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QUALITY
**Blended
Learning**

Introduction for Adult Educators



Blended Learning

Helpful tips for starting into a combination
of classroom and online teaching

This book was produced by the partners in the Erasmus+ project

Boosting Educators' Competences to do Quality Blended Learning

The partnership was made of organisations from six European countries: UPI-Ijudska univerza Žalec (Slovenia, coordinator), Ada-und-Theodor-Lessing-Volkshochschule Hannover (Germany), Technological University Dublin (Ireland), DOMSpain (Spain), European Digital Learning Network (Italy) and CrystalClearSoft (Greece).

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Blended Learning

Introduction for Adult Educators

Practical Suggestions for Combining
e-Learning with Classroom Activities

Issued by the Quality Blended Learning Project

Dublin, Žalec, Reus, Milano, Athens, Hannover

2019

About this Book

You are very welcome to this book. It provides an introduction to *Blended Learning* and how you might add blended activities into your teaching practice for adult learners. We do not assume you have a great deal of technical knowledge. This book provides an introduction into the technical aspects of blended activities and the creation of respective materials.

The book begins with an introduction (Chapter 1) which outlines some of the basic ideas around Blended Learning. It moves on to *A Pilot Approach* (Chapter 2) which outlines briefly how to include a simple blended activity into your teaching.

Chapter 3 mentions some of the *Key Considerations* that are important to think about as a teacher or adult educator dealing with Blended Learning activities, such as copyright and accessibility.

In Chapter 4 –Advanced Activities – you find detailed tutorials for using tools to create e-learning materials such as presentations, podcasts, videos, games, webquestes, and so on.

Chapter 5 – *The Blended Learner* – suggests some skills you might consider teaching to your learners to help them navigate the blended activities.

Chapter 6 – *The Blended Manager* – suggests ways that you can talk to your management about these blended activities.

The Blended Technologies chapter (7) presents very briefly alternative tools you can use for what is described in Chapter 4.

Finally, the last chapter (8) looks at a range of approaches to evaluating the blended teaching and learning process.

In the appendix you get to know Blended Learning in practice

The book focusses on six types of blended activities:

- Presentations
- Podcasts
- Videos
- Documents
- Games
- Searching

We realise there are many more, but we think these will provide you with enough variety to begin your blended journey.

This book contains a number of forms, which we would like you to copy and fill out. Most of the forms are full-page, which you can print out and distribute to your learners. There are also some other activities designed to be printed out and given to your learners.

Accompanying this handbook is an online resource that provides all of the forms and activities in downloadable format.

Chapter Guide

Colour stripes on the page margins lead you through the eight chapters of the book.

Chapter 1 An Introduction to Blended Learning	Chapter 2 Running a Blended Learning Pilot	Chapter 3 Some Key Considerations for the Educator	Chapter 4 Making Teaching Aids for Blended Learning
Chapter 5 The Blended Learner	Chapter 6 The Blended Manager	Chapter 7 More Blended Technologies	Chapter 8 Blended Evaluation

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Glossary

Accessibility — Making digital content easily available to a range of users, including those who use assistive technologies

ADDIE – An educational design methodology, which stands for analysis, design, develop, implement, and evaluate

Badges, see *Digital Badges*

Balanced Scorecard – An organisational, or departmental, evaluation approach

Blended Learning – Combining classroom and online learning

Cloud Storage – Online file storage system

Copyright – Legal protection for the creator of content

Cornell Notetaking – An approach to notetaking that includes space for summaries and revision

Cost-Benefit Analysis – Determining the ration of benefits to costs

Creative Commons – A series of licences that can be used by the creator of content to describe how they want their content to be used

Digital Badges – Online badges that recognise the completion of a course, or acquisition of a new skill

Digital Identity – The overall information available online about a person, organisation or other entity

Digital Footprint – The information that is available about us online that we created

Digital Reputation – The perceptions you generate based on your behaviour in an online environment

Digital Shadow – What other people say about us online or when they take a picture with us in it and put it online

Digital Tattoo – The data that is permanently stored online about us

Discernment – The ability to know what you are looking for online, and recognise it when you find it

E-Learning – Any form of electronic learning

E-Moderation – The role of the educator to promote communication and sharing of ideas

Flexible Learning, see *Blended Learning*

Hybrid Learning, see *Blended Learning*

Infographic – Poster-like visual representation of information and data

Integrated Learning, see *Blended Learning*

Just-in-Time Learning – The quick, continuous learning and unlearning of new skillsets

Learning Outcomes – Statements that describe the knowledge or skills of the learner

Lesson Plans – Description of the teaching approach and content of a course

LORI – A review instrument of learning objects

MERLOT – A review instrument of learning objects

Mixed-mode Learning, see *Blended Learning*

MOOC – Massive Open Online Course, an online course aimed at unlimited participation

Module – A set of learning content about a specific topic

Monitoring – The Web is changing constantly, the nature of the information you require changes constantly, so searching for what you need to know is an ongoing activity

Multimedia – Using more than one medium of expression or communication, e.g. audio, and text

Multi-method Learning, see *Blended Learning*

Plagiarism – Passing off someone else's work as your own

Podcasting – Audio recording in the style of a radio programme

Programme – A collection of modules

References – A list of research sources quoted

Return-on-Investment – A performance measure used to evaluate the benefits of an investment

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References – A list of research sources quoted

Return-on-Investment – A performance measure used to evaluate the benefits of an investment

Searching – The ability to find what you are looking for using a range of search techniques

SMS Language – An abbreviated language and slang commonly used with mobile phone texts

Soundscape – A combination of sounds that forms or arises from an immersive environment

SQR3 – An active reading technique that consists of Survey, Question, Read, Recite, Review

Storyboards – A graphic organization of images for visualizing media content

Syllabus – The subjects in a course of study or teaching

Technology-mediated Learning, see *Blended Learning*

Textspeak, see *SMS language*

Usability – The ease of use and learnability of a system

Virtual Learning Environment – A web-based platform for storing teaching content

VLE, see *Virtual Learning Environment*

Web-enhanced Learning, see *Blended Learning*

WebQuest – A set of online search activities to help learner learn

Worldwide Web – Part of the internet providing access documents and multimedia content

WWW, see *World-wide Web*



1. Blended Learning: A Roadmap



All things merge into one, and a river runs through it.

Norman Maclean – A River Runs Through It

Blended Learning: A Roadmap

Welcome to the first chapter of this workbook. We want to start by explaining what we think Blended Learning is. Different people have different understandings of the term Blended Learning. Therefore, we want to set out our understanding of Blended Learning, so that the rest of this workbook makes sense.

In this chapter, we will discuss some of the reasons why Blended Learning makes sense for adult learning. We will also mention some other terms that people use when talking about Blended Learning. We will present five quality tips to think about when preparing a blended learning environment, and we will consider when you should choose to blend.

Next, we will mention the key people (and key roles) involved in a Blended Learning process, including the learners, the educators, the managers, other Blended

Learning contributors, the technical staff, external software organisations, and other external organisations.

From there we will look at the advantages and disadvantages of Blended Learning. First, we will look at the advantages of Blended Learning both from your point of view as the educator and from the learners' point of view as well. Looking at the disadvantages of Blended Learning, we should consider organisational as well as technical challenges.

Finally, we will discuss the scope of the handbook, what it is going to cover, and what it will not cover. At this stage it is important to be aware of the scope of the handbook so that you do not have any false expectations as to what will be covered. Whilst we do cover a lot in this handbook it does not cover everything!

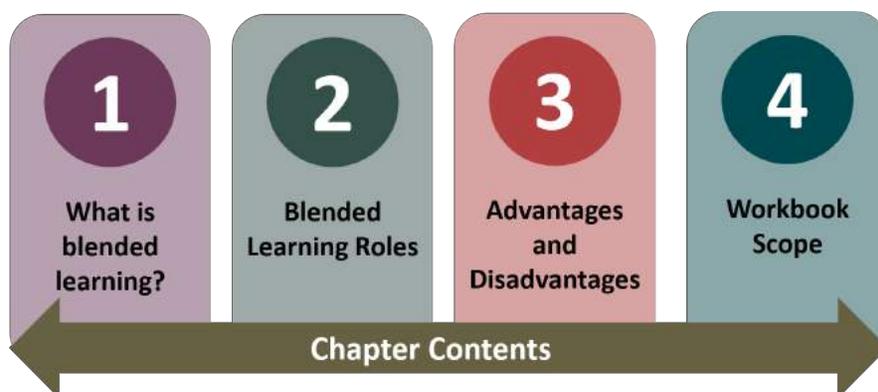


Fig 1.1 – Main Sections in Chapter 1.

1.1 What is Blended Learning?

1.1.1 Blended Learning: Simple Introduction

We believe *Blended Learning* refers to any educational activity that combines traditional classroom (offline) activities with online activities. In order for the learning to be *blended* the traditional classroom content and the online content must overlap to some extent, and they must compliment and scaffold each other. A Blended Learning activity that is well designed can combine all the benefits of the traditional classroom (conversation and interaction) with the benefits of the online classroom (spatial and time flexibility).

In order to gauge interest in and guide the content of this handbook, an international study of views and attitudes towards Blended Learning was conducted among adult educators around Europe. 117 surveys were completed, across five countries, and a total of 60 of the respondents were contacted to complete a follow up interview. From the results of this survey and the subsequent interviews, it is apparent that there is a good deal of interest among educators and related managers in the topic of quality Blended Learning. Most interviewees could see the appeal and benefits for learners and educators alike and were very positive in their attitudes towards adapting to new technologies and learning new skills. However, it also became apparent that there are elements of confusion in relation to the terminology, which can be daunting for someone starting out in the area.¹

Everyone interviewed re-iterated the importance of the role of the educator, and how a blended delivery might mean that while the role or skills of the educator might change, their presence and overall impact does not decrease with the inclusion of technologies. Rather, technologies should be used to enhance teaching, not replace the educator. Most interviewees agreed that there is an initial dramatic increase in workload, as quality Blended Learning means adapting a curriculum to suit the new delivery, as well as learning new teaching and technology skills. This all takes time, and most educators are *time-poor*, which was reported as the biggest barrier to the adoption of Blended Learning on a wider scale. Others mention the lack of dissemination of Blended Learning practices and methods, as well as a lack of investment and support at a higher level.

These findings led us to conclude that a handbook on best practices, including a beginner's introduction as well as overviews of the benefits from the educator and learner perspectives, and validated, practical ways to enhance Blended Learning delivery would provide direction to those interested in starting out in the area. It could provide further insight to those already working in the space.

¹ For details on this study see <https://ec.europa.eu/epale/en/blog/blended-learning-adult-education-practice-lessons-learned-questionnaire-based-survey>

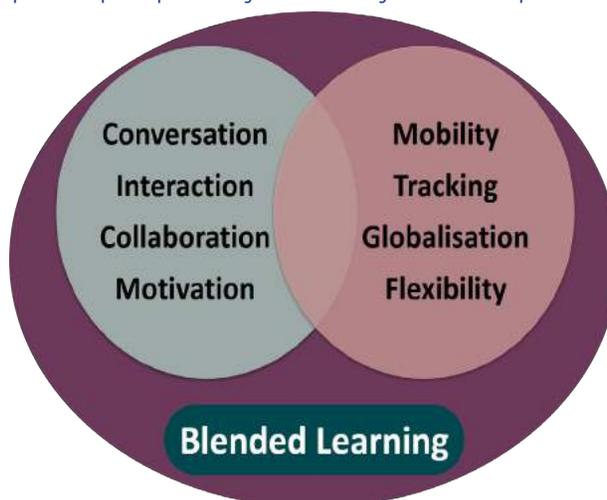


Figure 1.2 – The Characteristics of Blended Learning.

1.1.2 Five Quality Tips for Blending

Blended Learning requires that you as the educator give up some control of the teaching process, and it places more responsibility on the learners to be responsible for their own learning. When you put content online the learners must engage with it enthusiastically if they want to get the most out of it. To help you in this process there are many suggestions throughout this workbook. Here are a few things to start with:

1) Start with learning outcomes

As with the development of any educational content, start with the learning outcomes. So ask yourself, what are the key 5-7 big ideas that you want the learners to take away from this course? At the end of each class, whether they are online or in the classroom, you can present a bar chart or a status bar indicating how much the learners have achieved from each outcome to date.

2) Teaching leads technology

There is such a wide range of interesting online tools available, it can be tempting to incorporate some of them into your lessons, even if they are not directly relevant. Try to avoid doing this. The goal here is to educate the learners, therefore all the technology should be driven by the learning outcomes.

3) Group work can be effective

One of the most useful things about having the learners online is to put them into groups and get them to discuss topics relevant to the learning outcomes. Getting learners to share their knowledge and skills with others can be extremely beneficial to all involved. This sort of learning – peer learning – is considered extremely impactful for learners. It can be organised in the classroom, but it can also be organised online. Online discussion tools can help structure conversations. Learners can easily share content and hyperlinks with each other.

4) Find online resources

There are a wide range of resources and references available online about almost every topic in existence, so this could include newspaper stories, or research papers, or simulations, or videos. There is a lot of content available, and with a little search you will be able to locate high quality content. Additionally, as one of the learners' activities, you could ask them to locate relevant reference material.

5) Assessment should be blended

If the teaching is blended, it makes sense that the assessment is also blended, so a mixture of online and classroom assessment. One of the goals of assessment is to

Table 1.1 – Categorisation of teaching-learning arrangements after Allen, Seaman & Garrett (2007)

Content Delivered Online	Content Delivered in Classroom	Type of Course	Description
0%	100%	Traditional Classroom	This is classroom teaching.
1-29%	71-99%	Web Facilitated	Using an online teaching tool or webpages to do some activities.
30-79%	21-70%	Blended	Blended Learning.
80-100%	0-20%	Online	Mostly online, with few face-to-face meetings.

Why is Blended Learning Needed?

Each partner involved in the writing of this book was asked why they believe that Blended Learning is needed in adult education, and here are some responses:

"Whereas in other sectors of education, Blended Learning has made substantial progress in recent years, traditional adult education has remained relatively unaffected. This is partly because of the expectations of the participants in adult education courses. However, with the ubiquity of internet services in everyday life, the next generation of adult education participants simply will expect that these services be integrated into their classroom activities - without reducing the social aspect of meeting in classes."

"We think the pros of Blended Learning outweigh the cons (for example, infrastructure cost, overload of educators), with increased collaboration between educators and learners inside and outside the classroom; and an environment comfortable for all the learners (those who cope with tasks at a different pace or are in need for additional resources). Even for our seniors, Blended Learning is fun."

"It supports motivated, mature learners who want to influence the pace of learning to ensure they are learning effectively and efficiently."

"It enables learners to organize their time according to their (home and work) needs, it also allows them to proceed at a pace suitable to them. Finally, it allows them to do learning activities at home whilst still being connected to a learning group."

"We think the pros of Blended Learning outweigh the cons (for example, infrastructure cost, overload of educators), with increased collaboration between educators and learners inside and outside the classroom; and an environment comfortable for all the learners (those who cope with tasks at a different pace or are in need for additional resources). Even for our seniors, Blended Learning is fun."

"Blended learning gives adults the freedom to choose why, how, and when to learn. Moreover, it provides them with learning options: learning online or group learning. It supports their learning and motivates them."

"Adult learners can learn in a personalised way, and they can choose what to learn, and best of all the learning process can be adjusted to their own pace, rhythm and experience."



allow the learners to check what they have learned. Online tools allow you to do this easily, from multi-choice quizzes to asking the learners to collaborate on an article to summarize the content that has been learned.

When Blended Learning is implemented properly it can significantly improve the learners' desire to learn, but to achieve this, the online aspects of the delivery must be integral to the overall programme. They cannot be simply bolted on, they have to serve a vital purpose in the teaching.¹

Other terms that can be used for Blended Learning include: *flexible learning*, *hybrid learning*, *integrated learning*, *mixed-mode learning*, *multi-method learn-*

ing, *technology-mediated learning*, and *web-enhanced learning*.

Many researchers, including Allen, Seaman, & Garrett (2007)² suggest that when mixing classroom and online content to produce a blended lesson, there is a minimum component of each aspect that must be present to qualify it as being Blended Learning. The table below suggests that for something to qualify as blended it must be somewhere in the range of 30% online and 70% classroom, to 79% online and 21% classroom, to qualify as Blended Learning. Therefore, if the teaching is fully online, e.g. getting the learners to use a MOOC or other exclusively online content, then it is not typically considered Blended Learning.

(See Table 1.1.)

1.1.3 When Should Educators use Blended Learning?

Educators should consider using Blended Learning:

- If you have a group of learners who are geographically dispersed, and it would be more convenient for them to meet intermittently rather than regularly.
- If you want to develop content that might serve to introduce a module, or provide revision content for the module.
- If there is a specific topic you wish to teach that might benefit from multimedia content.
- If less face-to-face content would be helpful to either you or the learners.
- If more accessibility would benefit the learners.³
- If your learners have other commitments and it would be helpful if they could do the learning at their own pace.
- If you have a guest lecturer who cannot physically attend the classroom.

1 Jansen, D., P. Henderikx (2018): *The Changing Pedagogical Landscape: In search of patterns in policies and practices of new modes of teaching and learning*, Retrieved from <https://tinyurl.com/CPLreport2018>

2 Allen, I. E., J. Seaman, R. Garrett (2007): *Blending*. In: *The Extent and Promise of Blended Education in the United States*, Sloan Consortium. Newburyport (MA).

3 What is "accessibility"? See introduction to Chapter 4.2.2. "Create accessible PDFs".

1.2 Common Blended Learning Roles

In this section, we will mention some of the key individuals involved in the Blended Learning process. It is important to remember that this is not a solo effort. For a blended initiative to be successful, you need the cooperation of your learners, your managers, and many others.

Another purpose of this section is to introduce the terms we will use throughout this workbook for the various participants in the blended process, each of whom we will be discussing in more detail in the subsequent chapters.

Learners

The blended learner is required to take more initiative and be willing to explore the use of a range of tools online. Educators

Educators

The blended educator has to begin to develop a range of new skills, including learning how to use online tools, and how to moderate activities online.

Managers

The blended manager has to be patient in the early stages of the Blended Learning process, and has to be generous in terms of support, time, training, tools, and recognition. (This category includes heads of department.)

Blended Learning Contributors

Other people who might be involved in this process could include *instructional designers*, who could support the development of the learning development process, *multimedia support staff*, who can help with the development of multimedia content, and an *audio-visual (AV) person*, who might create videos of lectures or audio content.

Technical Staff

Other people who might be involved in this process could include instructional designers, who could support the development of the learning development process, multimedia support staff, who can help with the development of multimedia content, and an audio-visual (AV) person, who might create videos of lectures or audio content.

External Software Organisations

Organisations such as *internet service providers* and *software suppliers* might become involved in this process, depending on challenges.

Other External Organisations

Organisations such as certification authorities (academic and professional), municipal or regional councils, and even the media might be an element in this process.

1.3 The Two Sides of Blended Learning

In this section, we will look at both the potential benefits and potential challenges associated with Blended Learning. It is important that this Introduction Chapter provide a balanced perspective on Blended Learning. We do not believe that Blended Learning is suitable for

all teaching situations at all times, but we do feel that there are times when Blended Learning is an effective solution to providing an advantageous and engaging environment for learners in certain situations.

1.3.1 The Benefits of Blended Learning

This section will look at the potential benefits of Blended Learning, focusing first on the reasons why Blended Learning can be of use to you, and also be of benefit to your learners.

Internet-based technologies are fundamentally changing many aspects of society, including business, journalism, social networking, and leisure time, and these types of innovations are also occurring in education. This means that education is now available to a wider and more diverse audience than was previously possible. It also means that learners can become part of a community of learning where dialogue, debate and agreement are possible. This range of dialogue can lead to higher order learning and improved critical thinking.¹

Blended Learning also represents a novel experience for learners, not just because of the online content, but from the combination of the classroom and the online experience. The interface between these two distinct forms of learning can result in new attitudes to learning in general, for example more self-directed learning competence.

Blended Learning opens up a world of opportunities for you, the educator. It provides you with more opportuni-

ties for collaboration with other educators and learners, it gives you an opportunity to develop new skills, and it allows you to monitor your learners more effectively. It can also allow you to focus on deeper learning through peer learning.

Once you have developed and delivered the blended content a few times, you will have a significant bank of content created, including potentially useful question-and-answers about module specific content, technical support issues, a bank of (quiz) questions, and a blended schedule. This makes the re-delivery of a blended module significantly easier.

Blended Learning also provides some potential benefits for your learners, including the fact that they can become significantly more motivated, enjoy the new approaches to engagement, as well as potentially new means of communications and evaluation.

Many researchers,^{2,3,4} that have looked at a number of studies to allow for comparison (so-called *meta-analysis studies*) show that there is a significant improvement (between 80-87%) in learner achievement of learners in a blended environment when compared with classroom-based teaching.

- 1 Garrison, D.R., H. Kanuka (2004): *Blended Learning: Uncovering its Transformative Potential in Higher Education*. The Internet and Higher Education, 7 (2), p. 95-105.
- 2 Means, B., Y. Toyama, R. Murphy, M. Baki (2013): *The Effectiveness of Online and Blended Learning: A Meta-Analysis of the Empirical Literature*. Teachers College Record, 115 (3), p. 1-47.
- 3 Bernard, R.M., E. Borokhovski, R. F. Schmid., R. M. Tamim, P. C. Abrami (2014): *A Meta-Analysis of Blended Learning and Technology Use in Higher Education: From the General to the Applied*. Journal of Computing in Higher Education, 26 (1), p. 87-122.
- 4 Liu, Q., W. Peng, F. Zhang et al. (2016): *The Effectiveness of Blended Learning in Health Professions: Systematic Review and Meta-Analysis*. Journal of Medical Internet Research, 18 (1).

1.3.2 The Challenges of Blended Learning

To provide a balanced view on this topic, this section in contrast will look at the potential pitfalls and risks associated with Blended Learning.

Blended Learning is not only a matter of bringing existing content online, but rather it requires a rethink of the content already being delivered. Initially this will be a time-intensive process, both at a strategic level and an operational one. It also may require new resources in terms of staff, money, and technology. As the blended activities become more and more sophisticated, they will require more technical support.

Some critics strongly reject the term *Blended Learning* and argue that it is ill conceived and inconsistently used, and the activities associated with Blended Learning have been occurring in classrooms frequently without being associated with that term. They also argue that since different learners experience the same teaching experience in different ways, measuring the efficacy of Blended Learning for a whole class is very challenging.¹

Other critics feel that unless there is complete organisational support for Blended Learning, and a robust and reliable infrastructure is put in place, it becomes very

difficult to successfully monitor and support blended initiatives.²

It is worth noting that some participants especially in non-formal adult education attend evening and weekend classes not merely in order to learn useful content, but also – or predominantly – for personal development or for the social benefits and other reasons beyond the actual learning. These participants may not wish to engage with technology in their learning, particularly if they are doing so all day in their work activities. They may want to engage with other people in a pleasant, meaningful and inspiring way face to face; so asking these learners to engage with technology may not be desirable, even if it is appropriate from a teaching perspective.

Some learners will find using computers challenging, for example because they are not used to using them at work or in their leisure time at all. You therefore should always first assess if your group of learners is able to deal with the technology involved. A certain degree of skills provided, it can help to offer an introductory session where the IT tools to be used within the course are presented, and everybody has a change to try using them.

1 Oliver, M., K. Trigwell (2005): *Can 'Blended Learning' be Redeemed?* E-learning and Digital Media, 2 (1), p.17-26.

2 Moskal, P., C. Dziuban, J. Hartman (2013): *Blended Learning: A Dangerous Idea?* The Internet and Higher Education, 18, p.15-23.

1.4 Scope of This Book

This work is designed for someone who is new to Blended Learning. The goal is to explain how your role, the role of the learners, and the role of others around you will change once you engage in blended activities in the classroom.

We will focus on six types of activities:

- Presentation development
- Podcast development
- Video development
- Document development
- Game-based learning
- Search activities

There are many other forms of online activity that the blended educator can develop. Not discussed in detail are for example wikis, blogging, social media, and virtual reality. We have scoped this document to focus just on these six techniques, which we hope are easy to understand but sufficiently powerful to having a meaningful impact on learner understanding.

The workbook does not set out to provide a definitive guide to useful software for each of those activities, but rather provides a general guide on how to undertake some actions in an example of the relevant software (Chapter 4), and identifies some of the currently available software that might be helpful for these activities (Chapter 7). It is worth noting that new blended software is being made available on a daily basis, so when you are engaged in a particular blended activity, always do a quick search to check if something new has become available.

In Chapter 3, we have some key themes we think it is important for you to be aware of, including copyright, and accessibility. We realise that you will encounter a wide range of new themes when undertaking blended activities, but we feel the content covered is sufficient to start your journey. In a similar vein, Chapter 8 provides a range of evaluation techniques. This is by no means meant to be definitive, but rather an overview of some of the many ways that Blended Learning can be evaluated.

2. The Blended Educator: A Pilot Approach



*A journey of a thousand miles
begins with a single step.*

Tao Te Ching – Chapter 64

The Blended Educator – A Pilot Approach

If you are reading this chapter, it is likely you are an educator who is thinking about creating some blended content for your classes. Our advice is that you begin with something small, that we will call a pilot, to explore whether or not Blended Learning is suitable for you and your learners, and to explore what type of Blended Learning might be best suited.

Starting with something small means that you will not have to spend a lot of time on this, and you will not have to develop a range of new skills. The goal here is for you to get the first impression and see how it feels.

We recognise that as an educator you are very busy most of the time, so it is important that these first steps towards Blended Learning are made as effortless as possible for you. What we are going to recommend is that you use a five-step process in implementing the pilot. Those five steps are as follows:

- Step 1: Selecting a topic to blend
- Step 2: Exploring the possible ways to blend
- Step 3: Creating the blended content
- Step 4: Testing the blended content with learners
- Step 5: Evaluating the outcome of the pilot

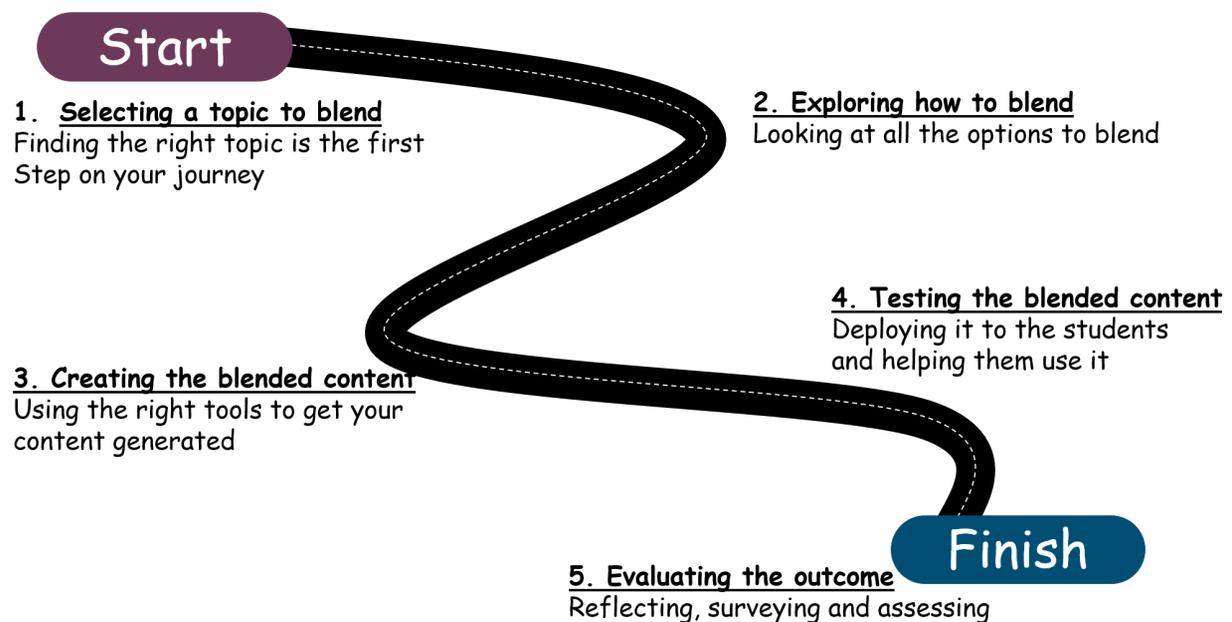


Fig. 2.1. Journey of a pilot, i.e. of creating Blended Learning content as suggested in this book.

