		
Test		
Self-reflection		

The different types of learning interventions are described extensively and clearly in the book. You will find the book - [here](#)

Designing testing or assessment

Within formal learning it is important to establish the effects of the learning interventions. As within non-formal or informal learning it might be motivating and fun to do this. Therefor it is always important to think about testing the effects of the interventions. Main question to be answered are: did the student reach their learning outcomes? And on what level?

Testing can be divided into two types of testing: evaluation and assessment. They are often intertwined but mean different things. Assessment is a systematic, ongoing process in collecting data to inform instruction. Evaluation is a fixed process measuring the outcomes on one moment in time.

Rebecca Burton has posted an inspirational video on You Tube “Evaluation and assessment” and discusses different practical examples. See also discusses the differences in formative and summative assessment. Formative assessment is an important part of the instructions process itself. Summative assessment helps for go/no go decisions after the instructions.

The video can be found [here](#).

Sources and Further reading

- Four key challenges to the design of blended learning: A systematic literature review - [here](#)
- Co-creation MPP news - [here](#)
- 5 Steps for Designing Effective Blended Learning Courses – [here](#)
- Short and concrete tips for making learning experiences – [here](#)

3.Designing games and/or gamification

Designing (online) games

Designing (online) games is a wide discipline developing rapidly. Specific expertise is needed to design and realise online games. Raul Kübarsepp (2017) from the university of Tartu in Estonia shared his knowledge on designing games through an extensive powerpoint - [here](#).

The 7 steps in designing games:

1. Choosing a goal and a topic (objectives and premise)
2. Research and preparation
3. Design phase
 - Input Output Structure (interface)
 - Game Structure (Gameplay and Game Mechanics)
 - Program Structure
 - Evaluation of the Design
4. Pre-programming phase
5. Programming phase
6. Playtesting phase
7. Post-Mortem

Online tools are available to facilitate the design process, like DUNDOC - [here](#)

DUNDOC is an online tool for game developers to start and develop a game idea while collaborating with their team of artists, designers, developers, etc. to contribute to the evolution of the idea.

To get an impression of the DUNDOC environment look - [here](#)

Designing Gamification

Implementing game characteristics in real life classroom interaction can be done by the teacher. The opportunities for (online) gamification are quite a few. Some tips

1. Keep it simple

The power of a game is in the simplicity. The game is challenging but the goal and the rules are clear. For example, consider Pac man or Tetris. An extremely simple concept, but because of the challenge it remains fun to play.

2. Contribute to the intrinsic motivation

Gamification is not about controlling and controlling your target group. Gamification must enrich their experience and help them achieve their goals. And if they do you also benefit from that. That is why it is important to find the drive, the intrinsic motivation of your target group and to respond to that. A handy model for this is the Bartle player types model.



Achievers (about 10 %) are all about points and status. They want to be able to show their friends how they are progressing. They like to collect badges and put them on display. This is the type of person who responds particularly well to incentive schemes such as Air Miles, where every additional mile collected is an achievement in its own right.

Explorers (about 10 %) want to see new things and discover new secrets. They're not as bothered about points or prizes. For them, discovery is the prize. Explorers really enjoy the surprise that's possible in a game.

The vast majority of players are *Socializers* (almost 80%). Socializers experience fun in their games through their interaction with other players. Socializers are happy to collaborate in order to achieve bigger and better things than they could on their own. Whatever the deal is, the point with Socializers is that joining forces makes sense to them.

Killers (less than 1%) are similar to Achievers in the way that they get a thrill from gaining points and winning status too. What sets them apart from Achievers is that the Killers want to see other people lose. They're highly competitive and winning is what motivates them. They want to be the best at the game—and it should come as little surprise that the only way for *that* to be true is if they beat everyone else.

3. Look out for extrinsic motivation

By rewarding people with prizes, you stimulate the motivation in the short term but the intrinsic motivation falls. The action might be a success, but it will not take care of actual behavioural change. In fact, after the action people will fall back in their original behaviour.

4. Use the correct SET techniques

There are numerous game techniques that you can divide into System, Elements and Tools. Not every game technique suits your users or goal so it is important that you choose the right techniques. Look further than just badges, points and leader boards. Think for example of easter eggs (hidden messages), epic meaning (making something impossible), status and the power of cooperation (community collaboration).

Sources and Further reading

- The Art of Game Design by Jesse Schell - [here](#)
- The GAMEit handbook by Mathias Poulsen and Ebba Køber - [here](#)

4. ECVET as a tool for the recognition of learning outcomes

The European Union (EU) has several common instruments helping individuals in transfer, recognition and accumulation of their assessed learning outcomes, to achieve a qualification or to take part in lifelong learning. The European credit system for vocational education and training (ECVET) is one of these instruments; it uses flexible and individualised learning pathways, including transnational mobility.

ECVET allows learners to accumulate, transfer and use their learning in units as these units are achieved. This enables building a qualification at learners' own pace from learning outcomes acquired in formal, non-formal and informal contexts, in their own country and abroad. The system is based on units of learning outcomes as part of qualifications that can be assessed and validated. It offers a framework for making learners more mobile and qualifications more portable, laying down principles and technical specifications and making use of existing national legislation and regulations. It applies to VET (vocational education and training) qualifications at all levels of the European qualifications framework.

We have developed a document with ECVET Compliant Guidelines to help the partners to implement ECVET in the project. The document can be downloaded - [here](#)

Sources and Further reading

- ECVET Website : <http://www.ecvet-toolkit.eu/>