2.1 Selecting a Topic to Blend

Deciding on a topic to blend is the first step in this process. The topic you choose to blend is best if it is one that you will not be teaching for at least a month from now. Also, it shouldn't be a whole lesson, instead it should be a topic that you would typically cover in about 5 minutes in the classroom. It should be a relatively independent topic that won't impact the learners' overall understanding of the lesson you are teaching if it wasn't included in any given delivery of that lesson. Therefore, for example, if you are giving the learners a

few different examples to help them understand the lesson more fully, perhaps you could consider choosing one of those examples to blend. Alternatively if there is terminology or formulae that you are explaining to the learners, that you are using to reinforce concepts in your lesson, it might be worth considering blending those.

Below we are presenting a checklist of the key considerations we feel that you should reflect on when selecting a topic to blend:

Table 2.1 – What Topic Should I Choose to Blend?		
	Description	Yes/No
1	Is this a topic that you will not be teaching for at least a month?	
2	Is this a simple topic that would take no more than 5 minutes to teach in a classroom setting?	
3	Is this a relatively independent topic that is not vital to the learners' understanding of the topic you are teaching but does help contribute to their learning?	
4	Is this a topic you have flexibility in terms of when you deliver it to the learners?	
5	Is this a topic you could cover in the classroom once you have done the pilot if it turns out that the learners did not engage with the blended content?	

If the answer is yes to all of the above questions, then you have found a topic that is suitable for blending.

For Example

Let's imagine you were teaching a French language course, and you were going to suggest some French movies that the learners could look at. This is a nice topic to blend, because it is not central to your teaching, but it is a perfect topic to develop as a blended asset. In a classroom setting you might say something like:

*"If you want to look at some movies that could help you with your basic French, the 1990 Gérard Depardieu movie *Cyrano de Bergerac* is very helpful, as is another Gérard Depardieu movie, *The Return of Martin Guerre* from 1982 that is also worth seeing. Jean Cocteau's *Beauty and the Beast* movie from 1946 is also a wonderfully helpful movie to learn vocabulary."*

This is clearly an independent unit of learning, so it is a nice one to choose to blend. A storyboard for this activity is presented in Section 2.3.

2.2 Exploring the Possible Ways to Blend

As we have mentioned previously, Blended Learning means a mixture of classroom content and online content. What we are exploring in this step is, first, how to develop the online content as part of the blend, and second, how to integrate that online content into a classroom-based lesson.

To help you get the pilot completed, we have suggested six different potential content types, so you can just pick any one of these. There are many more potential

content types, but we are simplifying the selection to these six for the moment as we feel these are the ones that will give you the most impact for the least effort. In the table below, we have also listed an example of each content type you could use for the pilot, and how you may build upon the work you do in the pilot. The next section will explain how to implement each of the examples presented for the pilot (but remember you should only do **one** of these six for the pilot).

Content Type	For the Pilot (Chapter 2)	After the Pilot (Chapter 4)
Presentations	Presentation with audio	<ul style="list-style-type: none"> • Creating Infographics • Using Prezi
Podcasts	Audio recording	<ul style="list-style-type: none"> • Edited audio recordings • Audio with soundscapes
Videos	Video recording	<ul style="list-style-type: none"> • Creating Animated videos • Adding quizzes to videos
Documents	PDF document	<ul style="list-style-type: none"> • Interactive PDF content • Accessible PDF content
Games	Word games (e.g. a crossword or a quiz)	<ul style="list-style-type: none"> • Interactive games • Digital badges
Searching	Search for information	<ul style="list-style-type: none"> • Searching for multimedia • WebQuest

The three key considerations you should think about at this stage (to help you pick which one of the above six activities for the pilot) are:

1) The topic being taught

Some topics more readily lend themselves to a particular type of content, for example, podcasts might suit a language-learning topic, and a presentation might be more suitable for teaching the visual arts.

2) Your Resources and Skills

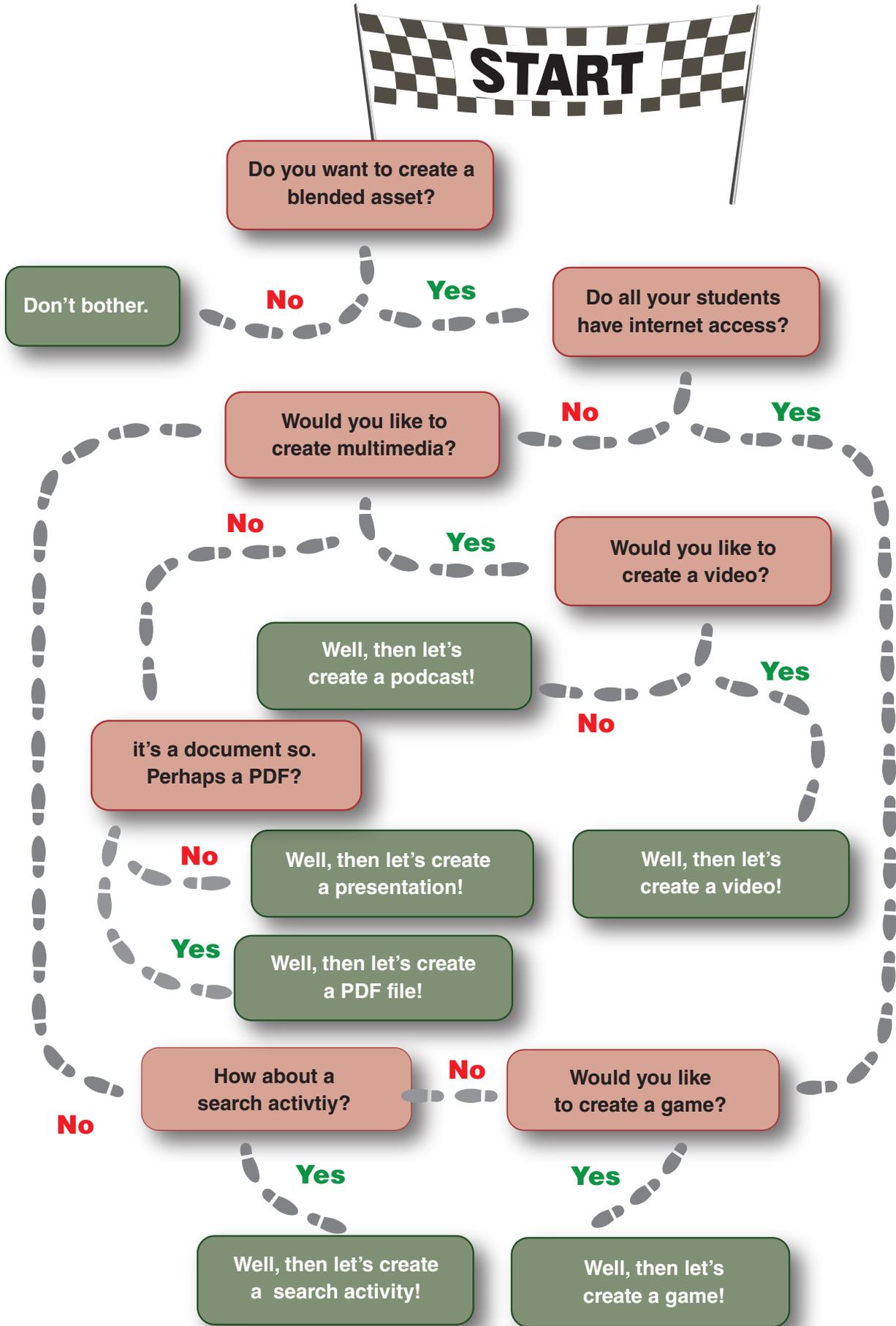
Some of the content types will be easier to produce with a laptop; others may suit a mobile phone; for some you

need internet access. The technology you use should be determined by what you feel comfortable doing with your skillset using technologies.

3) Learner resources and skills

As well as your own resources, it is worth considering what technology the learners have access to, and what their technical skills are. So do they have internet access at home (and is it quick enough)? Do they have a computer or tablet, or is the only thing they have a mobile phone with relatively small screen?

The flowchart next page will help you choose which content type to pick.



2.3 Creating the Blended Content

Well done! If you have got as far as here you have selected what type of content you are going to create. In this section we are going to present our suggestions as to how you can simply and effectively create the content for your Blended Learning topic.

Before we get into the specifics of creating the various content types, to help you on your journey to Blended Learning, first, we are going to introduce two things: the concept of storyboards, and a template script.

2.3.1 Creating Simple Storyboards

A storyboard is an illustration or a series of illustrations that are a visual representation of content such as a website, a video, or other interactive media. Storyboards are usually created on paper. They are a plan or prototype design of the content you wish to create. Storyboards are cheap, easy to make, and are easily understood by everyone. So when designing a website, a video, or other interactive media, you can use a storyboard like the one below. Here is what each field means:

- **Content Number:** Each storyboard gets a successive sequential number
- **Module:** This is the module that is being taught
- **Content:** This can be a visual sketch or text prototype of the content
- **Notes:** This could be a script, or navigation information, or other details

NO: 57	Module: Introduction to French	Notes:
<p>Content:</p> 		<p><i>This webpage will have links to trailers to three French movies, as well as links to cast lists of each of those movies.</i></p> <p><i>The page will be navigated to from Storyboard CN-56, and will link to Storyboard CN-58.</i></p> <p><i>The webpage is accessible, and it is possible to change the background colours.</i></p>

Fig. 2.2 – Example of a story board, here for presenting material for a French class on movies as part of a website.

You can use the template on the next page. Make a photocopy, or use the DOCX-file from the supplementary materials to this book, download from www.blenditwell.eu/handbook/templates/BL_Sup01_StoryBoardTemplate.docx

Content No.:	Module:	Notes:
	Lesson:	
	Learning objective:	
Content:		
Designer:		Date:

2.3.2 Creating Simple Scripts

A script is a written form of something that eventually will be said (in an audio record) or shown (in a video record). Scripts can be long and detailed. But for starting,

let's keep it simple. Below you find a generic template that is good for many purposes, and a number of examples where this script template is applied in practice.

Template Script

Hello everyone, you are very welcome to this talk on *[Topic name]*. In the talk, we will be looking at *[Key points to cover]*.

First, we will look at *[Point 1]*.

Next, we will look at *[Point 2]*.

Finally, we will look at *[Point 3]*.

[Main body of talk]

To recap, we looked at *[Key points to cover]*.

Thanks very much.

Sample Script 1: French Language Course

Hello everyone, you are very welcome to this talk on movies that can help with your French speaking skills. In the talk, we will be looking at three movies to help your language skills.

First, we will look at *Cyrano de Bergerac*.

Next, we will look at *The Return of Martin Guerre*.

Finally, we will look at *Beauty and the Beast*.

Cyrano de Bergerac is a film from 1990 which stars Gérard Depardieu as a shy suitor who helps a rival to woo the woman that he loves. *The Return of Martin Guerre* is from 1982 and stars Gérard Depardieu as a man who returns from war, and has changed in very fundamental ways. Finally, Jean Cocteau's *Beauty and the Beast* is from 1946 and is also a wonderfully helpful movie to learn vocabulary.

So to recap, we looked at the three movies to help you learn French: *Cyrano de Bergerac*, *The Return of Martin Guerre*, and *Beauty and the Beast*.

Thanks very much.

Sample Script 2

Hello everyone, you are very welcome to this talk on essential skills for journalists. In the talk, we will look at three of the key non-technical skills that all good journalists should possess.

First, we will look at maths skills.

Next, we will look at design skills.

Finally, we will look at interpersonal skills.

First, maths, which is a very important skill for journalists, particularly as many modern news stories require a clear understanding of concepts such as statistics and ratios. The second skill, design, is also very important, particularly for digital journalism, where the journalist may be involved in the layout of on-line content. The final skill is interpersonal, and it is the most obvious one, as all journalists need to talk to strangers, and get people to open up to them quickly.

So to recap, we looked at the three essential skills for journalists are maths, design, and interpersonal.

Thanks very much.

Sample Script 3

Hello everyone, you are very welcome to this talk on Learning Theories. In the talk, we will be looking at three of the key theories of how people take in information and learn.

First, we will look at Behaviourism.

Next, we will look at Cognitivism. Finally, we will look at Constructivism.

The first theory of learning, called Behaviourism, suggests that if you repeat the same materials many times to learners, and get them to repeat it with you, it will be retained by them. The second theory of learning, called Cognitivism, suggests that a very good way of teaching new material to learners is to find links to material that the learners are already familiar with. The third theory of learning, called Constructivism, suggests that it is important that a learner constructs their own understanding of the material.

To recap, we looked at the three main theories of how people learn: Behaviourism, Cognitivism, and Constructivism.

Thanks very much.

2.3.3 Creating a Presentation with Added Audio

Presentation software allows you to create, edit, and display text and images in the form of slides. Some presentation software also allows you to attach audio con-

tent that can be synchronised with the slides, which are automatically advanced. Therefore, it is a bit like making a movie, but a lot easier to do.

What do you need?

- Pen and paper, or a word processor
- Presentation software that allows you to attach audio content (e.g. PowerPoint, Prezi, and Keynote).

What do you do?

Develop the presentation first.

- Next, develop a script, so write down the key words you need to mention about this topic, and based on these words create some sentences. Using those sentences and the content from the Template Script above, create a script that you can read for the audio. If you want to create a 5-min audio, that is usually somewhere between 500 and 750 words in the script. Rehearse reading the script a few times before recording. Some of us prefer sitting down at a table while recording; others like to do it standing.
- Start the presentation software running, with the recording process activated, read the script, and step through the slides as appropriate. –
- For example, in PowerPoint, simply choose *Insert > Audio > Record Audio*. This creates an audio clip that will be inserted onto your slide. Once you click on the audio icon on your slides, there will also be some basic settings available in the menu bar, for example settings for Start on click or Start automatically. (Audio quality of such recordings made directly in PowerPoint are rather low, chiefly in order to keep the files small.)
- If you make a mistake, just stop the recording, and take a breath and start again. If you keep making mistakes after five recordings, take a break, make yourself a cup of tea and come back to it later. When you are happy with the presentation, save that presentation.

Online or Offline?

- If you want to distribute this presentation offline, you can copy the presentation file onto a USB memory stick and hand it out in class.
- If you and your learners have access to the internet, you have many options to distribute it to your learners. You can share it with them using cloud storage (e.g. Dropbox, Google Drive, and AWS), you can email it to them, if you have a website, you can upload it there, or to a virtual learning environment (e.g. Moodle, Blackboard, and Edmodo).

2.3.4 Creating a Podcast

A podcast is an audio file that a learner can either listen to online or download and listen to offline. Podcasts are often presented by an individual or two people, but

it is also possible to produce collaborative podcasts from multiple contributors. Podcasts are like radio programmes that you can listen to whenever you want.

What do you need?

- A pen and paper, or a word processor
- Something to record audio with (a mobile phone, laptop or tablet)

What do you do?

- The first thing to do is develop a script, so write down the key words you need to mention about this topic, and based on these words create some sentences. Using those sentences and the content from the Template Script above, create a script that you can read for the podcast. If you want to create a 5-min podcast, that is usually somewhere between 500 and 750 words in the script.
- Rehearse reading the script a few times before recording.
- Some of us prefer sitting down at a table when recording; others like to do it standing.
- Start the recording device and read the script. Almost all mobile phones, laptops and tablets have recording software on them.
- If you make a mistake, just stop the recording, and take a breath and start again. If you keep making mistakes after five recordings, take a break, make yourself a cup of tea and come back to it later. When you are happy with the recording, save that recording

Online or offline?

- If you want to distribute this recording offline, you can copy the audio file onto a USB memory stick and hand it out in class.
- If you and your learners have access to the internet, you have many options to distribute it to your learners. You can share it with them using cloud storage (e.g. Dropbox, Google Drive, and AWS), you can email it to them, if you have a website, you can upload it there, or to a virtual learning environment (e.g. Moodle, Blackboard, and Edmodo). You can also add it to a podcasting site (e.g. Podomatic, Soundcloud or Audioboom)

2.3.5 Creating a Simple Video

A video recording is a recording of visual and audio information received by a camera. A wide range of expert video recording software is available, but almost

all mobile phones, laptops and tablets have basic video recording software already on them.

What do you need?

- A pen and paper, or a word processor
- Something to record video with (a mobile phone, laptop or tablet)

What do you do?

- The first thing to do is develop a script, so write down the key words you need to mention about this topic, and based on these words create some sentences. Using those sentences and the content from the Template Script above, create a script that you can read for the podcast. If you want to create a 5-min video, that is usually somewhere between 500 and 750 words in the script.
- Rehearse reading the script a few times before recording.
- Record yourself against a blank wall with a copy of the script taped to the wall near the camera.
- Do not look at the camera, look through it, and imagine there is a learner right behind the camera.
- If you make a mistake, just stop the recording, and take a breath and start again. If you keep making mistakes after five recordings, take a break, make yourself a cup of tea and come back to it later. When you are happy with the recording, save that recording.

Online or offline?

- If you want to distribute this recording offline, you can copy the video file onto a USB memory stick and hand it out in class.
- If you and your learners have access to the internet, you have many options to distribute it to your learners. You can share it with them using cloud storage (e.g. Dropbox, Google Drive, and AWS), you can email it to them, if you have a website, you can upload it there, or to a virtual learning environment (e.g. Moodle, Blackboard, and Edmodo). You can also add it to a video sharing site (e.g. Youtube, Vimeo, and Dailymotion).

2.3.6 Creating a PDF Document

Creating an easy-to-read document for the learners can be very helpful in terms of producing content that they can refer to during class and afterwards. In the context

of the pilot, we are going to focus on developing a document in PDF format.

What do you need?

- A word processor (that's a fancy term for an office computer)

What do you do?

- There are many ways to create a PDF document, one of the easiest ways is to use Microsoft Word, LibreOffice or OpenOffice Writer. Any of these will allow you to save a document as PDF.
- We believe that a good educational document should always start with a glossary of terms. Therefore, you should consider putting a glossary at the start of your document that provides very simple explanations for all of the keywords you will be using.
- Leave plenty of space for the learners to write notes in your document. If you leave a wide margin to the left of each page of the document, and some blank lines at the bottom of each page, you could suggest that the learners use the Cornell Note Taking technique (<https://www.timeatlas.com/cornell-note-template/>). It suggests that the learners should add their own diagrams and memory aids in the left margin, and a summary of each page at the bottom of that page.
- Use images where possible, because remember a picture really is worth 1000 words.
- To see if your completed document is visually appealing, print out a copy of it, and hold it at arm's length: Does anything jump out at you as looking cluttered?
- Consider reading some of Edward Tufte's work on the visual display of information to help you create better handouts.

Online or offline?

- If you want to distribute this document offline, you can copy it onto a USB memory stick and hand it out in class.
- If you and your learners have access to the internet, you have many options to distribute it to your learners. You can share it with them using cloud storage (e.g. Dropbox, Google Drive, and AWS), you can email it to them, if you have a website, you can upload it there, or to a virtual learning environment (e.g. Moodle, Blackboard, and Edmodo).

2.3.7 Creating a Game

The internet allows you to both play and create a wide range of games that can be very helpful to learners. This activity is focussed on the creation of simple word

games (like a crosswords) and developing simple quizzes.

What do you need?

- Internet access via a mobile phone, laptop or tablet

What do you do?

- For the word games activity the first thing to do is to create a list of words relevant to your topic of study and to develop a clue for each of the words. The clues can be used in the crossword, as well as questions in the quiz activity.
 - For the crossword activity, go online and locate a free crossword generator, for example, the following
 - <https://crosswordhobbyist.com>
 - <http://www.crauswords.com>
 - <http://www.eclipsecrossword.com>
 - For the quiz activity, go online and locate a free quiz generator, for example, the following
 - <https://hotpot.uvic.ca/wintutor6/tutorial.htm>
 - <https://www.quiz-maker.com>
 - <https://www.vocabtest.com>
 - <https://quizlet.com/en-gb>
- Once you have created the game, you will be given a web address (a URL) that you can share with your learners so that they can play.

Online or offline?

- This has to be an online activity

2.3.8 Creating a Search Activity

A search activity in this context means using an online search engine for learners to explore something and, in

the process, develop some better understanding. This activity focusses on information-based search tasks.

What do you need?

- Internet access via a mobile phone, laptop or tablet
- A search engine website (e.g. Google, Bing, and Baidu)

What do you do?

Develop a series of questions for the learners to teach them how to use a search engine, for example:

- What was the first search engine online? (The Archie search engine.)
- Find the meaning of word "requisition". (A thorough search)
- Find a web page that contains the exact phrase: learning outcome. (enter "learning outcome" in your favorite search engine.)
- Find a web page that contains the word "learning" but NOT the word "teaching". (Search for "learning – [minus] teaching")
- What is Dihydrogen Monoxide? (It is water.)
- Find out how many miles we are away for Bohola, Mayo, Ireland. (Depends on where you are.)
- What is a European storm petrel? (It is a seabird.)
- What is the deepest part of the ocean? (It is the Challenger Deep in the Mariana Trench.)
- How high is the highest mountain on Earth? (Mount Everest, 8848m.)
- Look for the phrase "Evaluation Criteria" in three different search engines, are the first 10 pages returned the same in all three engines? (Very unlikely.)

Online or offline?

- This has to be an online activity.

2.4. Testing the Blended Content with your Learners

Now that you know how to create the online content, what happens next? You have to *blend* it into a classroom experience with your learners. How will you introduce the online content to the learners and what are you going to ask them to do with it? One approach to introducing the content is to tell them:

“I have created a resource for you, to make your lives easier, and it will help clarify some of the material we have been discussing in class. I really did create this myself, and it is the first time I have done anything like this, so any feedback you have on it would be very much appreciated.”

Alternatively, you might just wait until you are teaching a concept in class that closely relates to the resource, and then say:

“So for further information on this, I have a resource that I will make available to you to help you better understand the material.”

The instructions you give to the learners should be clear and simple:

“Before our next class together I would like everyone to use this resource for at least 10 minutes, and have a pen and paper with you when you are using it to write down some notes. When you are finished, write down the key three points you took from the material and we will share with each other what we learned from it in the next class.”

In the next class put the learners in pairs or groups of three and get them to discuss with each other what they learned from the resource. Next, ask each group to tell the whole class if each of the members took different ideas from the resource, or did everyone in that group have the same three key points. This is a vital step in the concept of Blended Learning, that we blend the eLearning activity back into the classroom so that the learner feels the resource is a part of the classroom experience.

A simple way to evaluate the resource at this stage (we will do more about this in the next chapter) is to ask the learners for a thumbs-up/thumbs-down (thumbs-up for “I liked it”, and thumbs-down for “I did not like it”). If the majority of learners are thumbs-down, please don’t get discouraged, it would be very unusual for everything to go smoothly the first time that you try something new in a classroom. Take a few weeks away and try again with a different content type. If, on the other hand, this process works well, and you get a majority of thumbs-up, that is great and you should strike while the iron is hot, and do another content type outlined in this chapter.

E-Moderation

Transitioning from classroom-based learning to an on-line setting will prove challenging for some learners, so leading British researcher Gilly Salmon has developed a five-stage model to help educators understand the challenges of successfully achieving this transition.¹ The process outlined below begins by introducing the learn-

ers to the online environment; next, getting them to do basic communication tasks; following this they engage with the learning materials; next they discuss what they are learning with each other and you, the educator; and finally they reflect on what they have learned, and explore and comment on external materials:

Table 2.3 – Salmon five stage model for Blended transitions.

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Access and Motivation	Online Socialisation	Information Exchange	Knowledge Construction	Development
Introduction to online learning	Basic communication and system usage	Interacting with the learning materials	Conferencing with other learners and the educator	Connecting to the outside world

Salmon points out that the role of the educator changes at each stage and that preparation is key in terms of ensuring that the learners successfully transition from stage to stage. The educator begins by giving the learners specific and detailed instructions (and is very wel-

coming and encouraging), and over time the learners will develop independence and their own ways to interact with the system and each other; and the educator's role becomes more about facilitation.

Table 2.4 – Salmon's changing role of educator.

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Welcoming and encouraging	Linking cultural, social and learning environments	Tutoring and supporting of learning materials	Facilitating conferencing	Supporting and responding

Technical support must go hand-in-hand with this process, and as the learners transition between stages, the level of interactivity increases (learner-to-learner, and learner-to-system), therefore the educator must have resources available to aid them in handling technical

issues. The resources can include; access to technicians, online help, textbooks, and online software support. Below are the types of technical activities that will occur at each stage.

Table 2.5 – Technical activities at each of Salmon's five stages.

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Set up system and provide access	Sending and receiving messages	Searching, personalising software	Conferencing support	Providing links to external sources

¹ Salmon, G. (2011): *E-Moderating: The Key to Teaching and Learning Online* (3rd edition), Routledge.

2.5 Evaluating on the Outcome of the Pilot

Well done, you have gotten to the end of the pilot. The final step is to evaluate the whole process, reflect on what went well and what went badly, and make sure that if you are doing this again any problems that came up are fixed.

It is always important to ask yourself two key questions during any teaching process: *“What am I doing?”*, and *“Why am I doing it?”* These questions help you to reflect on the process, and reflection is a very important part of any teaching process. Without it we tend to jump to conclusions about why things happened, whereas if we

have structured and focussed questions, we can obtain accurate and useful feedback.

To evaluate the effectiveness of the pilot, we have created two questionnaires, one for you and one for your learners. The one for you is below, and you can fill your answers into this workbook. The learner questionnaire is on the next page, and you can copy it for them.

We would like you to fill out the following reflective questionnaire:

Table 2.6 – Your Evaluation of this Chapter with Pilot Exercises

What went well?	
What went badly?	
What surprised you?	
How long did the pilot take to develop?	
What were the key technical issues?	
Was the resource meaningful to your learners?	
What will you do differently next time?	

Learner Feedback

1. **What did you think of the blended content?** – *Mark a number*

1

Hated it

2

Disliked it

3

Neutral

4

Liked it

5

Loved it

2. **Would you like if there was more blended content?**

1

Definitely not

2

Would not like

3

Neutral

4

I would like more

5

I would love more

3. **How much time did you spend engaging with the resource?**

.....

4. **If you would like more blended content, what topic would you like to see?**

.....

5. **Draw a picture of how you would like to see it presented:**

.....



3. The Blended Educator: Key Considerations



The function of education is to teach one to think intensively and to think critically.

Martin Luther King Jr. – The Maroon Tiger

The Blended Educator: Key Considerations

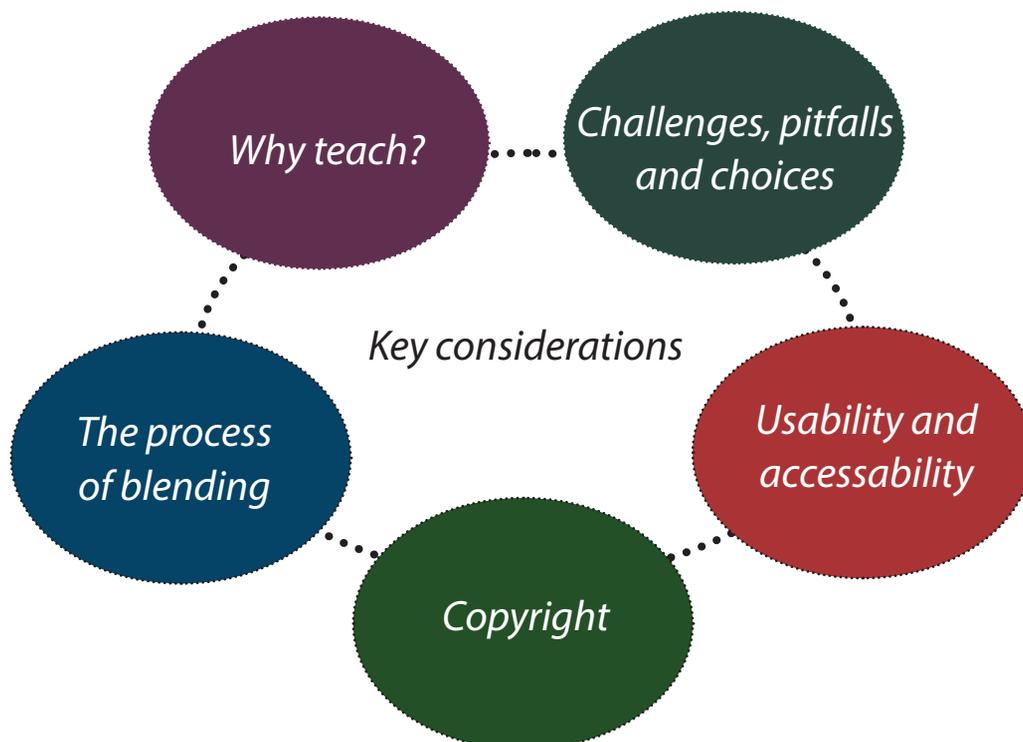
Now that you have completed your pilot, before we move onto more advanced blended activities, we thought we'd take this chapter to discuss some of the important considerations that need to be taken into account when moving on to a more large-scale blended activity. So we will start by discussing why we teach and what we can do to help in the teaching process, and how to keep learners engaged offline and online.

Then we will look at a process to help you develop Blended Learning content, the key steps you must undertake, and looking at how to develop learning outcomes and how to create comprehensive storyboards, which if you are familiar with already, please feel free to skip those sections.

Next, we will have a look at copyright, which becomes very important when content goes online, particularly if that content is made publically available. Copyright is something educators can forget about when creating content, so this section will outline how copyright works, and how to find shareable content using Creative Commons licences.

The next section will first look at usability and then at accessibility. Usability is a way to look at how easy it is to use some content, and accessibility looks at whether the content is useable by as wide a range of people as possible.

We will finish the chapter with an outline of some of the key challenges associated with Blended Learning, and how to approach them.



3.1 Why Do We Teach, and How Do We Make it Effective?

Why do we teach? It is an obvious question, but it is worth thinking about, and considering how those reasons change and need to be reframed in a Blended Learning context. Another way of asking the same question could be: why do we not just give the learners a textbook and tell them to read it?

There are many reasons why we teach the way we do. Here are three reasons. We describe them first in the classroom context, and then we mention some of the additional challenges that occur in the online context:

1) To enthuse learners

It is easier for the learners to learn from someone (you) telling them about the content, as opposed to reading about it, because you can emphasise key points, you can answer questions immediately, you can present real-world examples, and you can motivate and enthuse the learners.¹ This requires a lot of preparation on your behalf, and an empathy to put yourselves in their shoes and to remember that even if you have been teaching this content for years, it may well be the first time the learners have heard it.

In the blended context there are similar challenges, but if this is the first time the learners are doing blended tasks, there can be a significant novelty value, which can generate enthusiasm for undertaking tasks in this context. It is important to make the activities fun to help learners succeed at these tasks. Very often it is also a good idea to create a few fake learners to help you get the ball rolling, so if you start an online discussion as the educator and ask some questions, if the learners are reluctant to begin answering questions, use one of your fake learners to give an initial answer to the questions and get the conversation started.

2) To cover the syllabus

A crucial element of teaching is to ensure that the learners know everything they need to know about a particular topic and to also help them pass an examination or assessment associated with this topic. To achieve this it is important to break a topic into a series of manageable steps and to associate each of the steps with a timescale.² By doing this it is possible to monitor your progress in covering the syllabus against the timescale.

In the blended context all of the above still applies, and we will remember the old adage that “content is king”, therefore to ensure that the learner fully engages with the online elements it is important to put content online that isn’t available anywhere else.

3) To create group identity

A good point to remember about teaching is that peer-learning is extremely effective, and we should take any opportunity we have to get learners working together, and learning from each other.³ Group work and group-based assignments are an easy way of getting learners to work in teams, and can help learners develop a sense of identity for their class/group which can often serve as a strong form of motivation, in the same way that participation in a team-based sporting activities can help them become motivated to work harder, make sacrifices and excel for the glory of their team.

In the blended context getting people to work in groups can be more challenging, so it is good if the learners upload a picture of themselves and they write a few paragraphs about themselves, listing interests, hobbies etc. It is also important that groups are encouraged to contact each other regularly to allow them to succeed. Moderating group work online (called eModeration⁴) is a new skill that needs practice in order for you to become good at it.

1 Reeve, J., H. Jang (2006): *What Teachers Say and Do to Support Students' Autonomy during a Learning Activity*. *Journal of Educational Psychology*, 98(1), p. 209.

2 Marzano, R. J. (2010): *Art & Science of Teaching*. *Educational Leadership*, 68 (4), p. 82-85.

3 Boud, D., R. Cohen, J. Sampson (1999): *Peer Learning and Assessment*. *Assessment & Evaluation in Higher Education*, 24 (4), p. 413-426.

4 Vlachopoulos, P., J. Cowan (2010): *Choices of Approaches in e-Moderation: Conclusions from a Grounded Theory Study*. *Active Learning in Higher Education*, 11 (3), p. 213-224.

3.2 The Blended Learning Process

The process for Blended Learning we are going to use in the workbook is based on the ADDIE model of instructional design. ADDIE stands for Analysis, Design, Development, Implementation, and Evaluation, and it represents a generic approach to any design challenge. If you were building a house, it would make sense to proceed in the the following stages:

1. Determine the number of bedrooms, bathrooms, etc. needed based on a number of factors, including the budget, the number of family members, and available plot sizes (ANALYSIS).
2. Hire an architect to create blueprints based on these needs (DESIGN).
3. Get builders to build the house based on the blueprints (DEVELOPMENT).
4. Move into the house and see if all the doors work and there are any leaks (IMPLEMENTATION).
5. any issues and ask the builder to fix them (EVALUATION).

In the context of the development of Blended Learning, the stages are as follows:

(See Table 3.1.)

The benefits of following the approach are that it ensures we do not overlook something obvious, as well as ensuring that there is a consistent approach to all the stages, as well as giving a clear focus on getting the design completed and helping ensure the success of the outcomes. You have already used the ADDIE model, the five steps of the pilot process outlined in Chapter 2 follow ADDIE. In the following sections we will discuss some of the steps mentioned in the first two stages (Analysis and Design). The development and implementation stages are discussed in detail in Chapters 4 and 7, and the evaluation stage is covered in Chapter 8.

Table 3.1 – Stages of Developing Content using ADDIE methodology

Stage	Description	Outputs
Analysis	The analysis stage clarifies the instructional problems and objectives, and identifies the learning environment and learner's existing knowledge and skills.	<ul style="list-style-type: none"> • Describe what your learners should know coming into this process. • Identify constraints in terms of cost, time, and scope. • Develop learning outcomes.
Design	The design stage deals with assessment instruments, exercises, content, subject matter analysis, lesson planning, and media selection.	<ul style="list-style-type: none"> • Describe what will be taught (using a lesson plan). • Create initial storyboards and scripts. • Explore what software tools might be needed.
Development	In the development stage, you create and assemble content assets described in the design stage.	<ul style="list-style-type: none"> • Finalise and develop content. • Edit, brand, and publish. • Develop quizzes.
Implementation	The implementation stage delivers the content to the learners.	<ul style="list-style-type: none"> • Present classroom content. • Present online content.
Evaluation	The evaluation stage is where you assess what worked well and what did not, and what you should redesign.	<ul style="list-style-type: none"> • Get learner feedback. • Do self-reflection. • Revise content.

3.2.1 Learning Outcomes

Learning outcomes are created by the educator. They are short, simple sentences that outline what a learner is expected to know after a particular learning experience. They help inform the learners what they are expected to achieve with the help of the educator. So if the content being taught is related to education, a statement of learning outcomes might be:

On Completion of this module, the learner will be able to:

- **Identify** and **review** a wide variety of learning and teaching methods
- **Discuss** the theories of learning that underpin their teaching approach
- **Develop** effective and efficient self-directed study skills

The important thing to note here is that we use action verbs to describe what we expect the learners to be able to do. When possible we try to avoid using the words *know*, *understand* or *appreciate* as these tend to be vague and hard to quantify. Instead we try to think

of what the learners should be able to do in order to demonstrate that they have gained the required knowledge. These learning outcomes will give you clues as to how to teach the content, as well as what type of blended activities might be suitable, and what form of assessment you might use.

In 1956 Benjamin Bloom led a group of educators to develop a classification of levels of learning, moving from non-critical learning (surface learning) to critical and reflective learning (deep learning).¹ The lowest level of learning, when the learner is taking in the information, and trying to remember as much of it as possible without any critical reflection is Level 1 (called the “Knowledge” level). The highest level where the learners have deeply engaged with the material is Level 6 (called the “Evaluation” level). Below is a description of each of the levels, and some verb examples that can be used for writing learning outcomes. It is worth noting that in the example above the first two learning outcomes have verbs from Level 2, and the final learning outcome is from Level 4. This is perfectly fine as you might want the learners to understand some things more deeply than other things.

(See Table 3.2, next page.)

¹ Bloom, B. S., M. D. Engelhart, E. J. Furst, W. H. Hill, D. R. Krathwohl (1956): *Taxonomy of Educational Objectives: The Classification of Educational Goals, Handbook I: Cognitive Domain*. New York: David McKay Company.

Table 3.2 – Bloom’s Taxonomy Action Verb Examples		
Level	Description	Action Verbs
1. Knowledge	Remember previously learned information.	arrange, define, duplicate, label, list, memorize, name, order, recognize, relate, recall, repeat, reproduce, state
2. Comprehension	Demonstrate an understanding of the facts.	classify, describe, discuss, explain, express, identify, indicate, locate, recognize, report, restate, review
3. Application	Apply knowledge to actual situations.	apply, choose, demonstrate, dramatize, employ, illustrate, interpret, operate, practice, schedule, sketch, solve, use
4. Analysis	Break down ideas into simpler parts and look for generalizations.	analyse, appraise, calculate, categorize, compare, contrast, criticize, differentiate, discriminate, distinguish, examine
5. Synthesis	Compile component ideas into a new whole solution.	arrange, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare
6. Evaluation	Make and defend judgments based on internal evidence or external criteria.	appraise, argue, assess, attach, choose, compare, defend estimate, judge, predict, rate, score, select, support, value

3.2.2 Lesson Plans

Once you have completed your learning outcomes, you have a clear idea of what needs to be taught, so now you can move onto a lesson plan. The lesson plan is a detailed plan to guide what will happen during the lesson, highlighting the goals, the methods and the reviewing of the lesson. The lesson plan allows you to undertake a structured reflection on how you will combine the on-line and classroom based activities of a blended activity. Some of the key questions that the lesson plan will help you reflect on include the following:

- How much time will it take to teach this content?
- What are the learner’s strengths and weaknesses?
- What types of activities should I use?
- How will I chunk the learning?
- How will I assess what they have learned?

There are a very wide range of lesson plan templates available, and it is a good idea to look online and find one that suits your particular needs. We have an example lesson plan filled out below, and a blank template on the next page:

Example of a Lesson Plan

Lesson Plan	
Subject: Educational Models	Course: Education
Topic: Learning Theories	Designer/Date: Jane Smith 21-03-2018
Learning Outcomes:	
<p>On Completion of this module, the learner will be able to:</p> <ul style="list-style-type: none"> - Identify and review a wide variety of learning and teaching methods - Discuss the theories of learning that underpin their teaching approach - Develop effective and efficient self-directed study skills 	
Required Prior Knowledge:	
No prior knowledge needed.	
Procedure:	
5 minutes	Warm-up activity
10 minutes	Introduction to learning theories, a good overview
5 minutes	Introduction to the blended materials
15 minutes	Using the blended content
10 minutes	More detail on learning theories
10 minutes	Review the learning
5 minutes	Final Questions and instructions for next class
Discussion:	
<ul style="list-style-type: none"> - What is the purpose of these theories? - Do some people learn differently than others? - Which theory do you prefer? 	
Review:	
<ul style="list-style-type: none"> - What have we learned? - What additional questions do we have? 	

Template available on www.blenditwell.eu/handbook/templates/Sup04_LessonPlanTemplate.docx

3.2.3 Storyboards

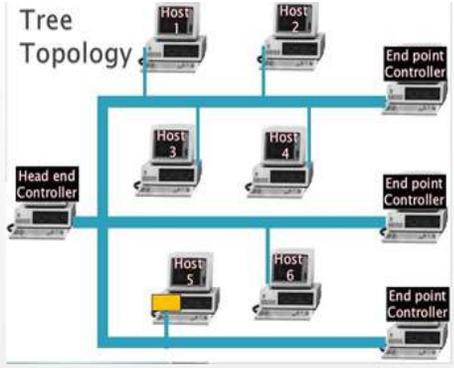
In the pilot chapter we saw a simple storyboard, and in this chapter we will look at a more detailed storyboard template, which can be based on the learning outcomes and lesson plans you have developed. The key field again is the CONTENT field, which should include sketches of a website, a video, or other interactive media. These sketches could initially be hand-drawn to allow for flexibility, and crucially it is important to make sure you do not put too much content on each storyboard, it is better to chunk the content into a few different storyboards to prevent cognitive overload. Remember to look at the content through the learners' eyes. In addition, if your chosen form of content includes the option for audio content as well as visual content then you can experiment with finding the balance between how much textual information you wish to display visually, and how much you will do as a voice-over.

Here is what each field means in the detailed storyboard:

- **Content Number:** Each storyboard gets a successive sequential number
- **Module:** This is the module that is being taught
- **Lesson:** This is the specific lesson that is being blended
- **Learning Objective:** This states the purpose of the lesson
- **Content:** This can be a visual sketch or text prototype of the content
- **Notes:** This could be a script, or navigation information, or other details
- **Designer/Date:** The name of the designer/The date of the design

Three examples for storyboards

Content No.: 57	Module: Introduction to French	Notes:	
	Lesson: French Movies		
	Learning objective: To outline some useful movies that may help learners improve their vocabulary.		
Content:	<p>This webpage will have links to trailers to three French movies, as well as links to cast lists of each of those movies.</p> <p>The page will be navigated to from Storyboard CN-56, and will link to Storyboard CN-58.</p> <p>The webpage is accessible, and it is possible to change the background colours.</p>		
	<p><i>Cyrano de Bergerac</i></p>  <p>Link to IMDB</p>	<p><i>The Return of Martin Guerre</i></p>  <p>Link to IMDB</p>	<p><i>Beauty and the Beast</i></p>  <p>Link to IMDB</p>
Designer: Jane Smith	Date: 04/05/66		

Content No.: 7	Module: Computer Networks	Notes:
	Lesson: Network Topologies	
	Learning objective: To explain how a tree topology network configuration passes messages between computers.	
Content:	 <p>The diagram illustrates a tree topology network. On the left, a 'Head end Controller' is connected to a central horizontal backbone. From this backbone, three vertical lines lead to three 'End point Controller' units. Each 'End point Controller' is connected to two hosts: Host 1 and Host 2 for the top controller, Host 3 and Host 4 for the middle controller, and Host 5 and Host 6 for the bottom controller.</p>	<p>This PowerPoint slide will have little animations of packages travelling (represented as brown boxes).</p> <p>The slide will be navigated to from Storyboard CN-6, and will link to Storyboard CN-8.</p> <p>This set of slides will also cover other topologies, including ring, star, and hybrid topologies.</p>
Designer: Jane Smith	Date: 12/06/65	

Content No.: 24	Module: Good Design Practice	Notes:
	Lesson: Designing a Bus Stop	
	Learning objective: To explain how to design bus stops and where to place it on the footpath relative to a bin.	
Content:	 <p>The illustration shows a 3D perspective of a bus stop design. On the left, there is a cylindrical bin. Next to it is a modern bus stop shelter with a digital display screen. To the right of the shelter, a silhouette of a person is walking along a path. A line connects the bin to the shelter, and another line connects the shelter to the person, indicating their relative positions on the footpath.</p>	<p>This is a video showing a persona (Mary Normal) at a bus stop.</p> <p>The narration will be: <i>Mary Normal goes for a walk, and along the street, she encounters curb-cuts, ATMs, Bus-stops and litter bins.</i></p> <p>The video will be accessible and will have subtitles and closed captioning.</p>
Designer: Jane Smith	Date: 14/11/65	

3.3 Adult Education Versus Other Forms of Organised Learning

It is important to be aware of the concrete teaching situations we are in.

Everybody who reads this book is probably an educator, teacher, trainer, facilitator, manager etc. in adult education. This means, you are working with certain types of learners, and you are doing this in a situation that is probably quite different from other school types.

Contemporary adult education is distinct from primary and secondary school, but also from other forms of formal education such as higher education (at universities and the like) or vocational training (at vocational schools, in enterprises).

Good adult education treats learners differently. Its task is to provide favourable learning environments for adults of any educational level by approaching them as what they are: individuals who have their own set of experiences and competences, and who have opinions they want to see valued. This is not only true for the educated but also for the so-called low-skilled, who in fact do have skills, just not those usually valued in the systems of formal education. Good adult education uses these pre-existing skills to build upon.

In many contexts, adult education in that sense is also not that much about learning certain skills or competencies (although this might also be the case in certain settings). It often is rather about developing one's personality, discovering new facets of the world, leading a healthy life, and so on. Sometimes people attend adult education events not so much for learning, rather in order to share the company of people with similar interests.

Other strands of adult education are more oriented towards practical things in life, be it in the household, be it at work. For example learning to use a computer is a typical reason someone might want to visit an adult education centre. This can be on an entry level, or on a quite advanced expert level. Language courses are attended by people who want to use it at work, or simply for their holidays. Recently in some European countries, providing classes in local language has become a much larger part of the work adult education organisations are doing because recently arrived refugees want to

learn the language quickly and efficiently in order to be able to find a job.

Some of those who use the services of adult education organisations take entire sets of courses to get a certificate as accountants or in other professions.

Adult education organisations typically are quick and flexible in finding out what people want and need, and organise learning opportunities around this.

Adult education offers learning opportunities for the average citizens, as well as for special groups of the population. This may include functionally illiterate people – research says that about 7-8 per cent of the population even in the large industrialized countries are not able to read or write at a level necessary for adequate life in modern society.

Adult education may include elderly people who have their own interests and requirements.

Sometimes, adult education covers topics that are seen as important for society, and therefore society (in form of the municipality, or government on a higher level) decides to invest money to let adult education organisations offer certain events, or example public debates with politicians and citizens about ardent questions.

This special environment of adult education must be taken into account.

Ask yourself: Who am I? Who am I working with? What is the subject matter of the learning activities I prepare? Why do people come to attend my course?

Moreover, when it comes to Blended Learning: what part of that can I take to create a little pilot for my first blended content? Is Blended Learning at all a suitable instrument for the people I am working with?

In the paragraphs above, we tried to outline briefly what makes adult education different from other branches of organised learning. However, the picture is not the same in all European countries. Each country, each education system and national culture has different traditions. In addition, the six institutions that cooperated in the Blended Learning project started from specific backgrounds of their own. In order to become aware of this, and to illustrate the difference between countries

as well as between types of institutions, in what follows

we discuss a number of typical situations how and why and for whom learning is organised in our organisations.

VHS Hannover · Germany

VHS Hannover is a typical municipal adult education centre as they can be found in practically every German town of some importance. Typical learning situations include (note that this is a list of random examples, not a full list):

- Foreign language classes for people who want to use the language on their holidays.
- Health related courses such as Yoga, Pilates and other techniques.
- German language classes for refugees who have recently come into the country.
- Indian cooking course attended by middle-aged men and women, usually with daytime jobs.
- A class of young adults who after having failed at school are now left without any school leaving certificate. They visit a daytime course for a year to get a secondary school leaving certificate; many of them have behavioural issues.
- A class of trainees for the vocation of Retail Salesperson. In a three year course which includes internships in various companies they achieve a full vocational degree. This is vocational re-training paid for by the Employment Agency.
- Adult educators organise a one-day event for 16-18 year old learners from various schools in town on the topic of “What is the European Union, and do we need it?” The event is planned to be as interactive and communicative as possible (using a format such as World Café).
- Some private company commissions VHS Hannover to train their staff in accounting and in using accounting related software.
- On behalf of the municipality, VHS Hannover organises courses for parents of school children to liaise with immigrant families to improve their childrens’ school attendance.

DOMSpain · Slovenia

DomSpain is an adult education and training organisation from the province of Tarragona, Catalonia. It provides courses in foreign languages, ICT, cooking, and personal growth for adult learners; training for educators focusing on improving foreign language competences, learning to use digital tools in teaching, and new teaching methods; extra curriculum activities for school children and parents.

Typical learning situations can include the following:

- Conversational English/French/German classes, usually mixed-level and mixed age groups
- Foreign language classes for older learners who like travelling
- Classes of English for young adults who need to do Cambridge English exams to study abroad or improve employment opportunities
- Classes on foreign languages for employees in the tourism and commercial sectors
- Computer/Mobile application courses for older learners
- Cookery classes for mixed-level and mixed age groups: cooking for singles, Greek/Japanese/Tibetan/Nikkei/Korean cuisine
- Memory workshops for older learners
- Mindfulness and Meditation workshops for adults
- Workshops for parents on how to educate their children to behave in a responsible way and stay safe online
- Courses on Robotics and Coding, and English Refresher courses for school teachers

- Interactive workshops for young adults and youth workers on international mobility and the Erasmus+ programme

UPI Ijudska univerza Žalec · Slovenia

UPI Žalec is a public non-profit institution for education and training of adults in the Lower Savinja Valley, Slovenia. It offers a wide range of formal and non-formal education programmes, quality guidance and counselling services. UPI Žalec runs vocational school programmes, primary school classes for adults and numerous non-formal programmes as listed below:

- Language courses for unemployed who want to improve their employment prospects
- Language courses for employed people, both job-related and for leisure time reasons
- Language courses for seniors
- Language courses to prepare for national or foreign exams
- Slovene courses for companies who employ migrants
- Computer courses for the unemployed and employed
- Computer literacy courses for the unemployed
- Digital workshops for seniors: e-mail use, taking and editing photos on the phone, first computer steps, Facebook and other social media, etc.
- Creative workshops and lectures about various topics within Centre of Intergenerational Learning (personal growth, arts and crafts, sewing workshops etc.)
- Integration programmes for migrants
- Study circles (sustainability, health, geography etc.)
- Music and dance classes for adults etc.

TU D · Ireland

The Technological University of Dublin is a higher education institution offering academic training to (typically) young adults as highest level of formal education. Learning at a university type organisation is characterized through a high degree of structuring; measuring of outcomes; and curricula or learning units typically rather long: up to four years for example for a full degree. Some forms of learning, though, are short-term: TU Dublin also teaches adult learners who typically are employed and are returning to education through evening classes or part-time classes.

Here is a list of how learning is organised, and with what attendants:

- Students who have completed secondary education, and are attending college on a full-time basis to obtain a qualification (typically a Bachelor of Science degree) to gain entry into full-time employment.
- Students who are over 23 years old ("mature students") who have been working, but have decided to return to college on a full-time basis to expand their employment opportunities.
- Evening class for students who have full-time work during the day, and are obtaining a degree (typically a BSc) in the evenings and weekends, to expand their employment opportunities.
- Post-graduate students who have graduated within the last three years and are returning to college to get an MSc qualification on a full-time basis.
- Post-graduate students who are graduated for more than three years and are returning to college to get an MSc qualification on a part-time basis.
- Post-graduate students who are graduated within the last three years and are returning to college to get a PhD qualification on a full-time basis

3.4 Copyright and Creative Commons

3.4.1 Copyright

Copyright, as you know, is a legal concept that allows the creator of an original piece of work to have exclusive rights for its use and distribution. It is usually only granted for a limited period of time. For example in the Republic of Ireland copyright for literary, dramatic, musical and artistic works is for the life of the creator and 70 years thereafter. For sound recordings, film, and broadcasts the term of protection is 50 years from the year of creation. Not all copyrights expire. For example, in the United Kingdom the copyright for J.M. Barrie's play *Peter Pan* was granted in perpetuity to the *Great Ormond Street Hospital*, a children's hospital in London, based on Barrie's wishes.

The exclusive rights are not absolute. There are exceptions such as "Fair Dealing" (also known as "Fair Use") which is an umbrella term for a collection of exceptions that are not considered to prejudice the rights of the copyright holder. Examples of these include:

- Using the content for research or private study

- Using it for criticism or review or for reporting current events
- Copying a small amount of the content that doesn't represent a "substantial" part of the work
- For educational purposes
- Parodies and pastiches

A major limitation on copyright is that copyright protects only the original expression of ideas, and not the underlying ideas themselves.

It is worth discussing copyright because even if you never have had to consider it in a classroom setting, if you are developing online content, and particularly if you are making that content publically available, it is important to be sure the content you generate doesn't include any copyrighted materials, or you have the explicit (written) permission by the authors (or rights holders) to do so.

For Example: Copyright Claims Gone Wild

An interesting example concerning copyright (that might be worth mentioning to learners) is the *Monkey Selfie Copyright Dispute*. In 2011 wildlife photographer David Slater went to Indonesia to take photographs of an endangered monkey species (the Celebes crested macaques). Slater spent a couple of days with the monkeys, teaching them how to click the shutter-release button on his camera to take a picture. One of the monkeys took a picture of itself (on the right), which was published in several British newspapers including the *Daily Mail*, *The Telegraph*, and *The Guardian*, on 4th July 2011. Five days later the image was uploaded onto *Wikimedia Commons*, a site that only accepts media available under a free content license, in

the public domain, or otherwise ineligible for copyright, asserting that the photographs were in the public domain as "the work of a non-human animal, it has no human author in whom copyright is vested". Slater asked *Wikimedia Commons* to take down the pictures, which they did for a time, but after a lot of internal discussion agreed that the monkey took the picture, and the monkey can't hold copyright. Slater argued that he set up the shot, practiced with the monkeys, and even held the tripod for this shot, so he was the owner of the picture. But on 21st August 2014 the United States Copyright Office ruled that the picture cannot be copyrighted as it wasn't taken by a human. (It is important, though, to notice that this is only the opinion of one court in one



country. Other courts in other countries might decide differently.)

3.4.2 Creative Commons

To help avoid copyright pitfalls an American non-profit organization called Creative Commons (CC) was set up in 2001 by Harvard scholar Lawrence Lessig to expand “the range of creative works available for others to build upon legally and to share”. To achieve this the organisation has created a number of standard, free legal permissions – called Creative Commons licences – that describe which rights the creator wants to reserve and which they are willing to waive for the benefit of other creators.

Creative Commons licenses are not designed to replace copyright, but they can replace individual negotiations for specific rights between copyright owner and licensees, which are necessary under an “all rights reserved” copyright management.

By 2015 over one billion works were licensed under the various Creative Commons licenses.

Organisations like Google Images, Flickr, YouTube, Vimeo, SoundCloud, and Wikipedia use Creative Commons licenses. So when you upload content to them, you are asked which licence you wish to attach to that content. A useful website to search for content that has Creative Commons licenses is:

- <https://search.creativecommons.org>

Creative Commons Licence Elements

There are six standard Creative Commons licences available. Each licence is formed from one or more of the following four licence elements:

1. **Attribution:** This means that others must credit you as the original creator of the work. All Creative Commons licences require users to provide attribution.
2. **Non-Commercial:** This means that others may not share, adapt or reuse use your work if their use is primarily intended for commercial advantage or monetary compensation.
3. **NoDerivatives:** This means that others can share your work, but they must not change it. Note that users still have the range of fair dealing rights.

4. **ShareAlike:** This means that those who adapt or remix your work must use the same Creative Commons licence on any derivative works.

There are standard icons associated with each of those elements:

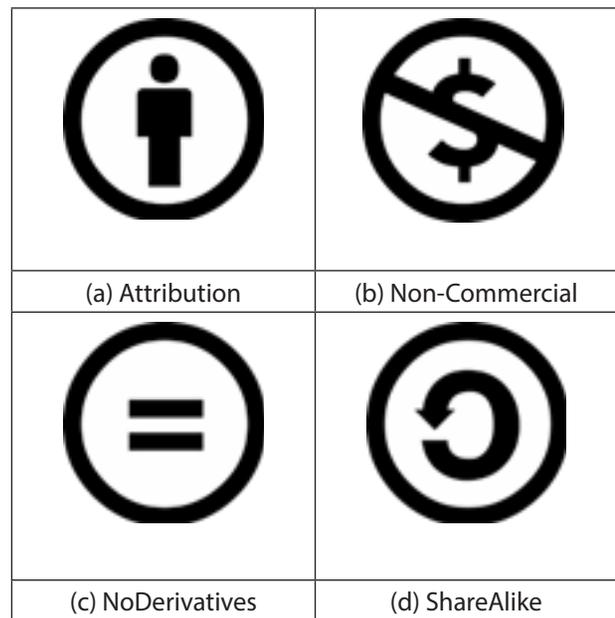
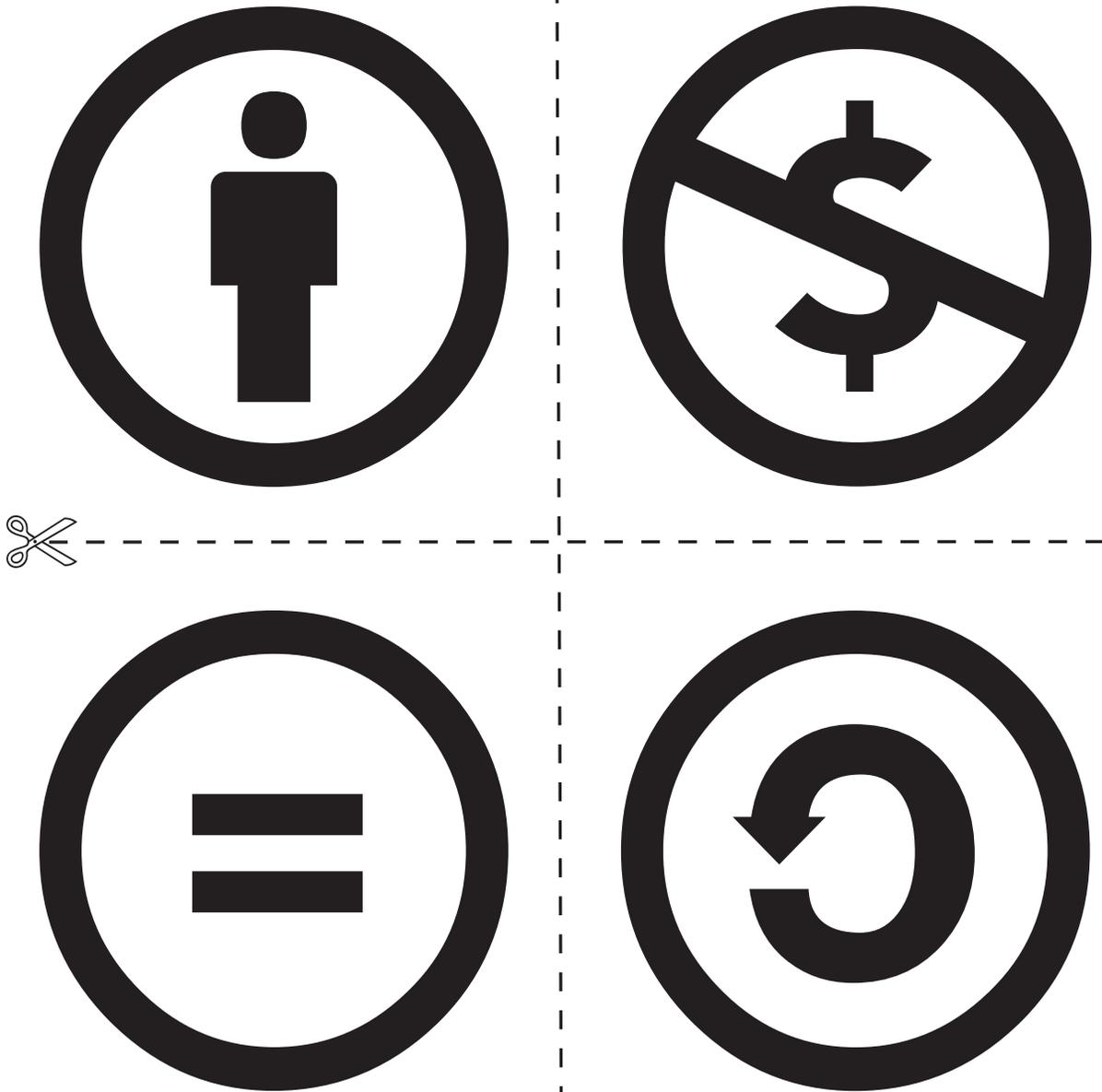


Fig. 3.2 – Creative Commons Licence Elements Logos.

When publishing something under a Creative Commons licence, you are supposed to add the respective icons (one, or several, according to your choice of licensing) to your work, e.g. in the imprint of your book.

You can do that by adding the symbols as graphics (pictures). An other way, that is very convenient when you publish things more frequently, is the following: Creative Commons icons are also available as typesetting fonts (both for Windows and Apple operating systems). You can download them for free and install them on your computer like you would do with other fonts such as your ubiquitous Times New Roman or Arial fonts. The font available in 2018/2019 was called CC-icons (cc-cons.ttf).

Learner Activity: Copyright Challenge

**Instruction**

Make a copy of these images, cut them out, and hand them out to your learners (in groups or individually) and ask them to find out what they mean. If you want to be nice you could give them a clue and say, "this is related to Creative Commons". Maybe ask them to email you the answer, or tweet it, or contribute it to a wiki.

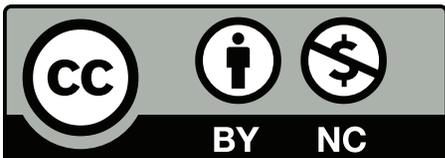
Creative Commons Licence Elements

From the four basic licence elements in the Creative Commons universe, the following six standard licences are available (there are more, but these are the most common ones):



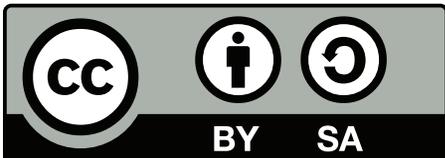
Attribution

This licence lets others distribute, remix, tweak, and build upon your work, even commercially, as long as they credit you for the original creation.



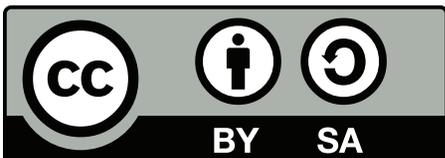
Attribution-NonCommercial

This licence lets others remix, tweak, and build upon your work non-commercially with credit to you (their new works must also be non-commercial).



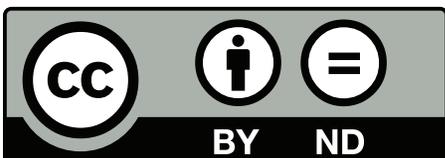
Attribution-ShareAlike

This licence lets others remix, tweak, and build upon your work even for commercial purposes, as long as they credit you and license their new creations under the identical terms.



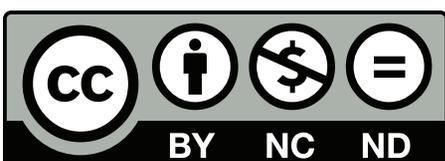
Attribution-NonCommercial-ShareAlike

This licence lets others remix, tweak, and build upon your work non-commercially, as long as they credit you and license their new creations under the identical terms.



Attribution-NoDerivatives

This licence allows for redistribution, commercial and non-commercial, as long as it is passed along unchanged and in whole, with credit to you.



Attribution-NonCommercial-NoDerivatives

This licence is the most restrictive of our six main licences, only allowing others to download your works and share them with others as long as they credit you, but they cannot change them in any way or use them commercially.

All logos used for CC licensing are available for download in various formats (pixel and vector) at:

<https://creativecommons.org/about/downloads>

3.5 Usability and Accessibility

3.5.1 Usability

When developing content it is important to remember to design it in such a way that it is easy to understand how to use the content. So for example if you create an interactive quiz and the learners can't figure out how to answer the quiz because the interface is either not easy-to-use or not easy to learn-to-use, then it will not only fail its objective but it will also frustrate learners.

Three key pillars of good usability are:¹

1. **User-centred Design:** The sooner you involve learners in the design of content, the more likely they are to be happy with the outcome. Their involvement could be as simple as consulting them on choice of colour, or it could be presenting them with early storyboards or prototypes for feedback.
2. **Measure Progress:** At the start of the development of content, decide on what metrics you are going to measure to ensure the completed content meets the needs you set out to achieve. This could be something as simple as counting the number of clicks it takes a learner to complete a task, to measuring how long it takes for a learner to learn how to use the complete system.
3. **Iterative Design:** Developing educational content does not have to be a one-time thing. Once the content is completed it can be tested, and based on the feedback of that testing, the content can be redesigned and redeveloped leading to retesting. The process can reoccur over and over again until no problems are found in the testing any more. This process of testing-improving-re-testing etc. is commonly called "iterative design".

An effective way to test the usability of content is to invite a small pool of learners to participate in a usability testing session. During this session the learners are given a series of tasks to complete using the content, without any assistance from you. If you get them to do it one at a time you can note how they approach the tasks, what level of frustration occurs, and how long it takes to accomplish each task. Analysis of several learners' performance can help improve the system.

Observation is only one of a number of methods of usability evaluation. Others include GOMS (Goals, Operator, Methods, and Selection rules), the think-aloud protocol, and personas. These are detailed in Chapter 8: Blended Evaluation).

There are a number of design guidelines that have been developed to aid designers in creating usable content, including Christopher Wickens' Thirteen Principles of Display Design and Ben Shneiderman's Eight Golden Rules of Interface Design. The most widespread guidelines for usability are Jakob Nielsen's Ten Heuristics from his 1994 book Usability Engineering. Those heuristics are outlined on the next page, and there is a check sheet for them on the following page.

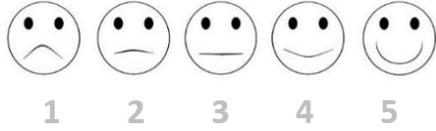
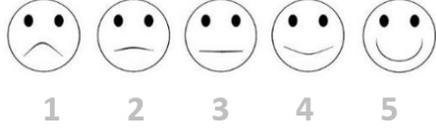
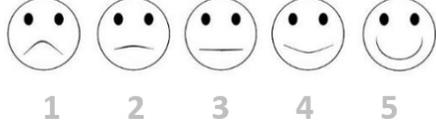
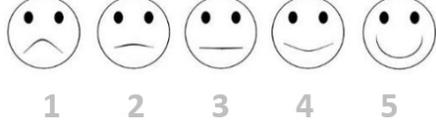
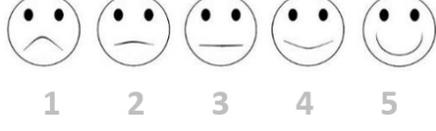
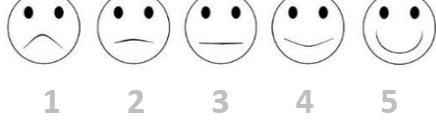
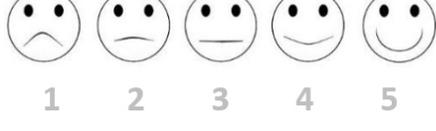
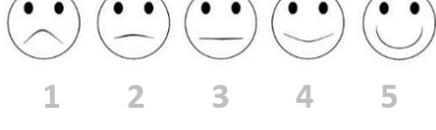
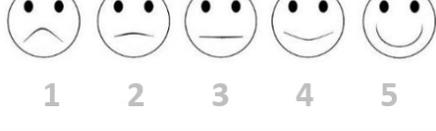
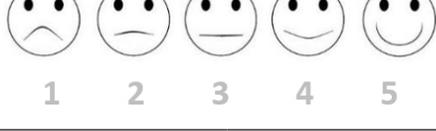
Nielsen defined the five quality components of usability as:

1. Learnability
2. Efficiency
3. Memorability
4. Errors (as in low error rate)
5. Satisfaction.

which can be used as effective measures in a usability testing session.

1 Gould, J. D., C. Lewis (1985): *Designing for Usability: Key Principles and What Designers Think*. Communications of the ACM, 28 (3).

Nielsen's Heuristics	
Heuristic	Description
1. Visibility of system status	The user needs to know what's going on inside the system within a reasonable time. For example when uploading files using Google Drive, a pop-up window appears that indicates the file is being uploaded, and confirms when the upload is completed.
2. Match between system and the real world	The user needs to understand what is happening so the system uses terminology that the user is familiar with. For example if the user of the system uses British spelling and terminology (as opposed to US American), then the system should use British spelling and terminology.
3. User control and freedom	The user should have some freedom of choice when using the system, and if the user selects an option in error, it should be possible to undo that error. For example when you delete an email in your favourite e-mail application or website, a message appears saying: "The conversation has been moved to the Trash – Learn more – Undo", leaving the user the chance to undo.
4. Consistency and standards	Different parts of the system should not have a different look-and-feel, either in terms of appearance, actions or terminology. For example a button that does one thing on one screen shouldn't do something different on another screen. The opposite is also true: the same function shouldn't be represented by two different buttons on two different screens.
5. Error prevention	The user should be prevented from making errors. This can be achieved by testing prototype systems with users to identify common errors, and either eliminate their source by redesign, or add a function to ask the users: "Are you sure?", before you allow them to do it. For example many email systems check if you have the word "attached" in your message, and will suggest you should include an attachment if you haven't already.
6. Recognition rather than recall	The user shouldn't have to recall a large amount of information from page to page. Rather, the system should minimise the user's memory load by making objects, actions, and options visible. For example, many website provide breadcrumbs to show the user their current location within a website, such as: <i>Home > Publications > Books > The Blended Learning Guide</i> .
7. Flexibility and efficiency of use	The system should have different ways of doing the same thing depending on the user's level of experience. This includes having hidden options ("accelerators") for expert users that novice users don't need to know about. For example when copying-and-pasting in Microsoft Word, the novice user can do <i>Right-Click Copy</i> , and <i>Right-Click Paste</i> , and the expert user can do <i>Ctrl-C</i> and <i>Ctrl-V</i> .
8. Aesthetic and minimalist design	The user should only be presented with information that is directly relevant to the current interaction. Keep the information on each page to the necessary minimum. (The Google Search home page is a good example of this.)
9. Error recovery	Error messages should indicate in plain language what the problem actually is, and constructively suggest a solution. A message like "System Error 4245" is usually useless. Better is something like: "You typed in some letters, but you should have typed in numbers."
10. Help and documentation	All help should be easy to search, focussed on the user's task, list concrete steps to be carried out, and not be too large. For example, a Frequently Asked Questions (FAQ) list can often be more attractive to users than a manual.

Nielsen's Heuristics Check Sheet		
Content:	Reviewer:	Date:
1. Visibility of system status	 1 2 3 4 5	
2. Match between system and the real world	 1 2 3 4 5	
3. User control and freedom	 1 2 3 4 5	
4. Consistency and standards	 1 2 3 4 5	
5. Error prevention	 1 2 3 4 5	
6. Recognition rather than recall	 1 2 3 4 5	
7. Flexibility and efficiency of use	 1 2 3 4 5	
8. Aesthetic and minimalist design	 1 2 3 4 5	
9. Error recovery	 1 2 3 4 5	
10. Help and documentation	 1 2 3 4 5	

3.5.2 Accessibility

The previous section explained the concept of *Usability*, which considers how easy content is to use for a typical user. *Accessibility* takes this one step further and considers how easy content is to use for a user with an impairment or disability.

Typical impairments can be visual impairments (including blindness), auditory impairments (including deafness), mobility impairments, cognitive impairments (including dyslexia, ADHD, Autism), and neurological impairments (including the use of memory, cognition, sensory skills, organizational skills, social skills).

There are specific software and hardware tools called *Assistive Technologies* that can help a user access online information and use computers. Computers have a screen, and they display textual information; which can be challenging for users with a visual impairment (or those who are blind). Nonetheless with the use of a software tool called a screen reader those users can access online information, as the *screen reader* will read out the text from the screen.

Below are some accessibility tips for the six types of blended activities featured in this book:

Accessible Presentations

- Presentations are usually a combination of text and images. If you have learners with visual impairments, the text will be readable with a screen reader, but images may need a little more work to help those learners. In many text and graphics editing programmes (starting for example with MS Word or Powerpoint) if you right-click on an image (or shape, or SmartArt, or video), and select *Format > Properties* you will get an **Alt Text** (alternative text) dialogue where you may add a textual description of the visual element. Screen readers will read out this textual description.
- If the presentation software has **built-in slide designs** (for example Title, Two Content, Blank, Comparison), try to use those as they will be well understood by the screen reader, whereas if you do your own formatting of slides it may cause confusion.
- If you are adding **hyperlinks** to a presentation, make sure the linking text gives a clear indication of the destination. Something like “Click Here” is insufficient

compared to text that says “Link to the Irish National Disability Authority Website”.

- Make sure the text and images are coloured in such a way that there is enough **contrast** with the background colour. Use an online contrast checker if you are not sure that what you did is sufficient, e.g.

<https://webaim.org/resources/contrastchecker/>

Accessible Podcasts

- Create a **transcript** of the podcast. If you are too lazy to type yourself, you can try a number of software tools online to convert audio files into text. (Quality of such robotic transcripts is often insufficient without human post-editing, but this technology is making quick progress, so checking again after a couple of years may be a good idea.) If you include the transcript on the same webpage as your podcast, it will make it easier for search engines to find it.
- Use the transcript to create **Show Notes** for the podcast, which can include:
 - Title of Podcast
 - Episode Number
 - File Size
 - 3-5 Key Takeaways from the Podcast
 - The Transcript
 - Best moments from the Podcast
 - External links to useful information related to the topic of the podcast

Accessible Videos

- Create a **transcript** of the video. – For details, see above in the section on Accessible Podcasts.
- Use the transcript to create **Closed Captions** for the video. Closed Captions is a term used for subtitles that do not only show the words spoken, but also include text descriptions of non-speech elements, e.g. the identity of speakers, their manner of speaking, background music and other relevant audible information. They are called “Closed Captions” because usually they are set to be not visible by default but only on special request by the viewer (or audience).

- You can also consider adding an **additional soundtrack of video descriptions**. These are audio descriptions of the video's key visual elements. They are usually inserted into natural pauses in the dialogue.
- If one of the settings you have control over is **auto-play**, it is better to switch that off. Let the learners themselves decide when they want to start playing the video.
- Under no circumstances include **flashing or strobing** content in your video. It can trigger epilepsy attacks in some learners. If you are not sure if your video can cause problems, download the Photosensitive Epilepsy Analysis Tool from the Trace Center to test it. Source:

<http://trace.umd.edu/peat>

Accessible Documents

- If the document is a combination of text and **images**, learners with visual impairments can access the text with a screen reader. But the images may need a little more work to help those learners. Use the "alternative text" (*Alt Text*) feature of such graphics to add some explanatory text. E.g. if the picture shows a sailing ship and blue sky, add a descriptive text "Sailing ship and blue sky" which screen readers will read out. In most editing software you can get to the *Alt Text* dialogue through clicking something like *Format > Properties > Alt Text*.
 - If you are adding **hyperlinks** to a document, make sure the linking text gives a clear indication of the destination. Something like "Click Here" is insufficient compared to text that says: "Link to the Irish National Disability Authority Website".
 - Make sure the text and images are coloured in such a way that there is enough **contrast** with the background colour. Use an online contrast checker if you are not sure that what you did is sufficient. Source for example:
- <https://webaim.org/resources/contrastchecker/>
- To make reading easier, consider using **sans serif fonts** (for example, Arial, Comic Sans, Verdana, Sassoon or Open Sans), and try to use as large a font size as possible, at least 18 point.

Accessible Games

- There are a range of **audio games** designed for visually impaired learners. These games can be played without any visual feedback. To learn more and see some examples, visit www.audiogames.net.
- There are a range of games designed to be played using a **single switch** for learners with severe motor impairments or cognitive impairments. To learn more and see some examples, visit <http://www.oneswitch.org.uk>.
- There are a range of games designed for learners with a learning disability. To learn more and see some examples, visit <http://game-accessibility.com>.
- There are a range of games universally designed for learners with different impairments. To learn more and see some examples, visit www.ics.forth.gr/hci/ua-games/index.html.

Accessible Searching

- Search engines such as Ecosia and DuckDuckGo — or Google, if you are alternatives-unaware — usually have a **video searching tool** to search for videos over the entire web. Some sites have advanced video search for narrowing down the content, e.g. www.google.com/advanced_video_search. Here you can choose the option to search only for closed captioning in the section: *Subtitles > Closed Captioned Only*.
- To search for videos with proper **closed captioning** on Youtube (not just the auto generated closed captioning, which can be poor), type in your search term and add in ", cc" (yes, that's *comma cc*).

3.6 Challenges, Pitfalls, and Choices

3.6.1 Providing Flexibility

Many researchers highlight the advantages of providing more flexibility to the learners in terms of: where they learn, when they learn, and even how they learn.¹

This can be facilitated in a wide range of ways, including some very complex ways and some more straightforward ways.

For example, if you do not typically use e-mail with your learners, then that would be a simple way to incorporate **flexible communications** into the blended process. Alternatively it is possible to create a discussion board using a site like www.proboards.com to build it.

Flexibility can also be delivered in terms of the type of content you create in the online setting. You could create **additional advanced content** that would be optional for the very successful learners who wouldn't find the regular content sufficiently challenging.

Also you could create **different types of content** based on different learning styles, for example VARK (visual, auditory, read-write, and kinaesthetic) or the Keirsey Temperament Sorter (artisans, guardians, idealists, and rationals).

3.6.2 Giving Quality Feedback

Feedback is a very important aspect of the teaching process. Research indicated that it has a very powerful effect on learners' understanding and achievement.² It is therefore extremely important to do it often and do it well. Feedback can be part of the later evaluation process, and therefore some of the issues associated with feedback will be covered in Chapter 8. But for now we will make the following two key points:

1. If you have to give negative feedback to learner groups, it is best to avoid saying "You guys have a problem..." and instead say "We have a problem..."
2. In terms of giving individual feedback it is best to soften the blow of negative feedback with some positive feedback first. We suggest starting feedback with some positive points under the heading "I like that you ..." and following that with your negative points under the heading "I would have liked if you had ...".

On the other hand, especially with adult learners, you should be aware that this can also backfire by being perceived as just an introduction to negative feedback. Adult learners who are in employment may have expe-

rienced their superiors doing this (especially when they just came back from a leadership training) and become rightfully suspicious when a superior starts saying positive things about them, as they know that this happens only when negative things are to follow.

The takeaway is: be aware of the situation and try to see it from the perspective of your learners.

Feedback Form (Example)

I like that you:

1. _____
2. _____
3. _____

I would have liked if you had:

1. _____
2. _____
3. _____

1 Boelens, R., B. De Wever, M. Voet (2017): *Four Key Challenges to the Design of Blended Learning: A Systematic Literature Review*. Educational Research Review, 22, 1-18.

2 Hattie, J. (2003): *Teachers Make a Difference: What is the Research Evidence?* Paper presented at the Australian Council for Educational Research Annual Conference on Building Teacher Quality, Melbourne.

3.6.3 Ensuring Confidentiality

We will reiterate this point in Chapter 5 (*The Blended Learner*), but digital identity is becoming more complex in recent years. Digital identity is divided into four distinct concepts:

- the *digital footprint*, which is all of the information that is available about us online that we created;
- the *digital reputation*, which is perceptions this information generates in third parties;
- the *digital shadow*, which is what other people say about us online or when they take a picture with us in it and put it online;
- and finally the *digital tattoo*, which is the data that is permanently stored about us online.

It is important that learners are aware of these different aspects of digital identity and that they behave carefully in an online setting.

4. The Blended Educator: Advanced Activities



*All growth depends upon activity. Life is manifest only by action.
There is no development physically or intellectually without effort.*

Calvin Coolidge – Adequate Brevity.

The Blended Educator: Advanced Activities

Now that we have looked at some of the key considerations associated with developing blended content, let us take the six activities we looked at in the pilot one step further, and explore advanced versions of each of those activities.

The six activities are, Presentations, Podcasts, Videos, Documents, Games, and Searching.

For each of the six activities we have selected two tasks to give you some options to choose from.

For each of these tasks we have detailed instructions as to how to start doing them.



Fig. 4.1 – Topics in this Chapter.

Each task is presented based on the following structure: (See Table 4.1.)

Table 4.1 – How the following sections are structured	
What do I need?	This section covers what hardware and software is required for you to achieve this task.
Where to look for help?	This section mentions online and offline resources that will help you learn more about this task.
How do I prepare?	We have mentioned it before: preparation is key before you start developing content. This section gives some advice on what to do to begin doing this task.
What do I do?	This section details a step-by-step guide to doing this task.
Teaching benefits	This section lists some of the teaching benefits that can occur when you do this task.
Common mistakes to avoid	This section looks at some of the common mistakes people make when developing and teaching this task.
Online or offline?	This section explains whether or not you need internet access for you and your learners to do this task.

4.1 Presentations

Creating presentations is a really important skill to develop for the blended educator. You may already use them in a classroom setting. In a blended context, however, it is important to remember to add a little more information into the presentations, to make them independent units of learning.

In this section we'll look at two tasks associated with presentations: creating infographics, and using Prezi, which is an online tool for creating presentations.

4.1.1 Creating Infographics with Canva

Infographics are poster-style representations of information in a quick and clear way. The combination of text and graphics allows for the information to be more easily understood by readers.

As always, it is best you do this with totally within your own means. You could draw it on paper, or if you have good graphic design software available (e.g. Adobe Illustrator, Adobe InDesign or Corel Draw) you could use this.

In this book, and in this chapter, we do not assume that you have such expert tools available. Therefore, let us do this tasks by using free online tools.

Caveat: The advantage is that it is quick, and that it is free. The disadvantage is that the results often are boilerplate and standard using just a ready-made template. The templates available are usually overly perfect in visual appearance; carrying a particular aesthetic (starting with the way they use type-faces). You can however reduce this by heavy editing, and creating your own designs from scratch. But these disadvantages aside, you may find online tools for making infographics worth trying.

For example, we managed to create the book cover (Fig. 4.1., this page) in about 4 minutes from a template available at www.canva.com:

What do I need?

- Computer
- Internet access
- The Canva site: www.canva.com
- Before using the Canva site you need to create an account. Click on the link above and register for free.

Where to look for help?

- <https://support.canva.com> offers tutorials and step-by-step user guides. As a complete novice, click *Getting Started* first.
- You can also watch a wide range of Canva tutorials at <https://designschool.canva.com/tutorials>

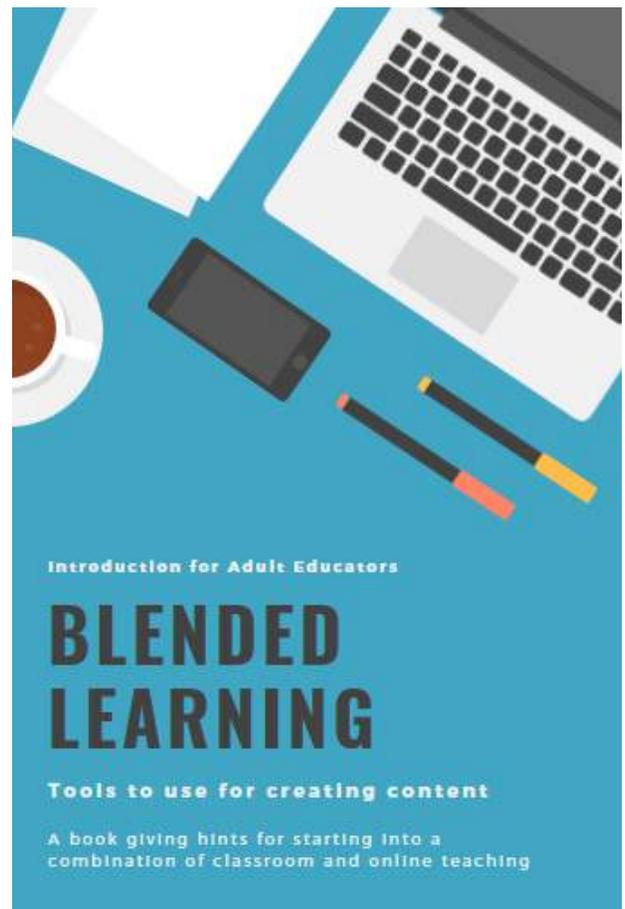


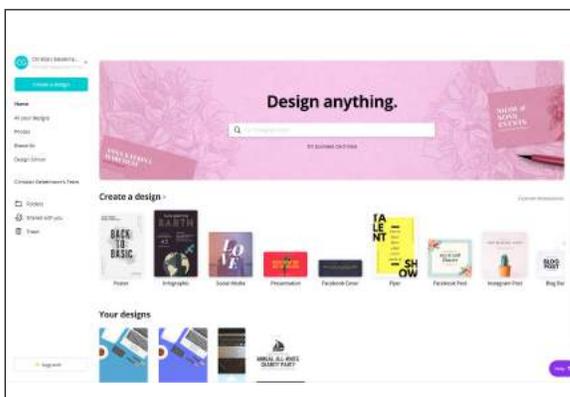
Fig. 4.1 – Book cover quickly created using Canva, from a pre-fabricated template.

How do I prepare?

- The first thing to do is develop a script for the topic you want to cover. Write down the key words you need to mention about this topic, and based on these words create some sentences. (Some people do not do this by physically writing as they have some clear enough idea in their head. It simply depends on what type of a person you are. Taking notes can help in the beginning.)
- If you want to include photos, make sure you pay attention to copyright and that the photos are of appropriate quality.

What do I do?

- Once you have registered you enter the application and land on your account page.
- The application asks you what you want to design. Search around until you find “Infographic”. You can also type “Infographic” into the search field. (Adding more information here about how to find that section on the Canva websites does not make much sense as website layouts can change quickly) When we checked last in April 2019, the website looked like this:

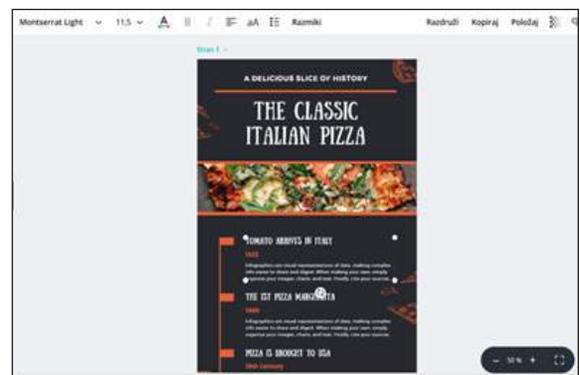


- In this case the icon for “Infographic” is bottom left. Click it. You will then get a number of ready-made designs for infographics to choose from. (See Fig. 4.2.)



Fig. 4.2 – Ready-made designs offered by Canva. (Screenshot taken in late 2018.)

- By clicking on one of the templates the window with the selected template opens.



- By clicking on the template, the toolbar appears above the selected infographic. You can add text, photos, change the font, use colours etc.



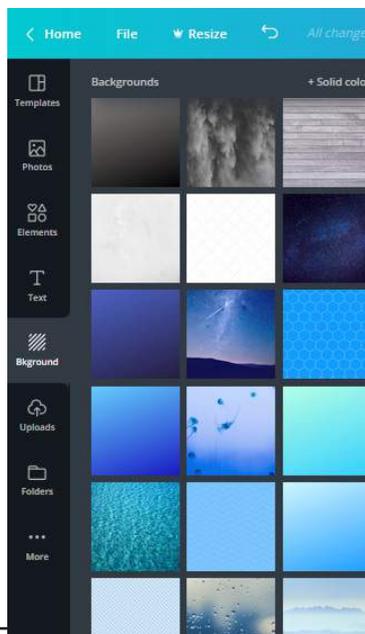
Fig. 4.3 – Toolbar for editing content in Canva.

(See Fig. 4.3)

- There is another menu on the left side of your page. The first icon is about templates. Once you have chosen the template, you can start playing with it: you can add different elements such as photos and graphics, add text, change background, upload your own photos, create folders and use one of many apps to further design your infographics.



- If you for example click on the *Background* icon, you are offered a number of free templates you can use to change the original one you selected.



- After choosing the background of your infographic, you can start playing with content by adding text. Click on "Text" and then drag and drop heading types. You can change font faces and colours.
- Under "Elements" you can add free photos, grids, frames, shapes, lines, illustrations, icons and charts to your infographic. To select a graphic element, select your chosen category, and then double-click the element, or drag and drop it to the editing screen.

Teaching Benefits

- Benefits Infographics take textual information and convert it into a highly visual piece of content that people are more likely to read, understand, and remember.
- A good infographic can tell a story.
- Infographics encourage learners to think visually about topics.
- They can help learners to better remember statistical information.

Common Mistakes to Avoid

- You must define a clear entry point into your graphics. That's the thing to watch (or read) first. The opposite is "weak flow": that's when the reader does not know where to look first.
- You should organise your information clearly and effectively.
- Keep your colour palette small.
- Ensure you choose colours with good contrast. Some people have problems differentiating certain colours.¹
- Don't forget your hierarchy.

Online or Offline?

- You can download your infographic in files: .jpg, .png or pdf

¹ Making sure that colour-blind people can read graphics is a science in itself, all the more as there are several types of colour-blindness. A good point to start is watching your graphic with your eyes narrowed to slits. This helps you see contrast of brightness rather than colour.

- You can share your infographics with your colleagues. Simply click the “Share” button on the top right of the editor.

4.1.2 Creating a Presentation with Prezi

Prezi is an online tool which allows the user to create presentations. It is an alternative to slide-based tools like PowerPoint (Windows) and Keynote (Mac). The peculiarity is: you draw your presentation on a single canvas, and you zoom in and out of parts of the canvas.

What do you need?

- Computer
- Internet access
- The Prezi site:

<https://prezi.com>

Where to look for help?

- Prezi Knowledge base:
<https://support.prezi.com/hc/en-us>
- The book *Prezi For Dummies* (2010) by Stephanie Diamond

How do I prepare?

- A good way to begin is by preparing a few points of what you would like to cover in your presentation. You can also decide what supporting details you would like to put in your subtopics.
- It can be useful to sketch on paper the overall shape you want to create on the canvas and create a few sketches of specific elements within the canvas.

What do I do?

1) Create your account

Go to the Prezi website. Once there, click on the blue *get started* button. There are several options to pick from:

- Basic: This is the basic membership, and comes with a small amount of online storage. All presentations made with this membership are public and can be viewed by everyone.
- Plus and Premium: for higher monthly fees, you get a number of additional services, for example offline access to your presentations. When we last checked

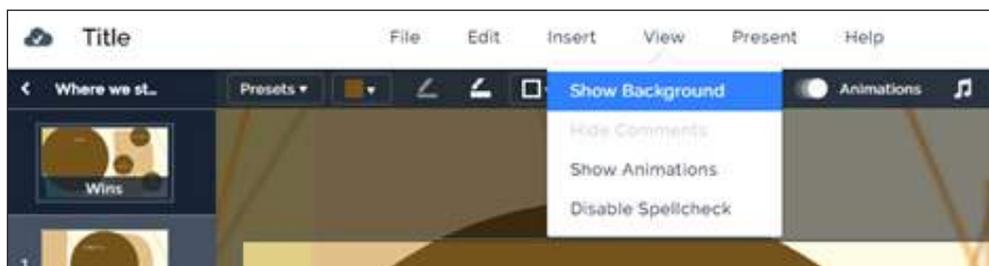


Fig 4.4 – Changing the background.

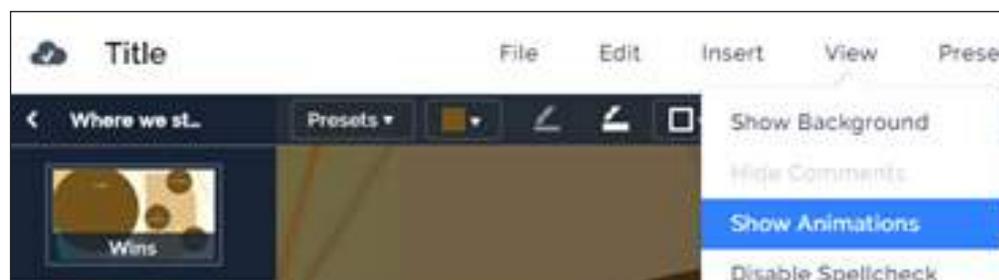


Fig. 4.5 – Show animations.

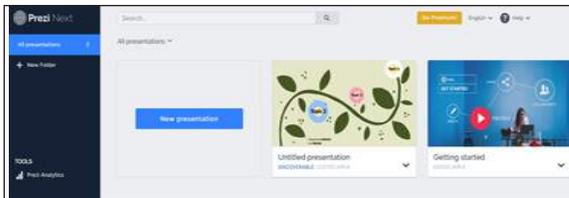
in June 2019, prices were between 19 und 59 euros per month. – There is also an option for a free trial for two weeks.

- To make a new Prezi account, the website will ask for your name, e-mail address and a password. Once you have entered all your information, simply click on the *Create your free Basic account* button.

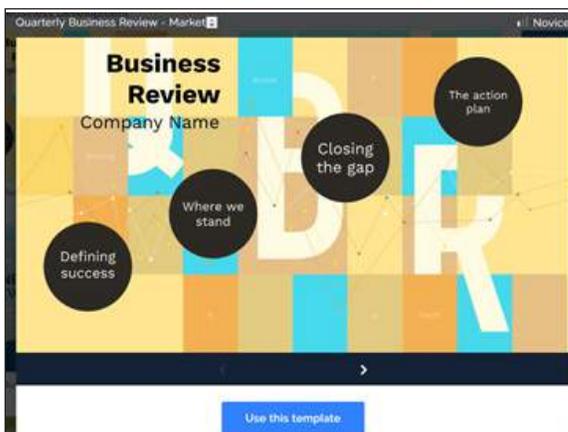
2) Making a presentation

a) Create

- Once you are in the dashboard, click on the *New presentation* button to get started with making your new presentation. This button will take you to a new tab called the “Canvas” which is where you will edit your Prezi presentation.



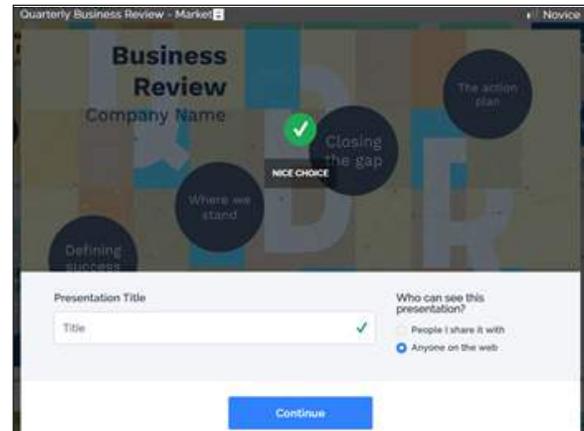
- It will prompt you to select a pre-made template by clicking on one of them and then clicking on the *Use template* button on the bottom.



- You can also start from an empty sheet of paper (in category “General”). Sometimes this is the better

solution because you are more free to develop your ideas.

- Write a title of presentation and choose who can see this presentation. If you are using the free version you must choose: “anyone on the web”.



b) Customize the theme

- Change theme options to customize. You can choose a predesigned theme, change the background colour, or add a background image.
- From the editor, click the *Background & Theme* button in the context toolbar, or go to *View > Show Background & Theme* to get the pop-out sidebar.

(See Fig. 4.4)

c) Lay out your topics

- To begin creating your presentation, click on the field that reads “Click to add text”.



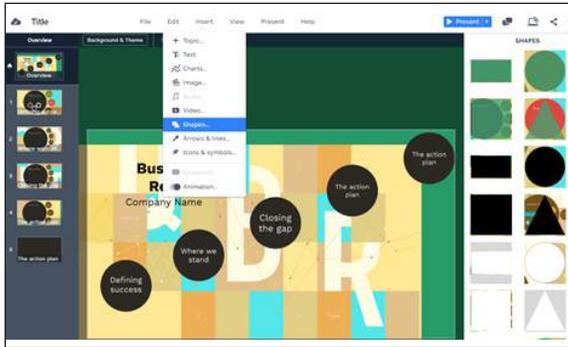
d) Add content

- Topics can also include subtopics that are revealed when you enter a topic so your content remains hid-



e) Adding and editing shapes

- To add a shape to your presentation go to the area where you'd like to add it. Go to *Insert > Shape...* from the top menu. Find the shape you would like to add in the sidebar and drag it on to your canvas.



- In the context toolbar you can adjust the colour, border colour, and border thickness. You can also select a present colour according to the theme of the template.

f) Structure type

- You can freely place subtopics anywhere on your canvas. Select *Subtopic* and then click the *Structure type* button in the context toolbar and select *Personalized*. If you want to move a subtopic simply click on it and drag it. The order subtopics appear when presenting is shown in the left sidebar.

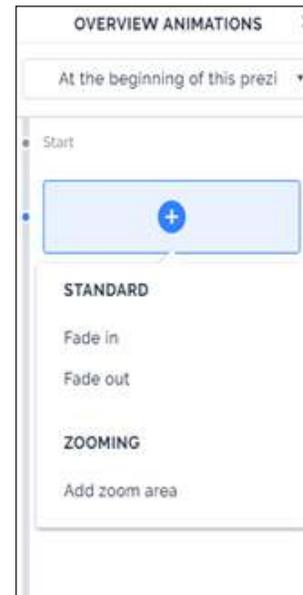


g) Using animations

- In the editor, click on the animation icon in the context toolbar or go to *View > Animations* to show the sidebar. Once you open the sidebar, you'll see start and end points that show where the animations appear in your presentation.

(See Fig. 4.5)

- Select the object or text and select the animation you'd like to add.



- Fade in and fade out. With *Fade-in animation* you control when the object or text appears or disappears. You can fade in or out of images, text, video, topics, and subtopics.
- Add zoom area. Click *Add zoom area* and a rectangle will appear. Resize it and place it to fit the area you'd like to include in the zoom.

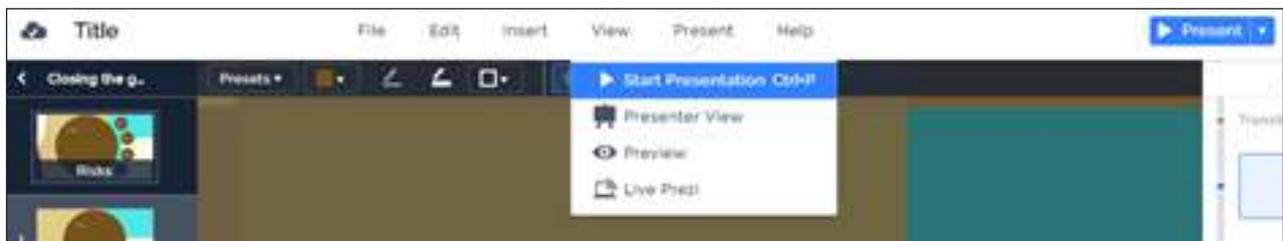
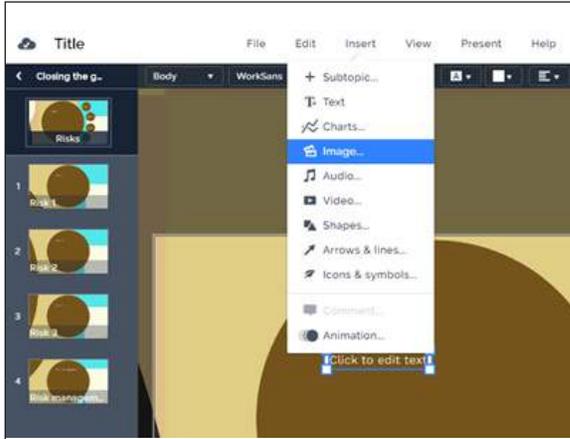


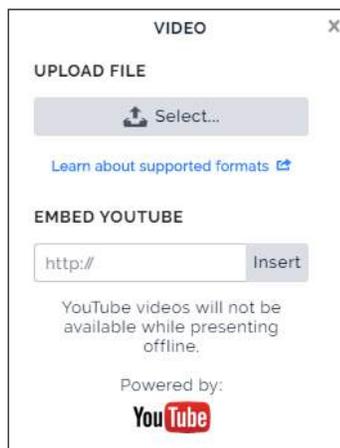
Fig. 4.6 – Start presentation.

h) Adding image, video, audio

- Click on *Insert* at the top of the page. A drop down menu will appear that will allow you to add an image, video, audio and much more.



- To add a video, you paste the YouTube video URL (that's its address in the internet) into the text field and click on the *Insert* button. The video will be added to your presentation. Or you can select a video from your files.



3. Present

- For presenting your presentation to an audience, you click the *Present* button top right. Prezi will switch to presentation mode, usually in full screen.

(See Fig. 4.6)

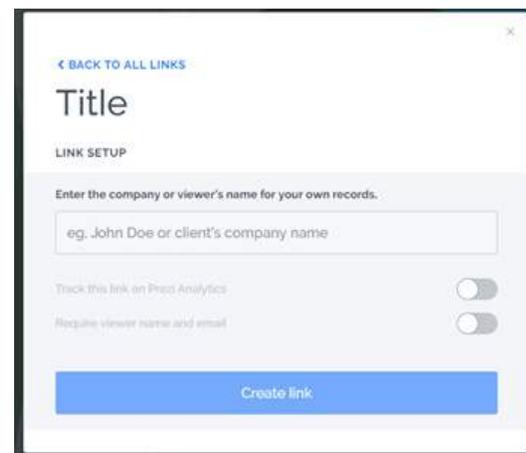
- Using the mouse, you can easily jump between slides.
- Instead of displaying the presentation in a classroom through a projector, you can also use the Prezi mobile app to show the presentation anywhere, whenever opportunity strikes.

4. Share

- You can send a link to your colleagues. Anyone with link can view it but not edit it.



- Click on the *Share* button and give the link a name so that you later remember what it is for (what presentation, to be shown to whom)



Teaching Benefits

- With Prezi you can focus on detail, but you can also see the big picture.
- It creates visual impact. With the zoom in/zoom out function, it brings your message to life.
- Your audience can navigate the Prezi themselves, observe connections of ideas and get a visual impression of concepts.
- If you already have all your notes in PowerPoint, you don't need to start all over again. Use the PowerPoint Import feature to transfer your existing content directly into your Prezi.

Common Mistakes to Avoid

- Confusing transitions: Consider your transitions and make sure that you aren't constantly moving from one corner of the presentation board to the other.
- Printing: Other than standard desktop presentations such as PowerPoint and Keynote, Prezi presentations are not printer friendly. If you need to hand out

your slides be aware that this might present a bit of a road block.

- Presentations can fail at a crucial moment: If you don't have the Prezi desktop app, Prezi completely depends on your internet connection. But the desktop app is only available in paid subscription plans.

Online or Offline?

- The default mode of using Prezi is in online mode. To show your presentation you go to your account on the Prezi site and click the blue "Present" button. For situations where you do not have access to the Internet, there is the Prezi desktop app (paid subscription required).
- If you and your learners have access to the internet, you can share it with them. A view link allows anyone with the link to view, but not edit, a presentation.
- Downloading a presentation is available for users with a paid subscription such as Prezi Plus.
- Exporting a presentation to PDF: also only for paying subscribers.

4.2 Podcasts

A podcast is an audio recording mimicking a radio programme, but usually distributed as a downloadable file via the internet. – The term “Podcast” is a blending of two words¹ with pod referring to portable audio devices

such as the iPod (which got its name because it remotely resembles a pod of peas), and broadcast relating to radio programmes.

4.2.1 Podcasts – How and Why

What do you need?

- Pen and paper. Or perhaps you are used to take notes on your computer. Anyway, you need something to write with for planning and scripting.
- A device to record audio with good quality. You could use a voice recorder, but usually you would use a computer. Almost all mobile phones, laptops and tablets have recording software on them. However, important for good quality is a good microphone. So, Podcasters usually use external microphones of better quality. Good USB microphones start currently (2019) at around 60 euros. Standard advice is to purchase a dynamic microphone that is front-firing with good rejection, meaning it picks up your voice clearly without the unwanted sounds of wherever you are recording. That helps for example recording your voice but not the hum of your computer’s fan or noise from the street outside.
- Of course, you theoretically can use any microphone, even the built-in one of your computer or mobile phone. But this will usually result in less enjoyable audio quality.
- Audio editing software, for example Audacity, which will be introduced in the next chapter in detail.
- An online platform to host your files. Or storage memory to save them, and give them to your audience.

Where to look for help?

- Simply look in the internet, using your preferred search engine, for terms like “Podcast tutorial”. This will get you to websites, videos etc. published by experienced podcasters. It would not make much sense to publish a selection here, as these things become outdated quickly.
- You will find good up-to-date podcasting tutorials on specialised websites that offer podcasting hosting, such as Podomatic, Soundcloud or Audioboom.
- Be aware that many of those who publish tutorials for podcasting are actually trying to sell stuff, e.g. software, podcasting platforms (where you could publish your podcasts), or simply equipment like microphones.
- But to start with, on the following pages of this book you will find introductions to two crucial topics: audio recording, and audio editing.

Further reading

If you want to read more about the use of podcasts in education, try these research papers:

- Andrea Chester, Andrew Buntine, Kathryn Hammond and Lyn Atkinson: *Podcasting in education: Student attitudes, Behaviour and Self-Efficacy.*

<https://pdfs.semanticscholar.org/c5dd/a0851367ef6582fad-42be08a2454ad9dd869.pdf>

¹ Linguists like calling this a portmanteau word, the notion going back to Lewis Carroll’s *Through the Looking Glass*.

- Brandon I Collier-Reed, Jennifer M. Case and Angela Stott: *The influence of podcasting on student learning: a case study across two courses.*
<https://core.ac.uk/download/pdf/43958163.pdf>
- Publish your podcast on your preferred podcasting platform. – Well, right. Where to publish podcasts, that's an entire topic of its own. It is, unfortunately, not covered by this book.

What do I do?

Writing your script

For a start: think of a 5 minutes lecture to give to your students (learners, auditory).

Usually you will need a written text which you then read / perform for the record. Experienced teachers and writers will be able to write their text right away. But for beginners it is better so develop a script step by step. Write down the key words you need to mention about your topic, and based on these words create some sentences. Using those sentences and the content from the Template Script above, create a script that you can read for the podcast.

Think also of reading your text together with a colleague, in dialogue. This can be much more palatable for the audience. One of our colleagues produces a podcast for learning French, and she regularly publishes interesting dialogues in French where she debates issues of French language with her friend.

If you want to create a 5 minutes podcast, that is usually somewhere between 500 and 750 words.

Record your audio

- Rehearse reading the script a few times before recording.
- Some of us prefer sitting down at a table when recording, others like to do it standing. Just stay comfortable.
- Start the recording device and read the script.
- If you make a mistake, just stop the recording, and take a breath and start again. If you keep making mistakes after 5 recordings, take a break, make yourself a cup of tea and come back to it later.

Publish your audio

- When you are happy with the recording, save that recording, e.g. as an mp3 file.

Teaching Benefits

- Podcasts allow for portability and convenience; learners can access learning resources anytime, anywhere and anyhow, with very little effort. It only needs a mobile device.
- Podcasts can be listened to in otherwise wasted time, or alongside a routine activity (sitting on the bus, driving the car, washing the dishes or in the gym).
- Learners can be involved in the creation of podcasts, asking them to contribute with questions, discussions, presentations or projects.
- Podcasts may consist in the simple recording of your lectures, allowing learners to review them or to make up for missed classes.
- Podcasts can be a great aid for learners with mental or visual impairments.

Common Mistakes to Avoid

Use of technology

- Avoid poor recording quality, which might discourage learners to listen until the end of the podcast.
- Try to place your microphone so it picks up a minimum of the room's noise (including computer noise). Set up the microphone so that it is 4 to 6 inches away from your mouth.
- Avoid poor recording quality, which might discourage learners to listen until the end of the podcast.
- Try to place your microphone so it picks up a minimum of the room's noise (including computer noise). Set up the microphone so that it is 4 to 6 inches away from your mouth.
- Avoid rooms with a lot of echo from bare walls, ceilings and floors. If necessary, cover parts of them with sheets of acoustic foam. Sometimes even a woollen blanket or curtains may help.

Being a voice artist

- Don't move too much. While talking, try to look only in one direction - moving your head left or right, up or down, while you're talking will change the tonal quality of your voice, and may be distracting to your listeners.
- Don't speak in monotone with a flat voice. Stress meaningful parts and try to hold the attention of your audience.
- Speak in a normal, clear and conversational tone of voice.
- Be consistent in your speech and follow the logical progress of your arguments.
- Avoid extensive vocal pauses.
- Don't break your discourse with a large use of interjections (*uhm, ahem, etc.*).
- While talking, speed and slow down at different moments. Find your own speech pace.
- Follow your script. Improvisation doesn't always pay off.

Online or offline?

To make your audio record (your podcast) available to your audience, you can do various things.

- You can simply copy the file to a memory stick (or any other memory, even a CD) and hand it out to our audience. This is called "offline" distribution.
- If you and your learners have access to the internet, you have a lot of options to distribute your recording to your learners.
- You can share it with them using cloud storage (e.g. Dropbox, Google Drive, and AWS).
- You can email it to them
- If you have a website you can upload it there
- You can upload it to a Virtual Learning Environment (such as Moodle, Blackboard, and Edmodo) if you have access to one. This could be the Moodle site of your adult education organisation.
- You can add it to a dedicated podcasting site (e.g. Podomatic, Soundcloud or Audioboom). They usually provide a basic account for free, and ask for money if you want more sophisticated features.
- Some people publish their audio records also by uploading them as videos (with simply one picture added to it) on video sharing platforms such as YouTube.

4.2.2 Record Audio with Audacity

Being able to edit audio recordings is an important skill for the blended educator. It is therefore a good idea to do even the initial recording with a suitable audio recording device (as opposed to simply pressing the Record button of your smartphone's audio recording app). Also, usually your audio will not be perfect just from the initial recording. You will have to do some audio editing. We are considering here the use of Audacity, a free software programme that allows us to do this.

What do you need?

- A script for your podcast. (See Chapter 4.2.1 *Podcasts*.)

- Audio editing software, here specifically Audacity (www.audacityteam.org), and a device to run it. That's usually your computer, plus ideally a good external microphone.
- An online platform to host your files, or a storage memory to save it.

Where to look for help?

- The Audacity online guide: https://manual.audacityteam.org/quick_help.html
- The Audacity tutorials: <https://manual.audacityteam.org/man/tutorials.html>

- Simply use an internet search engine and type e.g. “Audacity export mp3”. Audacity is a very popular programme, so people discuss questions they have about using it broadly.

How do I prepare?

- Go to the Audacity website and download the software version compatible with your device (Windows, Mac, or whatever).
- Install it.
Here is a little obstacle: usually you will want to save your podcasts in the .mp3 audio file format. Audacity can do this, but for reasons of patent law, the audio encoding software for this format is not included in the installation package. You need to download and install it separately. The Audacity website will lead you through that process.
- Be sure that audio on your computer is working properly, especially that there is a microphone, and

that it is working. If not, you have to figure out how to solve the problem.

- Usual things to do in case of problems are checking your computer's sound control panel or the custom mixer application for your specific sound card. If you use an external microphone, sometimes you have to select it in the audio settings to make it work. Select the input device you want to use and verify that you are getting sound into the computer from that device.

What do I do?

When Audacity is launched, you will see something like this:

(See Fig. 4.7)

First, pay attention to the *Device Toolbar*.

(See Fig. 4.8)

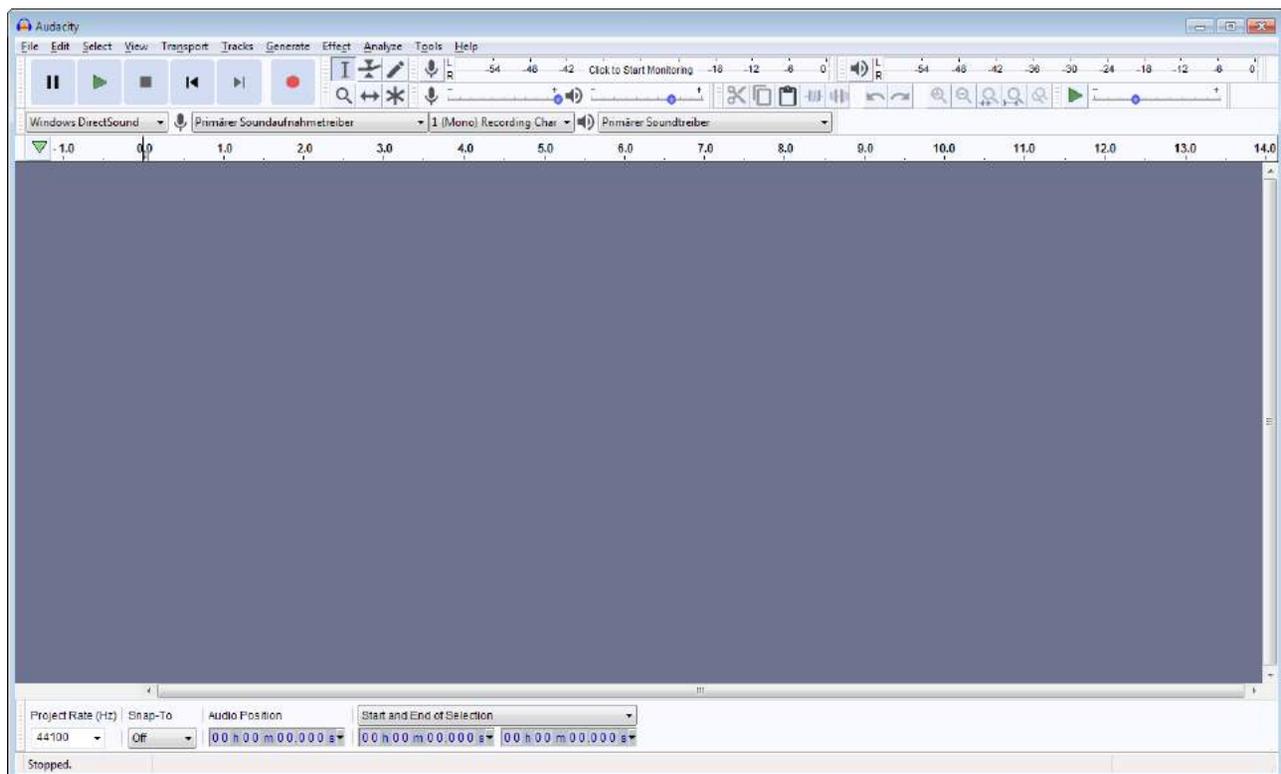


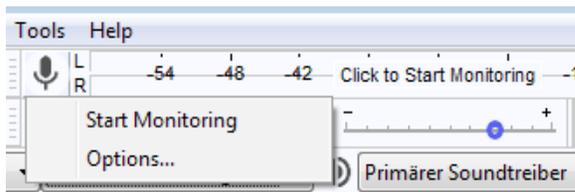
Fig. 4.7 – The Audacity screen on start of the programme, with not yet any tracks created.



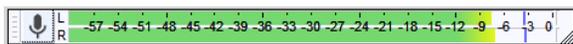
Fig. 4.8 – Audacity's Device Toolbar. Settings here are crucial for getting the software working with your hardware.

You see four dropdown fields. They allow you to select (from left to right) a) audio host b) recording device c) recording channels e) playback device.,

- Choose your preferred *Audio Host* from the dropdown menu. The *Audio Host* is the software interface between Audacity and the physical sound device on your computer. The available choices will vary depending on the operating system and your hardware.
- Choose your preferred recording device from the dropdown menu *Recording Device*. For recording podcast, you will simply choose your microphone. – Other choices would include *loudspeaker*. This means that the audio signal is taken from the input port of your loudspeakers. Or in other words: you record what your loudspeakers are currently playing.)
- In the *Recording Channels* dropdown menu you can choose whether you want to record in mono (1 channel) or stereo (2 channels). Usually when recording with one microphone you will want to record in mono.



- Turn on the monitoring: click on the microphone symbol in the recording meter and start monitoring your audio input.
- Get your microphone in place and talk at a normal volume and watch the recording meter:



Try to aim for a maximum peak of around -6 dB (or 0.5 if you have your meter set to linear rather than dB). You can always increase the level later after you have completed your editing. But recording with too low a volume will increase the amount of background voice on your record, so avoid recording at low levels.

- Adjust the recording volume with the Recording Volume Slider:



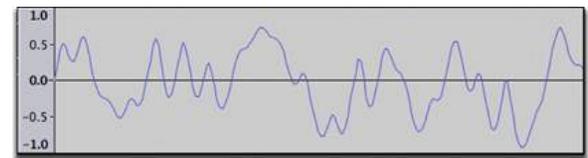
The meter should get close to the right-hand edge without hitting it during the loudest parts (-6 dB is a good target).

- Now you are ready to start with a test recording. Click the red *Record* button in the *Transport Toolbar*:



Try and record a few sentences, and then click on the *Stop* button.

Have a look at the recorded waveform. This is how a properly recorded waveform should look like:



This is in strongly zoomed-in view. The default view is more like this:

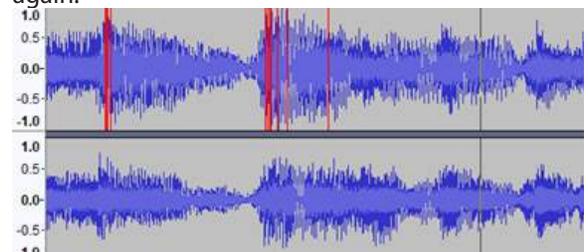


A *clipping* waveform, on the other side, has the tops and bottoms of the wave chopped off.

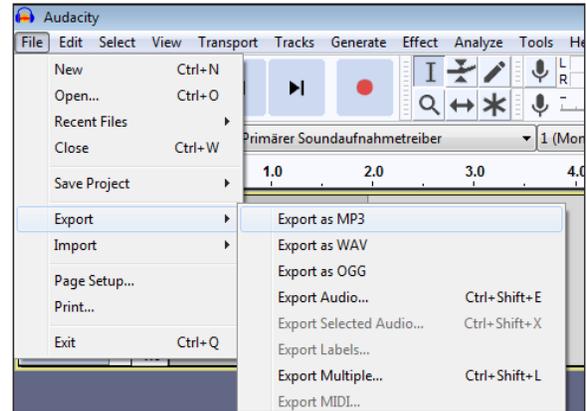


This is what happens when the volume of the source sent to Audacity is louder than what Audacity can record.

Checking the waveform of your record can help you create audio files with good quality. If clipping occurred, turn down the recording level a bit and try again.



- When you are done with your recording, there might be some bits at the beginning or end that you want to delete – between the time you clicked the Record button and the time you started talking. In that case, click repeatedly the *Zoom in* button until the displayed waveform expands so you can see from the beginning of the recording to the time you started talking. Select the area that you want to get rid of and choose *Edit > Delete* (or simply the *Delete* button of your keyboard).
- If you realise that the volume of your recording is not as loud as it needs to be, you can adjust this using the Normalize effect. Choose *Select > All* to select the entire track and then click on *Effect > Normalize* to normalise the volume.
- When you are happy with the final result, save your track by clicking on *File > Save Project*. Choose a name for your project and a place to save it.
- To export your audio file and listen to it in other audio software, choose *File > Export > Export Audio*, selecting your preferred file format (usually mp3).



- You can now use this file for publishing your podcast.

Online or offline

(See the section at the end of Chapter 4.2.1 above.)

4.2.3 Editing Audio Records by Adding Other Audio Elements

Audio recordings can be augmented with background music, ambient sound, audio effects etc. The final product is sometimes called a “soundscape” (think of an acoustical landscape). For example, the intro, the outro and transitions can be highlighted with the use of audio pieces, making your whole podcast more attractive and engaging. You know this from radio programmes.

In this chapter we introduce you to a number of things you can do in audio editing with Audacity.

What do you need?

- A script describing the interaction between oral texts and music pieces; or at least a good plan for this in your mind.
- A device to record audio with good quality (computer, voice recorder, etc.)
- Audio editing software, here: Audacity

- Music or other audio files you want to mix with your voice; of course only such that you have to right to use for.

Where to look for help?

- The Audacity online guide: https://manual.audacityteam.org/quick_help.html
- The Audacity tutorials: <https://manual.audacityteam.org/man/tutorials.html>
- Just do an internet search for topics you are interested in. Audacity is very popular, so there is a lot of help sites and forum discussions around using it.

How do I prepare?

We assume here that you have already recorded your podcast text and saved it to an audio file. (See Chapter 4.2.2 above)

- Choose the music or sound effects you want to mix with your voice, and where to place them.

For royalty free soundtracks you can check here:

<http://freemusicarchive.org/genre/Soundtrack/>

- Check that the selected music or sounds effects are of good audio quality, making sure that they won't sound bad on your recording.

What do I do?

Setting up the project:

- Start a new project in Audacity. In practical terms that means: open Audacity with a clean screen.
- Import the background music file on your project. Click on *File > Import > Audio...* to choose the audio file you selected. This will appear as a stereo track on the Audacity screen.
- Import your podcast record *File > Import > Audio...* This will become a second track on your Audacity screen.

Or alternatively, if you haven't yet recorded your own voice and rather want to talk and record while listening to the background music: first, make sure that the option *Transport > Transport Options > Overdub (on/off)* is checked; then, using headphones to

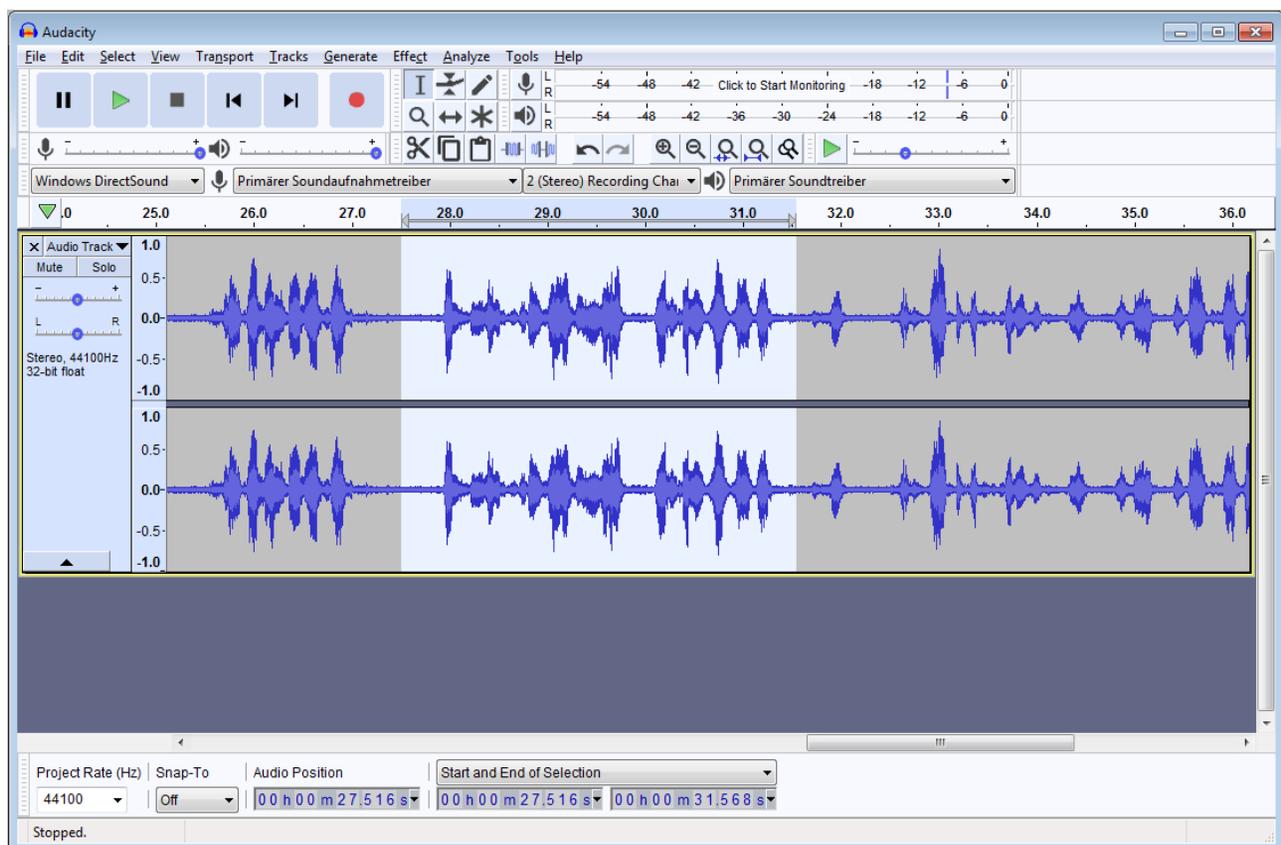


Fig. 4.9 – Typical sight of an Audacity screen with a stereo track, a section of it marked (that's the lighter area).

listen to the background track, record your voice. The Overdub function makes sure that while recording on a new track, you listen to the sound that is already there on other tracks.

- Save everything as an Audacity project: *File > Save Project As > [Give it a name]*. This creates a set of files (.aup) that allow for editing.

Your screen will now look more or less like this: (See Fig. 4.9)

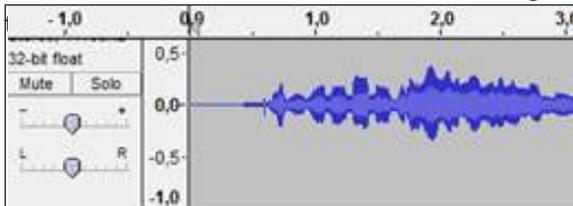
Editing the record:

- Click the *Skip to Start* button (to make sure you start from the beginning), then click the Play button.

Note that Audacity automatically mixes the music and speech from the two tracks for you. Click the *Stop* button when you're done.



The *Mute* and *Solo* buttons of each track can be used to control which track will be heard when clicking on



- In the record of your voice, you may want to remove some sections, e.g. where you coughed, cleared your throat or misspoke and started again.

You do this by marking the section in question with the selection tool:



With this as your mouse pointer, drag-select a section of an audio track. A marked section of the audio appears in lighter grey (in older versions of Audacity it was darker grey) like here:

(See Fig. 4.10)

In the waveform above, the speaker wanted to cut a piece of recording where he/she paused, cleared his/her throat and continued with the next sentence. To do so, the throat-clearing chunk has been selected (light grey area), with extra space around it to make the transition sound natural.

To remove the selected area, use the *Cut* tool:



Or simply press the *Delete* button on your keyboard.

But before you do this, you perhaps want to check if the cut is well selected. You can do this using *Cut Pre-*

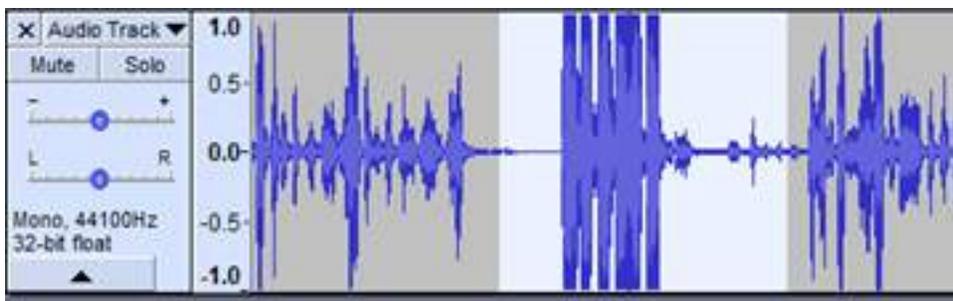


Fig 4.10 – Marked sections have a different shade, here: lighter grey.

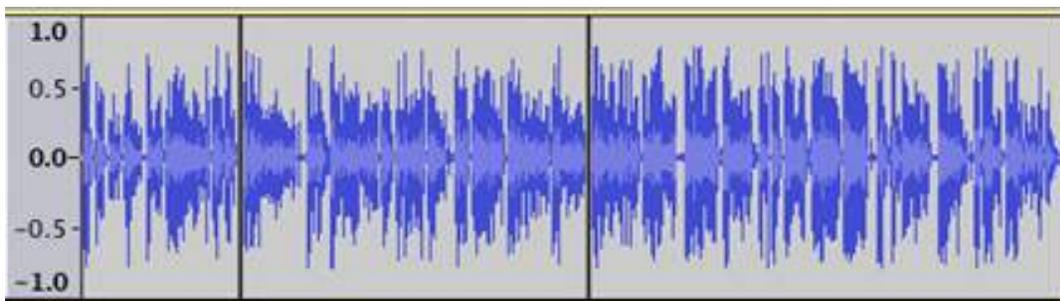


Fig 4.11 – A track with two split points. This splits the track in three parts that can be moved independently.

view. Simply press “C” on your keyboard, and Audacity will play the section as it would sound after cutting. It starts playing about 2 seconds before the cut. That’s the *Cut Preview* feature. If you are happy with the cut, do the cut (*Delete* or *Scissors*). If not, adjust the selection, until you are happy with the result.

- You can split your narration in different clips by choosing *Edit > Clip Boundaries > Split*. This will split the track either where you left the Select tool, or at both the beginning and the end of a selected area (dark grey, or light grey).

For example, the track below has two split points, resulting in three separate .

(See Fig. 4.11)

With the track split that way, you can now move the individual parts around (back and forth) on the timeline. For doing this, use the *Time Shift Tool*.



- To let the talk start at a certain point of your background music: find the spots in the background music where you want each of the different narration clips to start. You might even put a label on each section, to identify them best throughout your work.

(See Fig. 4.12)

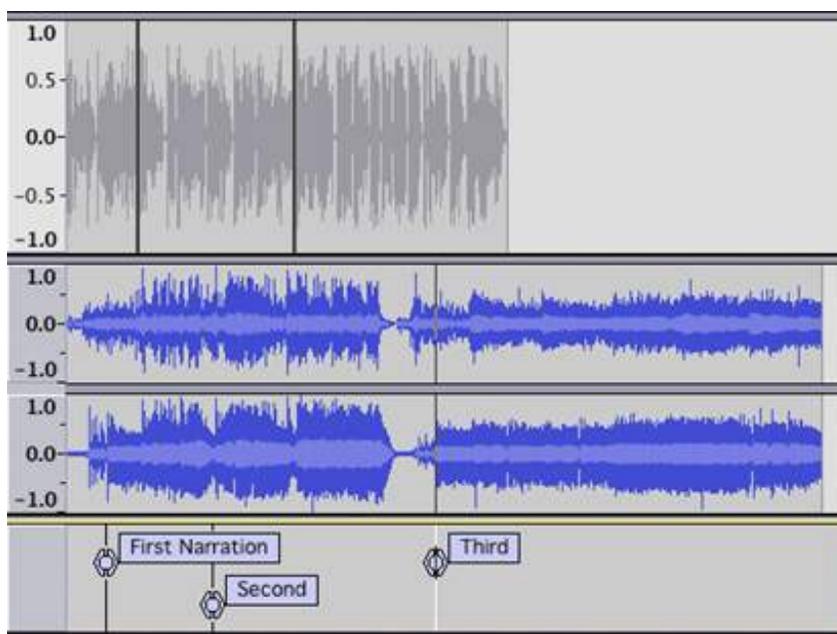


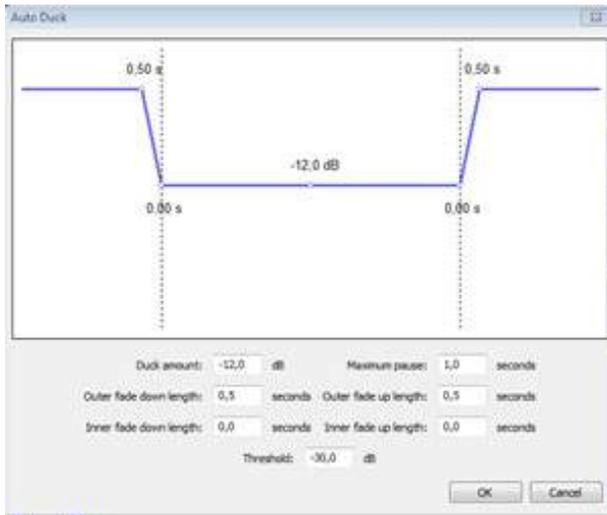
Fig. 4.12 – Use labels (bottom row) to mark spots on the timeline in order to find them quickly later.

Using the *Time Shift Tool*, drag the narration clips to line them up with the background music’s points where you want them to start.

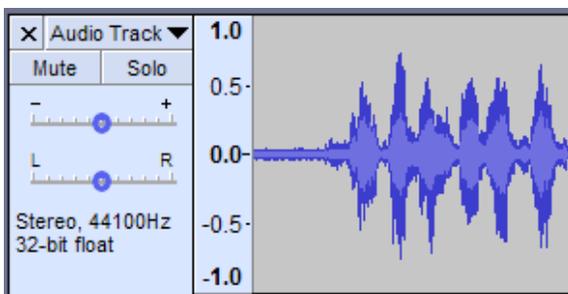
- When you have the narration clips where you want them to be, lower the volume of the background music so your listeners can hear what you are saying. You can do it manually by clicking on the *Envelope Tool* on the Tools Toolbar selecting two control points and then adjusting them to get the length of the track you want the fade to be effective. Go back and change the fades until you are happy with the result.



Alternatively, you can use the Auto Duck effect which does the same job automatically (*Effects > Auto Duck*). With *Auto Duck* you can pre-set a certain characteristic of transition, and then apply it to selected sections of a track. (But note that this needs a second track being there against which the reduction of volume will be measured.)



- If you want to fade out the music, first find the point where you want the effect to begin. Then choose *Select > Region > Cursor* to track end, then choose *Effect > Fade Out*.
- Check your waveform for possible clippings or bad signal.
- Use the *Gain Slider* left of your current track to set the gain for the track (thus correcting possible clippings). “Gain” means effectively the strength of the signal.
- Use the *Pan Slider* to balance the signal between right or left side of your speaker or earphone.



Gain and *Pan* sliders are underneath the Mute and Solo buttons.

- Save and export the final version of your project. Saving means: you save Audacity's .aup files. If you want to create a file that you can give others to listen (usually .mp3), you use *File > Export*.

Online or offline

(See that part of Chapter 4.2.1 Podcasts)

4.3 Videos

Videos can be useful in e-learning environments to add more of the human element of teaching. Videos – as opposed to classroom presentations of content – can help learners to control the pace of their learning.

There are many kinds of videos for educational purposes. A simple concept (but demanding in terms of equipment) is video-recording a gifted teacher lecturing. Or you probably have seen full-sized educational films presenting historical events and developments, explaining phenomena of physics or chemistry, mathematics, or whatever topic, often with a lot of special effects used

to visualize things. Producing such videos is, of course, a lot of work.

In this part of the book, we want to focus on something very simple, but effective: creating short animated videos that can be used to present some facts. We use an online service by the name of Powtoon. This allows us to create animated videos in cartoon style. The result is something like a beefed-up slides presentation: Powerpoint with much more animation than usual, so to say.

4.3.1 Creating Animated Videos with Powtoon

Powtoon (www.powtoon.com) allows you to create and publish animated videos in a relatively simple way as you do not need anything but internet access for your computer. Everything is done online.

Powtoon is a London based company founded in 2012.

Here is a summary of what you do with Powtoon: You create animated slide shows online. You add to your slides cartoon characters that can move; text elements; all kinds of drawings; you can use a repertoire of visual elements from Powtoon, or you can upload our own (images, drawing, videos), and add animated effects to them. You can add sound to your slideshow for creating a soundtrack with background music and with text spoken (“voiceover”). The animated video can be watched on the Powtoon website; it can be exported to video places such as Youtube; or you can download it as a video file and store it on your own device.

The company running Powtoon advertises it chiefly for business communication. They suggest employees using animated slide shows to present information to superiors, or HR departments create health and safety instructions for employees. But it can also be used for creating e-learning content for Blended Learning.

Basic functions are free. For more sophisticated options, however, including the option to download your video file, you would need to buy a subscription. Subscriptions are currently (2019) sold from 228 dollars per year (including VAT) for the cheapest version. There is no option to subscribe for a shorter period. There are, how-

ever, special “education” subscriptions that are cheaper, starting from 85 dollars per year for a “student” account (videos up to 10 minutes) and 228 dollars per year for full access to everything (for 90 students).¹

The Powtoon site (www.powtoon.com) has a number of sample videos, and a detailed help centre. As there are many functions, it would fill a book of its own to describe them all. What we can do here – in this collection of useful tools for creating content for Blended Learning in adult education – is give you the basic idea, and lead you through first steps.

But be aware that creating such animated videos (or animated slideshows) that you can use in your Blended Learning environment, you will need to dive much deeper into the topic. You will need to learn to use the many options, and you will need to get a feeling for when to use ready-made elements (characters, drawings, chiefly available for paying subscribers), and when to use elements you create and upload yourself.

Another thing to be aware of: Powtoon is not the only company providing such services. One recent alternative is Doodly (www.doodly.com) which is for creating doodle videos. “Doodle videos” is a name for that famous type of videos where you see cartoon-style drawings being created on the fly by a moving pencil, and sometimes a hand.

In the future other such services will appear, and as we have seen old ones will disappear e.g the Google+ social media site has recently been discontinued (2019).

¹ These were the conditions when checked in April 2019. Of course they will change over time.

Now, here is our “First steps into Powtoon” tutorial:

What do you need?

- A computer
- Internet access
- The Powtoon site:

www.powtoon.com

Where to look for help?

- The Powtoon Knowledge base:
<https://support.powtoon.com/en/>
- Powtoon tutorials:
www.powtoon.com/tutorials/
- A good book is *Power Up Your PowToon Studio Project* (2015) by Bruce Graham, Packt Publishing.
- Another good book is *The Power of Cartoon Marketing* (2013) by Ilya Spitalnik, CreateSpace Independent Publishing Platform.

How do I prepare?

- The first thing to do is develop a script, that’s the story you want to tell. This should include the text you need, and ideas about visualisation: what to show, and in what sequence. Ideally, your story has a dramaturgical curve, for example getting back at the very end to something that was introduced at the beginning.
- If you want to create a 5 minutes video with somebody talking, that is usually somewhere between 500 and 750 words in the script.

What do I do?

- Go to the Powtoon site
- Create an account (if you do not have one)
- Skip any initial screens
- Create a new slideshow by selecting a *Blank Powtoon*:



(Note: The appearance of buttons and all other elements shown here may be different when you visit the site. Websites are under constant reconstruction and re-design. Screenshots printed in a book like here get outdated quickly.)

- You will be presented with a number of themes:
(See Fig. 4.13, next page)
- Select one, and you will get to the main composition page:



- Powtoon uses a slide-based approach to videos. That means that the whole story is split over a number of basic pages (or slides). In traditional film, you would call this a scene. You create and edit one slide at a time. Each slide is by default 10 seconds long, but you can change this from 1 to 20 seconds.
- You see your stack of slides in a column at the left hand side of the main page (quite similar as in Powerpoint).



- At the bottom of the main page you see the timeline for the current slide.

(See Fig. 4.14)

- If you want to increase the time a slide is displayed you can do this using the + and - buttons on the right. A slide can last between 1 seconds to 20 seconds:

(See Fig. 4.15)

The dark triangle indicates the timeline position of what is displayed at the moment.

- To add content to the slides, you use the control tabs on the right

(See Fig. 4.16)

- First select a background:



You add elements to your slide simply by clicking on them in the right column. The element then appears in the middle of your slide, and you can move, resize it or otherwise edit it.

- Next you can add in some text:



- When you added a text element, look down at the timeline: a tab has appeared at Second 1 with the first letters of your text, here "TEX". This means the slide will display for one second blank, after which the text will appear. You can change the moment for the text element to appear by moving its tab to any position along the timeline.

(See Fig. 4.17)

- Next you might want to add "characters".



"Characters" are cartoon figures readily available for you to use. Each character is provided in various moods or activities (called "poses"), such as a greeting, typing at a writing desk, thinking, being happy, being angry, or having an idea.

Powtoon offers various sets of characters. Only two or three of them are free. The others are available only when you are a paying customer (subscriber).

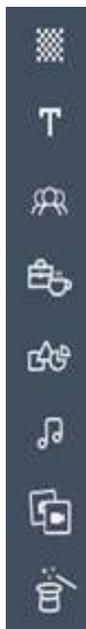


Fig. 4.16 – Categories of things you can add to your video timeline.

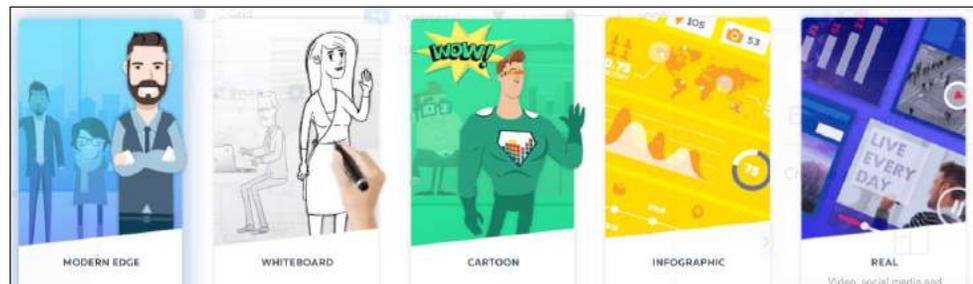


Fig. 4.13 – Themes for animated videos as available on Powtoon in April 2019 (free account).



Fig. 4.14 – Timeline of the Powtoon video.



Fig. 4.15 – Increase the time a slide is presented with the +/- buttons right hand side.

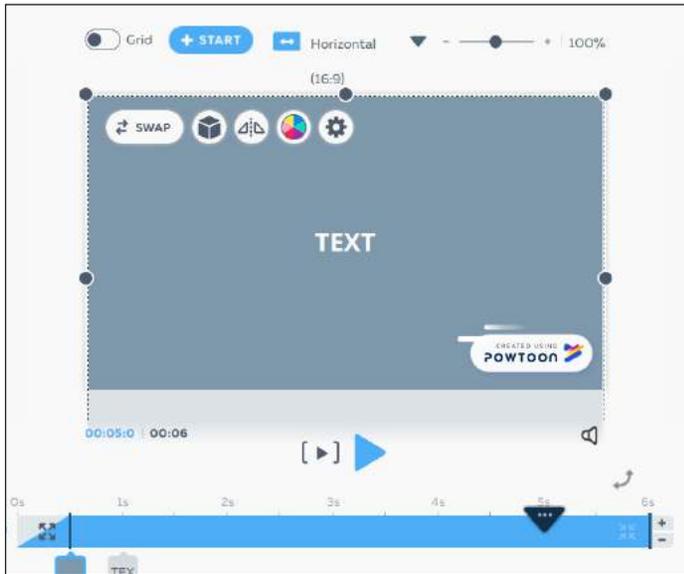


Fig. 4.17 – A text element inserted at Second 1 of the Timeline.

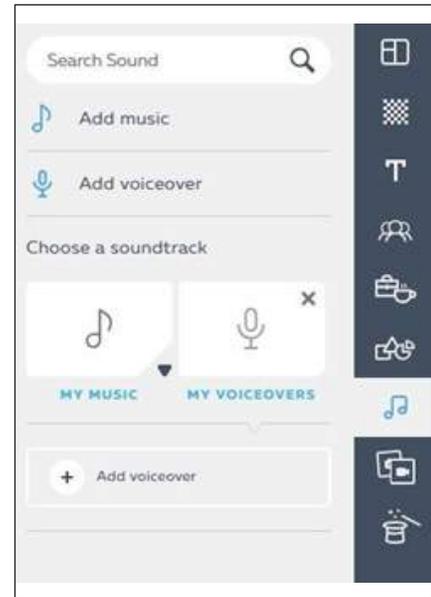


Fig. 4.21 – Adding sound clips.

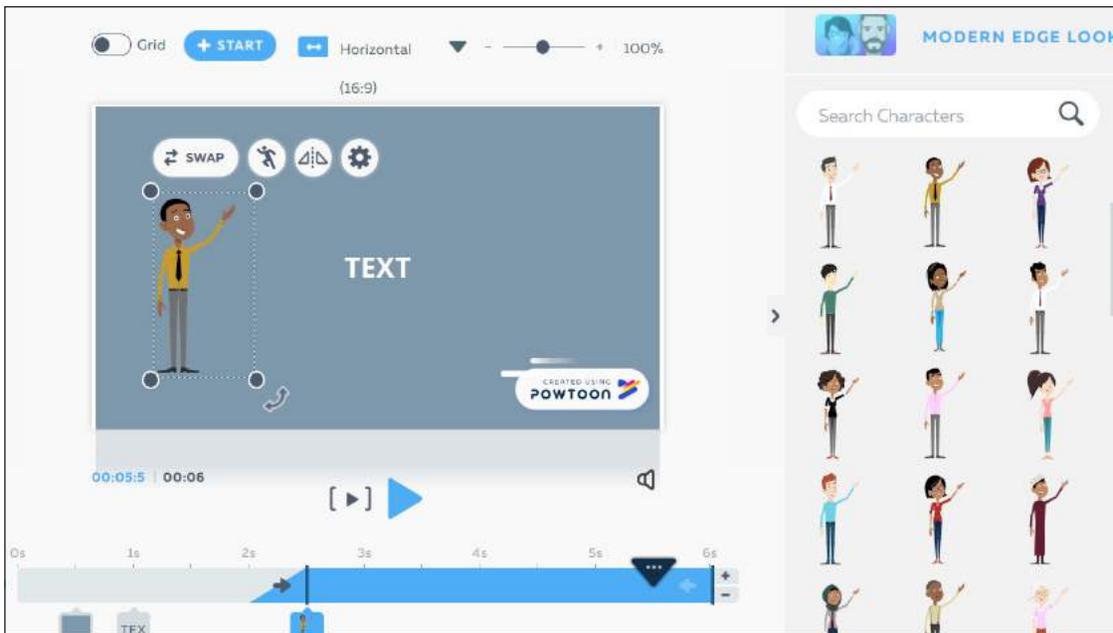


Fig. 4.19 – Adding a character into the current slide.



Fig. 4.20 – Move the appearing of the new object (here: a character) on the timeline.

- Select from the menu of characters:
(See Fig. 4.18, this page)
- Select a character, and add them into the current slide:
(See Fig. 4.19, previous page)
- We see that the character will appear 2 seconds into the timeline. We can change this by moving the tab:
(See Fig. 4.20, previous page)
- We also note that each character has four controls associated with it (Settings, Pose, Swap, and Flip):



With these you can swap a character with another (by keeping the other settings); select its different poses; flip it; control a number of other settings, for example how it moves.

- Adding in Shapes works the same way:

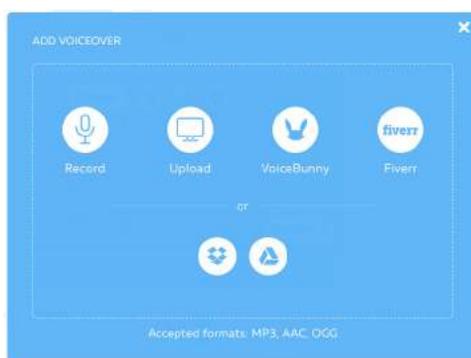


Shapes are things like squares, triangles and circles. Props are drawings of various objects – everything that exists in the world, from cars over machines, clothing, furniture, and so on. Props are the requisites of your tiny video theatre. As always: only a very small selection are available for free, for the rest you need a paid subscription.

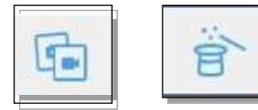
- Adding in sound works as follows:

(See Fig. 4.21, previous page)

You can add voiceover (spoken text). You can record this yourself, or you can upload a ready-made record.



- You can add Media (Videos and Images) and Special features. Special features are drawings for various events such as Birthdays, Christmas, etc.



Multiple slides make a movie

- So far you have worked only on one slide, or one “scene” of your animated video. A typical animated video of 2 minutes would have about 12 or more slides. You have to create all of them. You see: this can be rather time-consuming. You will be doing this especially when you know that you have a large audience and can use the video over a longer period of time.
- What we explained here is how to create a an animated video starting with a blank slide (or stack of slides). Powtoon offers also something else: they have a number of ready-made animated videos that can be used as templates that you fill with your own

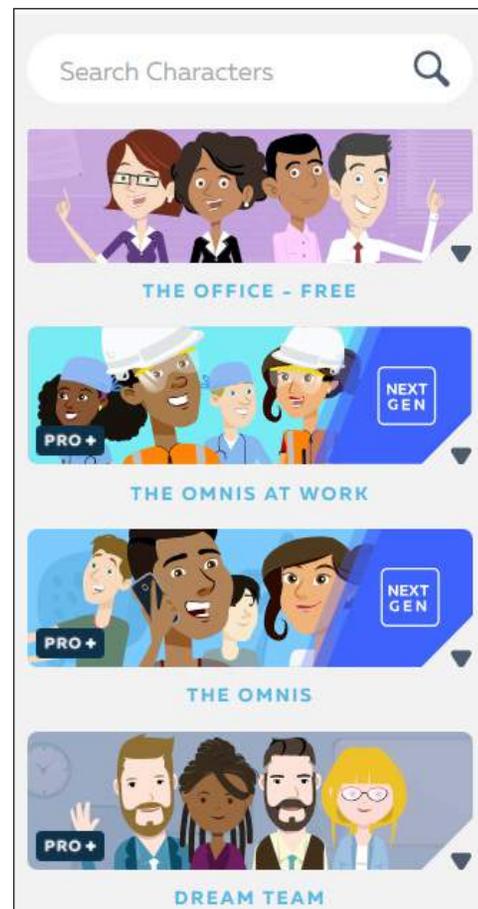


Fig. 4.18 – Character sets to choose from (as in May 2019).

content, particularly by leaving the story flow as it is, but change the text (written and spoken words). For testing we created this video.

You can watch it at:

www.youtube.com/watch?v=zYDYuVekfJI



As you can see in this video, one problem of those pre-fabricated video templates can be their shallowness and their sales- and marketing focus. Adult educators usually seek more substance, and that would mean that the templates cannot be used as they are but need heavy editing. The good news is: this is possible. Although it is a lot of work.

Download or share

- Once you are happy with the completed project, by clicking on the *Preview* and *Export* button on the top of the page, you can upload, download or share the project (options vary with subscriptions):

(See Fig. 4.22)

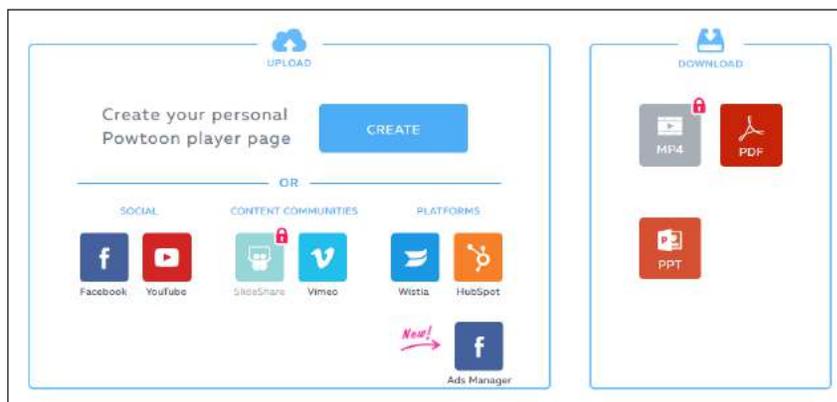


Fig 4.22 – Various options for sharing the video, download it, and export it.

Teaching Benefits

- There can be great novelty and thus motivation in using animated videos.
- Sometimes when dealing with sensitive issues like plagiarism or bullying, it can be better having animated characters discussing it rather than real people.
- When explaining intangible concepts, like magnetic fields, animation can give the learners a concrete conceptualisation.
- Animated videos can appeal to a wide range of learners.

Common Mistakes to Avoid

- As you create each slide, always ask yourself, what are the educational value of each of the element in the slide. It is very easy to add a wide range of effects, but they must have a purpose to help the learners learn, so don't add special effects unnecessarily.
- In a related piece of advice, there is no need to clutter a slide with too much content, since Powtoon is a slide-based system, you can break content over a number of slides.
- When you are doing your recording, speak with passion and don't be too deadpan.
- Maintain continuity between slides by using the same fonts and design elements. But don't use the same graphics to represent different things on different slides.
- Avoid using fancy transitions between slides.
- Read one of Edward Tufte's books.

Online or Offline?

- If you want to distribute this recording offline, you can copy the video file onto a USB memory stick and hand it out in class. However: for downloading the video you need a paid subscription.
- If you and your learners have access to the internet, you have a lot of options to distribute the video to your learners. Except from sharing the video file with them via e-mail or file sharing services, you can present the video on your website etc. Powtoon also offers direct publishing on major video platforms such as Youtube, Vimeo and others.

4.3.2 Making Videos Interactive Through Add-on Quizzes

There are a number of ways to add quiz questions to pre-existing videos. Here we present one of them: Edpuzzle.

The Edpuzzle website allows you to add questions to existing videos at any point of their timeline. It also allows you to edit existing videos to some extent, e.g. by cropping or adding content. In this short introduction, however, we use it only for adding quiz questions to videos.

Edpuzzle is run by a company with its headquarters in Barcelona, Spain. Registered in 2014, it is a typical start-up company supported by business angel and venture capitalist money.¹

When we last checked (in April 2019) the pricing model was as follows: the service is free of charge, but with the restriction that only up to 20 videos can be stored in one's space. If you need more, you can try to invite friends to subscribe to Edpuzzle, and consequently you get more storage. Or you subscribe to the paid service, starting at 8,50 dollars per month. And this time the pricing is really on a monthly basis, meaning that other than for other web services discussed in this book you indeed can subscribe only for a short time, for thorough testing.

What do you need?

- A computer
- Internet access
- The edpuzzle site: <https://edpuzzle.com/>

Where to look for help?

- The edpuzzle help centre: <https://support.edpuzzle.com/hc/en-us>
- Edpuzzle resources: <https://go.edpuzzle.com/resources/>

- Edpuzzle on twitter:

<https://twitter.com/edpuzzle>

How do I prepare?

- The first thing to do is to locate a video that you want to add quiz questions to. "Locating" means: make sure it is available somewhere on the typical video places in the internet such as Youtube, Vimeo, etc. That means: you can use practically every video that is out there in the internet. For example, if you want to teach maths, you can use the fantastic videos of the *Numberphile* series in Youtube, and add quiz questions to them. Or of course you can upload your own education videos to one of the platforms, and then tell Edpuzzle to use that. The important thing to understand here is simply that you do not upload videos to Edpuzzle. You tell Edpuzzle to use a video from one of the popular channels.
- Watch the video, and identify what parts of the video you want to create quiz questions for.
- Create the quiz questions – so far just as a script for yourself.

What do I do?

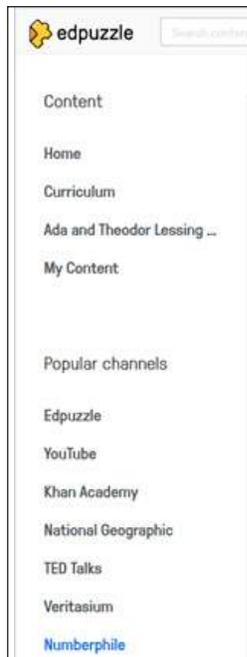
- Go to the Edpuzzle site
- Click on *Sign up*
- Sign up as a teacher
- Add yourself to an existing or new school.
- You will be presented with a search window:



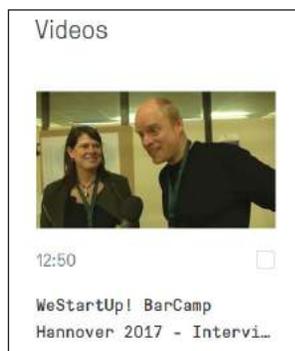
¹ Information as publicly available in April 2019.

Search for the title of the video you wish to add questions to. As explained above, Edpuzzle can take any video that is somewhere on the popular video platforms in the inter

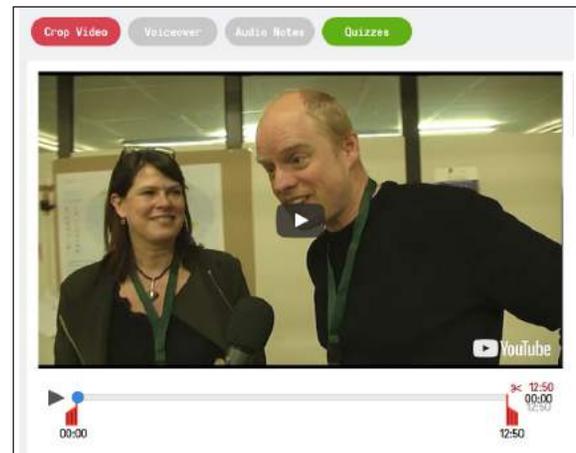
In the left column of your screen there are places to select from:



- After selecting the channel (Youtube etc) search for your video by entering appropriate search terms in the search bar.
- When you have found it, put your mouse pointer on the video. Three icons will appear:



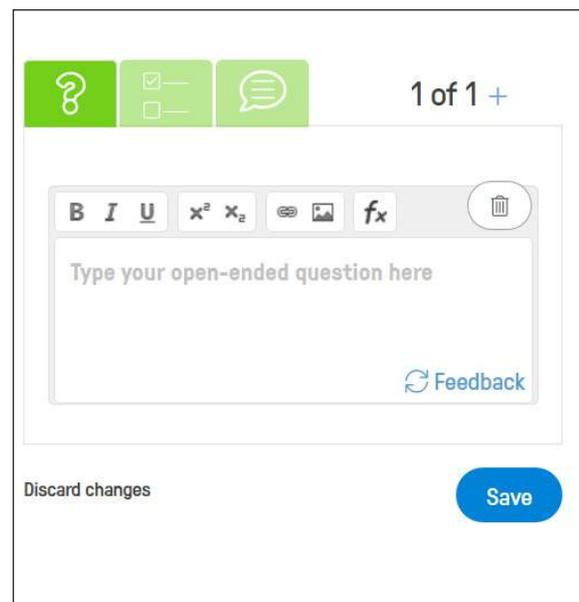
- You can now add this video to your personal collection of videos by clicking the *Copy* button.
- Go then to *My content* (menu item in the left column) to get your personal collection of videos displayed.
- Select the *Edit* icon, and you'll have the options to crop the video, add voiceover, add audio notes, or add a quiz:



- Select *Quizzes* and you'll be presented with the video, with a progress bar, with a pointer with a green box containing a question mark (?):

Play the video to the point you want to add a question in, pause the video, and click on the green question mark underneath the timeline.

- A small window will appear to the right of the video:

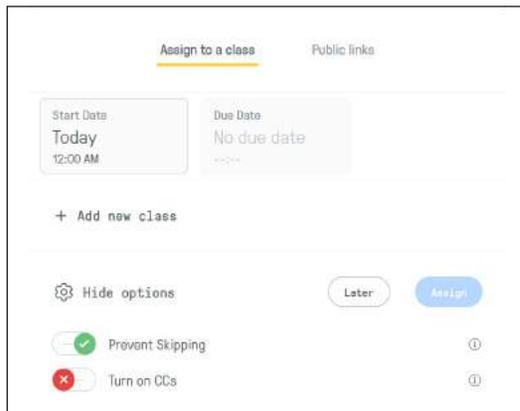


Using the three green buttons, you can create either an open-ended question, a multi-choice question, or simply add a comment.

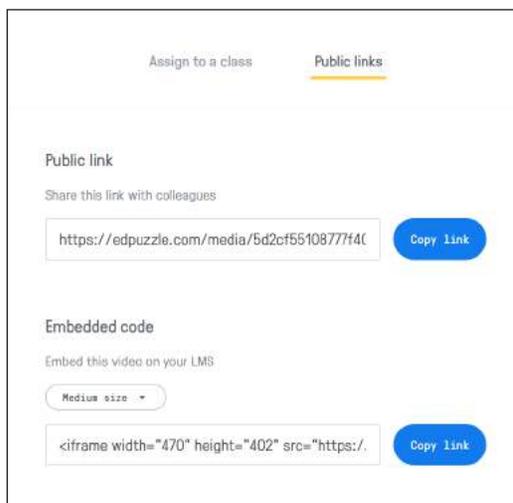
You then continue playing the video until you reach the next point on the timeline where you want to interrupt the video for a question or comment.

- Once you have completed your edits, click *Save*, then *Finish*.
- Now you have two options: either assign the video quiz to a class, or create a public link.

- To *Assign to a class* you need to create a new class:



- By selecting *Public links* you can get a URL or an Embed code:



You can give your learners that link, or you embed the video quiz in your website, e.g. your Moodle learning environment.

An experimental video with quiz

Here is a video with quizzes that we created whilst proofreading this book:

<https://edpuzzle.com/media/5ca751dc7270df407df877e4>



Teaching Benefits

- Video quizzes can be a great novelty and thus a great motivator¹
- They help learners remember key points in the videos
- They can help the learners to self-assess their progress
- They increase the interactivity of the blended content
- They can lead to learners taking active ownership of their learning

Admittedly, this is all quite oriented to a school-type learning environment, or possibly to vocational training in a company. In classical liberal adult education, where direct interaction between people is as valued as building upon their rich life experience, and where topics often are more complex and philosophical, opportunities to use such simple quizzes are restricted. But if you think of learning foreign languages, video quizzes can indeed be a nice add-on teaching and learning element. So, as always, everything depends on finding the right place for the right tool.

¹ Szpunar, K.K., Khan, N.Y., Schacter, D.L. (2013): *Interpolated Memory Tests Reduce Mind Wandering and Improve Learning of Online Lectures*. Proceedings of the National Academy of Sciences, 110(16), 6313-6317.

Common Mistakes to Avoid

- Try to make sure the questions are phrased as clearly, and as simply, as possible. Consider piloting the questions on a test group.
- Don't add too many questions to the video. It will make the learners feel that they are being over-tested.
- Review each question: is there a strong reason to add it to the video? Could it be merged with another question?
- Try to avoid "negative" questions, as they can be confusing, e.g. Avoid "Which of the following *are not* ...". Instead, try to have questions that ask "Which of the following are..."
- Consider using fun alternative answers in the questions
- Read Oppenheim's book *Questionnaire Design*.¹

Online or Offline?

You need to be online to use Edpuzzle

¹ Abraham Naftali Oppenheim: *Questionnaire Design, Interviewing and Attitude Measurement*. First issued 1966

4.4 Documents

A vital part of Blended Learning is providing content to learners that they can interact with at their own pace. One thing in common use are simple documents delivered in file formats such as Odt, Docx, or Pdf, which have become a world-wide quasi standard. They can be seen

as electronic representations of an actual piece of printed paper. But there are ways to make such documents interactive and thus more engaging for the learners.

4.4.1 Creating Interactive PDF Content

Documents such as reports, articles, or e-magazines often come as PDF files (Portable Document Format). This is a file format initially created to get documents into a printing press whilst being sure that formatting is meticulously preserved across platforms, i.e. on all different computer systems. But in the recent 20 years, PDFs have also become a standard for distributing documents of high visual quality to everybody.

Typically such documents are not meant to be editable by the reader. However, today it is possible to create PDFs that comprise plenty of tricks and multimedia content to make them interactive documents – behaving not much different from a website.

For example, you can

- add links
- add entire menus from where the reader can select where to go next
- add audio or video files and let your reader view them without leaving the document
- add quiz elements, etc.

These all are elements you probably know from websites. In an interactive PDF, all these things are included in the document. The document can be delivered to other people the usual way (e.g. via e-mail). It will display these functions when opened with Acrobat Reader or another suitable PDF reader software. These are usually available for free.

What do I need?

- Computer or laptop (of course)
- PDF reader software, for example the free Adobe Acrobat Reader

- A programme to create interactive PDFs. We recommend here Adobe InDesign. That's what this section is about. InDesign has become the industry standard application to prepare professionally printable documents. This is actually an expensive application. But you can install it and use it for seven days free of charge, for testing. Adobe also has rebates for educational institutions.

Note that there are also other ways to create interactive PDFs. Very basic things such as hyperlinks to external resources can be done in text processing software (MS Word, etc.) and then exported to PDF. For more options, using Adobe Acrobat Pro was standard over a long time, especially with the "PDF form" functions.

Where to look for help?

You will definitely need more help than this book can offer you. Adobe InDesign is a complex product. If you are so far only familiar with Microsoft products, the way organisational layout in Adobe products may be difficult to grasp (briefly: "palettes" instead of "menus"), and you need some time to get used to it. InDesign also has a lot of functionalities, and you will need guidance in order to find your way through them. Finally if you have an older product version, you may run into considerable differences as compared to functionality in the newer versions. Here are some places to look for help:

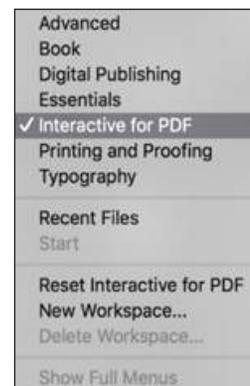
- The Adobe help centre (online) gives useful tips on how to get started, tutorials to expand your skills and step-by-step instructions. You can also see frequently answered questions and forum discussions for solving problems.

https://helpx.adobe.com/gr_en/support/indesign.html

- There are many websites providing advice on how to create interactive content:
- Create PDF button tips:
 - <https://indesignsecrets.com/pdf-button-tips-tricks-and-problem-solving.php>
- Create an Interactive PDF form from a word document:
 - <https://theblog.adobe.com/create-an-interactive-pdf-form-from-a-word-document/>
- Note however that this then involves the use of Adobe Acrobat (full version, not the reader), another piece of pricy software that is good to have, but not accessible to everyone.
- A nice blog that provides instructions for first steps with Adobe InDesign:
 - <https://mariahalthoff.com/blogposts/create-interactive-pdf-indesign>
- Use marketing psychology to trigger their curiosity
- Use your creativity to make your content fun
- Combine data with visual content
- Invite your learners to participate
- Last and most importantly: personalize your content.

What do I do?

- Open your InDesign file and select the *Interactive for PDF* workspace.²



How do I prepare?

We do not have the space here to explain how to use InDesign for total beginners. Adobe programmes work in different fashion to Microsoft or OpenOffice. In what follows we presuppose that you have already some experience with InDesign e.g. because you used it to create leaflets, posters, or a brochure.

- Design your pages in InDesign as you would normally do. Your document needs to be (almost) finished before you start adding interactivity into it.
- Decide which kind of interactivity you would like to add.

The field of expertise you might want to explore here is called Instructional Design. It can help you on where it is useful to include interactive objects in order to not overdo it with them.

For a start read the [Golden Principles of High-Quality Instructional Design](#) to find out more.¹

- Prepare yourself for engaging interactive content:
 - Identify your target audience and their needs

This will display a set of panels on the right side of the screen. Panels (or palettes) in Adobe products are like menus in other software: collections of tools to use. Here you get the following:

(See fig. 4.23)

You can now do various things to make your Pdf document interactive. Let's start with creating hyperlinks.

¹ This is a commercial website selling a tool for creating e-learning courses. They have, however, also a good collection of brief instructions and tips. - Website checked last in April 2019.

² That's if you use a newer version of InDesign. If you happen to have an older version (such as CS3), you do not have these workspaces. But the palettes you need are available there as well: Windows Interactive Bookmarks/Hyperlinks/States. You will not have some of the more fancy things such as page transitions.

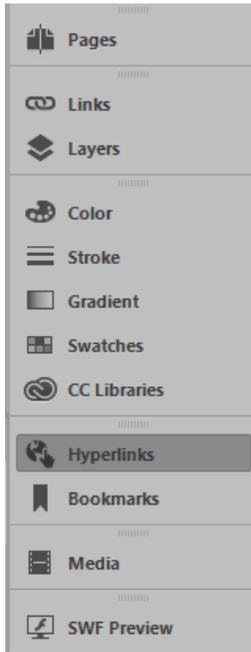
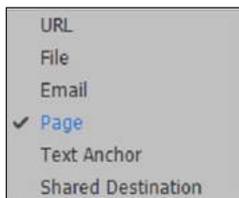


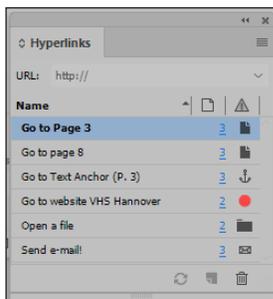
Fig. 4.23 – Collection of panels (palettes) under the “Interactive pdf” workspace environment.

1) Adding hyperlinks

As in websites, hyperlinks let the reader quickly jump to some place, e.g. a different page, an external website, a file stored on the same computer, etc. These are the types of hyperlinks InDesign currently offers:



This is the *Hyperlinks* palette (here already filled with various hyperlinks). Most functions you will need are hidden behind the small *Menu* icon in the top right.

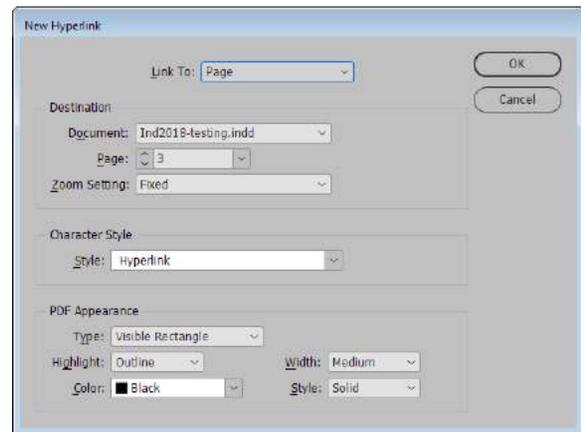


a) Hyperlinks to jump to a different page

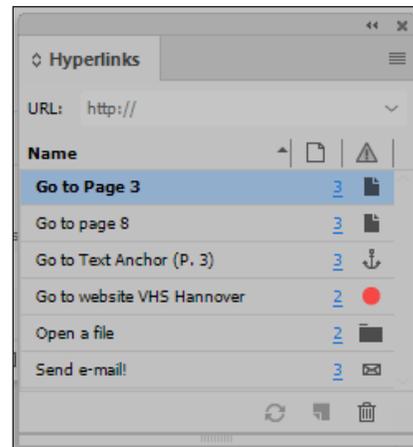
Let’s start with a very simply one: jumping to a different page.

- Select any element in your document, for example a line of text saying “Got to Page 5”.
- Open the *New Hyperlink* dialogue. – To do this, in the Hyperlinks palette click the Menu icon, then select *New Hyperlink*.¹

This is the *New Hyperlink* dialogue:



- Give it the desired settings, here especially: what page to go to. The other settings are optional. You can play around with it to find out what they do.
- Hit *OK* to save your settings.
- The *Hyperlink* palette will now display your freshly created link:



b) Hyperlinks to jump to any piece of text

Sometimes you want to send the reader not only to a different page in your document but to a more specific section of text. Here is how you do this.

¹ Alternatively, there is the *Create New Hyperlink* icon on the bottom off the palette, shaped like a tiny piece of paper. As in all palette in Adobe software, this is to create a new item (specific for the type of palette).

- **First you should set a text anchor.** That's a hidden mark in InDesign that you can attach to any piece of text. Setting such a text anchor is easy, but the function to do it is hidden away a bit. Do the following: 1) Mark a piece of text in your document. 2) In the *Hyperlinks* palette, select from the menu: *New Hyperlink Destination*. Under Type, the option *Text Anchor* should be preselected; if not, select it. (Alternatives are *URL* or *Page*). 4. Click *OK*. That's it.

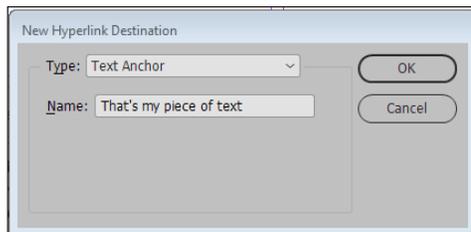
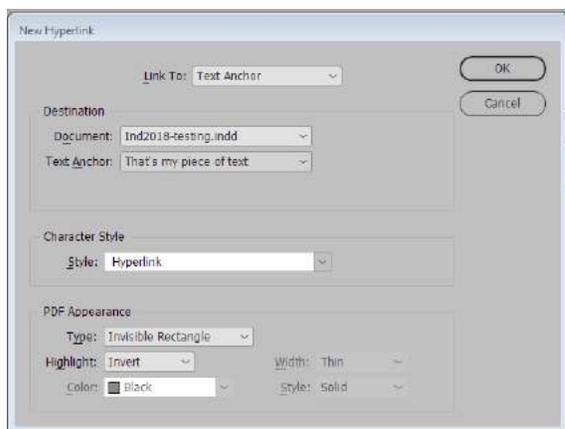


Fig. – *New Hyperlink Destination* dialogue, for setting text anchors.

- **Now you can set a hyperlink** pointing to that text anchor.

On any page of your document, select any element (a text, box shape, whatever) which you want to carry the hyperlink. On the *Hyperlinks* panel, in the menu, click *New Hyperlink* to open the *New Hyperlink* dialogue you already know. Under *Link to select Text Anchor*, then under *Destination* select the text anchor you previously created. Click *OK*.



(Fig. 4.24 – The *New Hyperlink* dialogue with settings for creating a link to a text anchor. Existing text anchors can be selected from the *Text Anchor* dropdown. Here a text anchor “That’s my piece of text” has been selected.)

c) Further types of hyperlinks

Further types of links you can use:

- To create a **link to a web page** (URL), simply select *URL* instead of *Text Anchor*, and fill in the URL.
- **Link to create an e-mail** including the address and a pre-defined subject line. – This can be useful if e.g. you want your learners send you an email, e.g. for submitting homework. This, of course, requires that they have some e-mail software installed on their computer, for example Thunderbird or MS Outlook. In standard office environments, this will be the case most probably. But already now (2019) many, especially younger, people write e-mails only via online services (Gmail and so on), and with those this function might not work.
- A **hyperlink to a file** will open a different file, for example another PDF, or a DOCX, or XLSX.

Standard procedure to create such a link to open a file: In the *New Hyperlink* dialogue box, under *Link* to click on *File*. If you have a path, type the pathname; otherwise click on the *Folder* button and locate the file on your computer system (or computer network, see below). Remember to click *OK* to save your actions.

For such links to work, the precondition is that this file is available on your learner's computer. This unfortunately is a more problematic issue than you would think. If all of your students are in one large shared (company) computer network, you are okay, because they typically can all access the same folder on your network. But as you are an adult educator, it is more likely your students use their own computers. So, what you can do is send them the interactive PDF together with the accompanying files and ask them to store them in one and the same folder. But: InDesign's file links cannot be set to be *relative*, they are always absolute.¹ That means you cannot just save the PDF and the other files in some folder and expect that everything works fine.

There is one workaround though: if you do not use the ordinary *Hyperlink - File* method, but instead create a *Button* (see below) and assign to it a *File Open* action, the link to the folder will be relative (although it is still displayed as absolute).²

1 If you have programmed website, you know what this is. – The last version we tested was InDesign CC 2018, Version 13.1.

2 Thanks for this tip to Keith Gilbert, <https://indesignsecrets.com/creating-relative-hyperlinks-in-indesign.php>. We checked his method, and found it working in InDesign CC 2018 (Version 13.1)

For more on hyperlinks, the Adobe online help may be a good place to search: <https://helpx.adobe.com/indesign/using/hyperlinks.html>

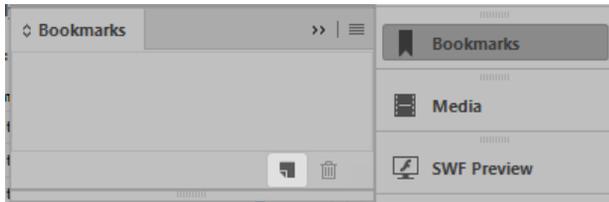
2) Adding bookmarks

A very good service to your readers is adding bookmarks to your document. This helps readers navigate through your document quickly and precisely. Bookmarks are an extremely useful feature in PDF documents, especially in cases with larger numbers of pages. Strangely, not many people seem to know about them or use them actively.

Below you see how a PDF with bookmarks looks when opened in Acrobat Pro or Acrobat Reader, and with the *Bookmarks* pane switched on (left hand side):

(See Fig. 4.25)

For creating bookmarks in InDesign, you use the *Bookmarks* palette:



(Fig. – The *Bookmarks* palette provides you with the tools needed to create a set of bookmarks for readers to quickly navigate through your document. Here it is empty since no bookmark has yet been created.)

Bookmarks can refer to either an entire page, or to a specific element on a page. If you want a bookmark to refer to a page, simply put the cursor on that page, then click the *Create new bookmark* icon on the palette (highlighted in the bottom area of the palette seen above). – If you want the bookmark to refer to a specific element on the page (a headline, a paragraph, a word), first mark that element, then click *Create new bookmark*.

As bookmarks can be nested, you should pay attention to which existing bookmark is highlighted in the *Bookmarks palette* when you click *Create new bookmark*. In case a bookmark is highlighted, the new bookmark will be created as a subordinate (child) to it. If nothing is selected, the new bookmark will simply be added at the end. Eventually you will see a tree-like structure like here:

(See Fig. 4.26)

You can also manually rename, delete, arrange, group or nest a list of bookmarks. Nesting is used to show a connection between topics.

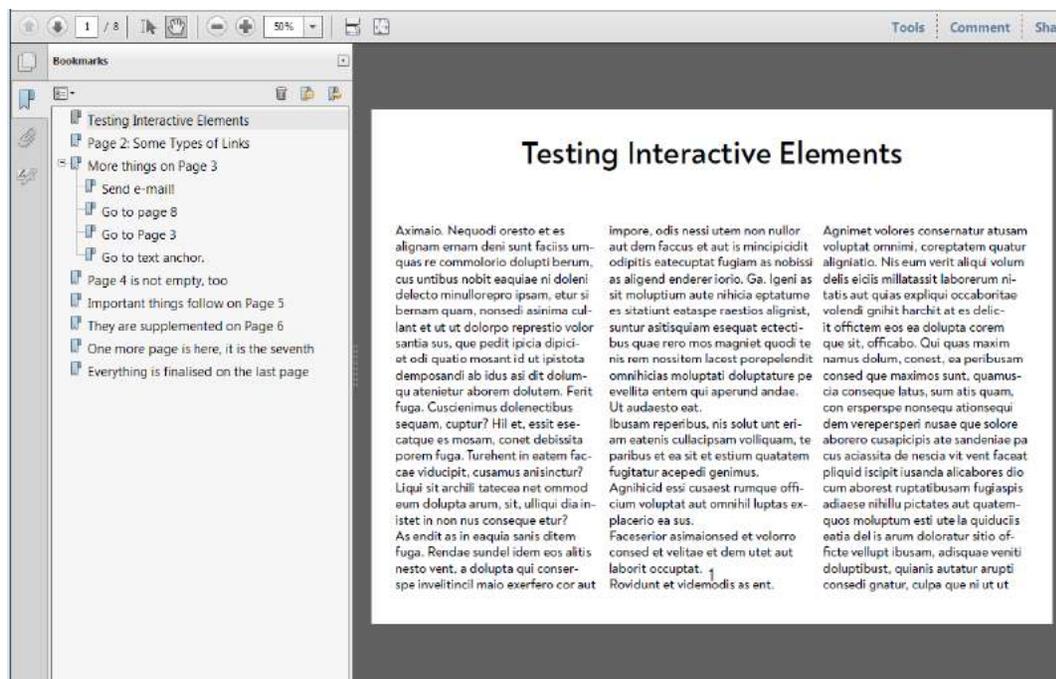


Fig. 4.25 – A bookmarked PDF, with the bookmarks displayed in the special *Bookmarks* column left hand side in Adobe Acrobat. Note that bookmarks can be nested.

3) Adding action buttons

Adding action buttons to a PDF document is an idea that obviously came from the world of websites. In websites, buttons are used to offer users the option to select a topic, do the next step in a procedure, etc.

Buttons are not totally different from hyperlinks, but they are distinguished through their visual appearance: usually like physical buttons on a machine (although in recent years with the emergence of “flat design” the old-styled pseudo-three-dimensional buttons have widely disappeared). You can use such buttons also in your interactive PDF.

To create buttons, open the *Buttons and Forms* palette.

(See Fig. 4.27)

In your document, select any element you want, for example a shape or a text box. Then, click on the *Convert to button* icon (footer area of the panel). Finally, click the ‘+’ sign next to *Actions* to select the required action. Click Event to select how the button is activated and how it will act. A whole host of *Actions* are available:

(See Fig. 4.28)

We cannot explain all these actions here. Most of them are largely self-explanatory. We recommend trying some of these options out to get a feeling for what you can do with them.

A very simple thing would be to use a button to jump to a different page (*Go to First Page, Go to Next Page, Go to Previous Page*, and so on).¹ Or use a button to link to a certain website that your learners should visit. Also pay attention to the Open File action we mentioned already above, because this offers a (secret) way to use relative file paths that otherwise are not supported.

Now, creating buttons yourself is quite a bit of work. You have to mind a lot of settings for their behaviour, and you have to invest time and energy into graphic design. Here is a typical *Button and Forms* palette with settings for buttons with different visual appearance depending on where is the mouse pointer.

(See Fig. 4.29)

One thing to help you saving time for creating graphic design for your buttons: In the *Buttons and Forms* pal-

1 Unfortunately, the Go to Page function where you can set the page number to go to manually does not work in interactive PDFs. (We tested in InDesign CC 2018, Version 13.1)

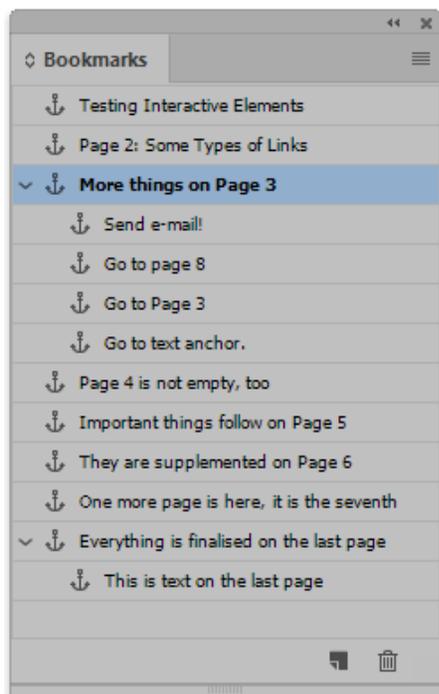


Fig. 4.26 - Bookmarks palette with a number of bookmarks created. Two of them have bookmarks nested in them.

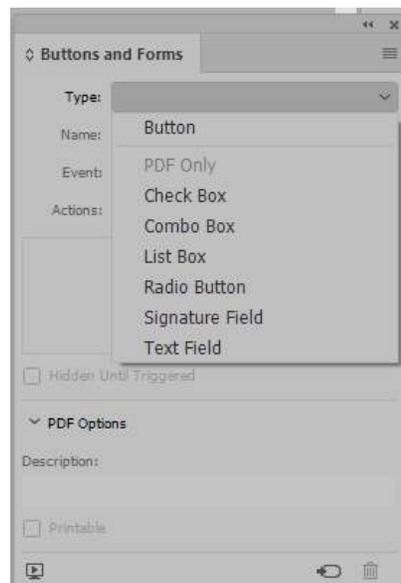


Fig. 4.27 – The Buttons and Forms palette, here with the Types dropdown opened to select various types of elements such as buttons, check boxes etc.

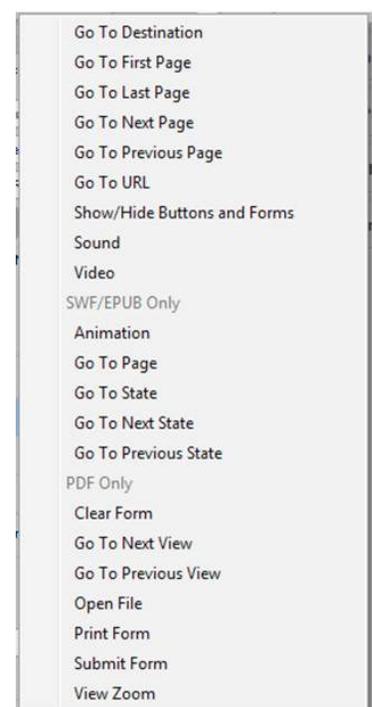


Fig. 4.28 – Quite a number of “actions” can be assigned to buttons.

ette, from the menu, choose *Sample Buttons and Forms*, to get a selection of pre-formatted elements that you can use:

(See Fig. 4.30)

For more on buttons in InDesign:

- General introduction to interactive pdfs:
<https://helpx.adobe.com/indesign/using/interactivity-5.html>
- Nice and easy introduction into using buttons:
<https://www.youtube.com/watch?v=SikuzxPwufM>
- First steps into the more complicated stuff: use buttons to make things appear and disappear on your pages with buttons:
<https://indesignsecrets.com/showing-and-hiding-objects-in-interactive-pdf.php>

4) Adding sound and videos clips

Making audio and video material accessible directly in your interactive PDF can improve the learners' experience considerably. One click in the PDF, and they will hear you talking or see you dancing (or whatever audio-visual material you include).

The downside is that such files – especially videos – often take a lot of space, and thus your PDF can become so large that you cannot reasonably ship it to your learners. Or you have first to create sufficiently small video files.

Anyway, here is, in brief, how you add audio-visual media files do your PDF. It is surprisingly simple:

- Click *File > Place*, select the file and position it in your PDF.
- A resizable media object appears, linking to the media file.
- See below for how audio and video files appear in InDesign.
(See Fig. 4.33)
- There are various settings you can make, e.g. change the audio icon, change the picture for the video, determine if these clips play automatically or only when the reader clicks them, and so on. All these settings are accessible in the *Media* palette.
(See Fig. 4.31)
- If you want to change the video or audio file, use the *Links* palette.

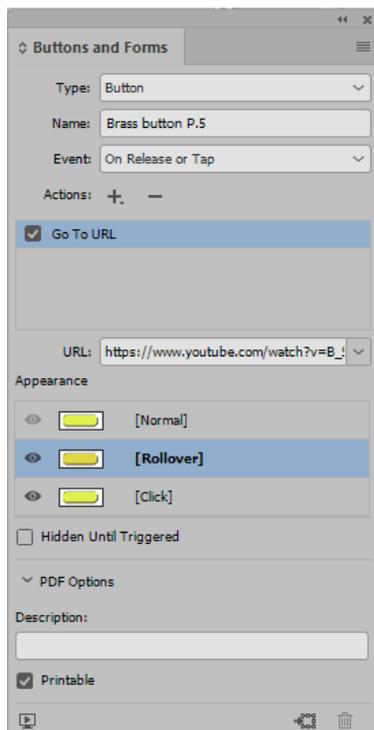


Fig. 4.29 – Buttons and Forms palette, filled in with various settings for a typical button. You can set different visual appearance for the button depending on what the mouse does, but doing this well needs a lot of attention to graphic-design.

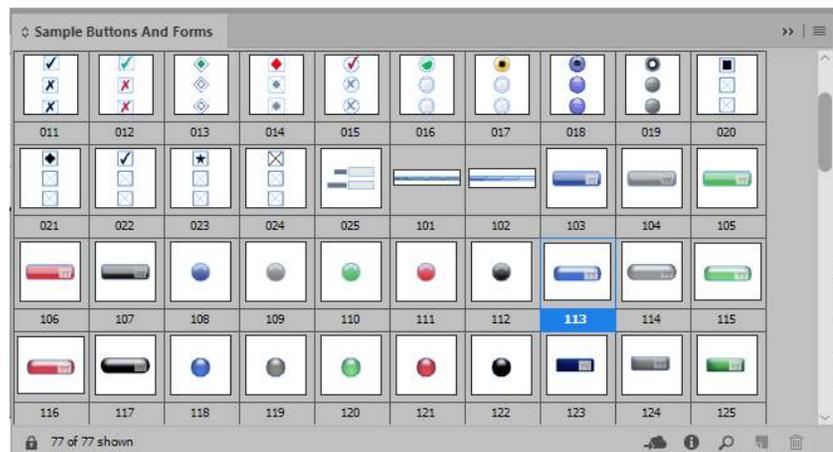


Fig. 4.30 – Ready-made buttons and other elements.

- Instead of including the video file into the PDF, you can also reference it to a file that sits somewhere on a server on the internet. Do this by first creating an empty frame in your document, then in the *Media* palette menu, click *Video from URL*. But note that this needs a real file sitting on that URL. A Youtube link does not work. A practical scenario is that you store your video files on your organisation's server. This allows you to display larger videos without pumping up your PDF file size too much.

More about video and audio in PDF documents:

<https://helpx.adobe.com/indesign/using/movies-sounds.html>

5) Page transition effects

Page transitions can decorate your content when turning the page. They are those optical effects you probably know from presentation tools such as PowerPoint: pages move away, dissolve, pop up etc. Such visual effects don't contribute much to the didactical value of your material, but used in healthy doses they can make a document look a bit more "professional". InDesign provides a number of effects. You can add different transitions to different pages or one transitions to all. This is what is offered currently (2018):

(See Fig. 4.32)

To apply page transition effects:

- On the *Pages* panel and select the spreads (or pages) that you want to add transition to.
- Then use the *Page Transitions* palette (if not visible, choose *Window > Interactive > Page Transitions*) and choose from the *Transition* dropdown the one that is most suitable.



Fig. 4.33 – That's how audio (above) and video (below) files typically appear in the InDesign file: A loudspeaker icon for audio, a picture from the video clip, both with tiny symbols for audio and video top left.

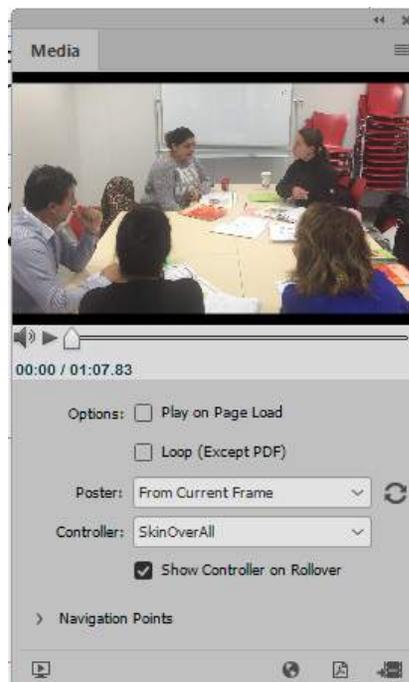


Fig. 4.31 – The Media palette offers a number of settings for the appearance of the element in the PDF document, and for its behaviour.



Fig. 4.32 – The various options for page transitions, here from InDesign CC 2018. In earlier versions the selection may be slightly different. This list is in the Transition dropdown on the Page Transitions palette.

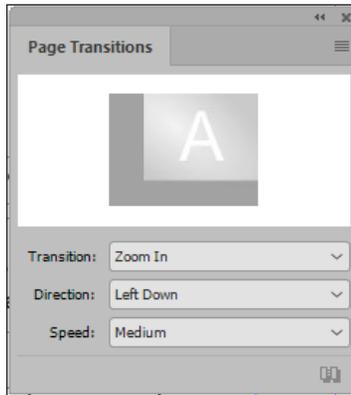


Fig. 4.33 – The Page Transitions palette let's you select and fine-tune a transition effect for one or multiple pages. Mouse pointer over the little image shows the animation that will be produced.

- You can customize the effects a bit via the *Direction* and *Speed* dropdown fields.

6) Other elements for interactive PDFs

There are many more options for interactivity in PDF documents. You can add checklists, checkboxes, fillable forms with text or signature fields, or cross-references.

Before you start, take some time to navigate through the tool and discover their features. Here are some useful notes:

- In InDesign you may see an option to include animations (palette: *Animation*), that make elements (shapes, text elements, etc.) move and change their shape similar to an animated movie. However, this does not work for PDFs. To use this, you would need to create Flash files (Shockwave Flash, SWF), which is a form of video that does not work across all platforms.

For more on this, see

<https://helpx.adobe.com/indesign/using/animation.html>

- It is possible to create entire quizzes, or sequences of elements that appear on a page step by step. But this needs a lot of settings to be done in the *Buttons and Forms* palette.

- A good introduction is here:

<https://indesignsecrets.com/showing-and-hiding-objects-in-interactive-pdf.php>

- More on check boxes:

<https://www.webucator.com/how-to/how-create-check-box-form-field-adobe-indesign.cfm>

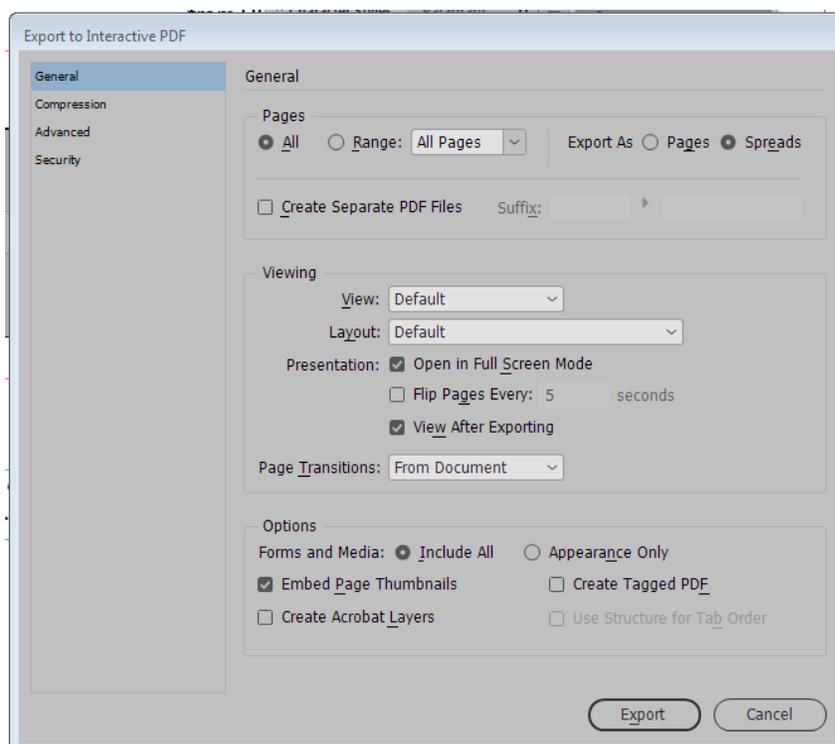


Fig. 4.35 – The Export to Interactive PDF dialogue offers a number of settings you may want pay attention to. Here from InDesign CC 2018 (Windows).

- A short video introduction of good quality about working with form elements:

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

7) Exporting your work to PDF

So far you have created various interactive elements, but you have not seen them in action. To do so, you have to create the actual PDF document. This is called “exporting”. You will do this repeatedly during your work on this document, because there is no other really working way to check if the interactive elements do exactly what you want. So it is a process of export, test, redo, export, test, redo...

Luckily, exporting is simple. Click *File > Export > Adobe PDF (Interactive) > Save*, and you are done. Mind that “interactive PDF” must be selected. Otherwise you get a normal PDF document without interactive features.

Dateiname:	Ind2018-testing_024.pdf
Dateityp:	Adobe PDF (Interactive) (*.pdf)

(Fig. 4.34 – Setting “Adobe PDF (Interactive)” during export is crucial.)

You may also want to pay attention to the various settings in the export dialogue that will pop up:

(See Fig. 4.35, previous page)

Note that in earlier versions of Adobe InDesign (which you may still use), the export procedure was a bit different. There, you had to explicitly tick a set of options in the *Export* dialogue to include interactive behaviour. Just check your version of InDesign.

Teaching Benefits

PDF is a very popular format of documents used across the web, especially in professional publishing. Its large advantage is that it can be used across platforms with documents remaining consistent in design and functionality. For teachers or learning facilitators, being able to create PDFs is therefore an important skill.

Here are some more benefits of interactive PDFs:

- When using interactive PDFs as teaching aids, your learners do not need additional resources (except a computer, obviously). Your learners can respond

and interact, as everything is processed within the document.

- Creating interactive PDFs is simple in so far as it does not require additional skills such as writing programme code for websites. (It requires, however, some training in using InDesign, ideally supported by good self-directed learning skills.)
- You can turn your already existing PDFs into interactive material. (The typical way to do this would be: adding interactive elements in Adobe Acrobat Professional).
- Teaching aids delivered as PDF look more professional than such provided in text processing formats (DOCX, ODT). Your learners will be impressed by the range of capabilities included in a PDF.
- PDFs are easy to distribute.
- Interactive PDFs help your target group become more engaged. Learners are given the possibility to respond without even using a permanent internet connection.
- Presentations are no more one-way.
- Interactive PDFs can help you create content that leads to an action. They allow you better incorporate actions, such as submitting details, respond to mini quizzes or watching a video. This can make you more compelling and competitive among other educators.

Common Mistakes to Avoid

- It is quite common for educators to get excited with interactivity. However, too much of it can make the content tiring for the audience.
- When you have a wide variety of options, it is difficult to keep consistency throughout the content.
- Monitor the size of the file that is created when adding interactivity. Especially included videos can lead to undesired increase of file size.
- Here is another drawback of the entire idea of interactive PDFs: The concept works well as long as your learners use something like a classical computer (PC, MAC). If they try to use your PDFs on their smartphones or other mobile devices, it may well happen that the PDFs lose their functionality just because the PDF reading software on these devices may not

be able to deal with it. Reading will work. Interactivity may be impeded.

Online or Offline?

Interactive PDFs can be published both online and offline. Readers use them offline.¹

¹ With „Publish Online“, Adobe offers users of InDesign also a free hosting server for interactive PDFs. If you use this, your students work with your PDFs online.

4.4.2 Creating accessible PDF

“Accessibility” of documents means: the document can be “accessed” (read, used) by all people, including those with some disabilities, especially with visual impairment up to blindness, but also other problems e.g. of the musculoskeletal system. Depending on where you work, “accessibility” may be required by law or by company policies. Documents, especially those in education, are created to be readable and intelligible. So why not create them in a way everybody can use them, including people with special needs?

In everyday practice this means that the document should be “readable” not only for the ordinary human eye. Rather, it should be possible that “assistive technologies” can process them. This includes screen magnifiers, special colour settings, and most naturally screen readers (robotic voices reading a written document).

To achieve accessibility in this sense, two things are to be done.

To begin with, the document should be well-structured for the human eye. Rules to be followed coincide largely with what professional journalists and publishers have been doing for centuries. (For example: write an article always in a self-sufficient form. Don’t expect the reader to have read the headline first.)

Second, the document should be well-structured for robotic readers. The structure for robotic readers will usually be included in the page without being visible to the human eye. For example, if on a page there are several areas of text (columns, boxes, or what ever), the document should include information (hidden to the eye, but readable for machines) about the order in which to read. That’s because a robotic reader cannot do what the human brain and eye can do: scan the entirety of a page and instantaneously decide along certain hermeneutic criteria what to read next. The robotic reader needs information about the structure of a text that is interpretable for it. For example, it needs indicators what are the headlines, what is contiguous text, what are navigation elements, and what is just a letter head or logo that appears on each page but should not be read as it occurs each time.

A document that is technically well-structured can be processed by software to assist people with disabilities. You may have learners with such special needs.

In this chapter we will have a look how we can improve our PDF documents so that they fulfil accessibility criteria.

Adobe Acrobat Pro is the industry standard programme for editing and processing (rather than authoring) PDF documents. It provides various tools to check documents for accessibility, and to fix problems. We will use Adobe Acrobat Pro here, but of course, the same thing can be done with other PDF editing tools as well.

Main PDF accessibility features that can be provided via Acrobat are features to make documents readable for screen readers (robotic readers) and screen magnifiers – programmes to selectively enlarge parts of a screen so that people with weak sight can read them. It includes also document colours to be swapped with high contrast colours. Individual steps are

For blind people (using screen readers)

- set the language of a document so that a screen reader knows what to do
- set the reading order (“tagging”) for text elements on each page
- set alternate texts for images so that the robotic reader would read aloud “Picture of a house in green meadows” when a picture of a house in green meadows is on the screen; the robotic reader does not recognize the picture; it simply reads a line of text that the author of the text assigned to the picture for that purpose.
- re-open documents to the last viewed page. This helps blind people to get back to where they were with reading when they closed the document.
- adjust document zoom; generally a good setting is “fit page on screen”, that way screen readers and screen magnifiers can work optimally.

For people who can read but need **special visibility aids**

- highlighting form fields
- disable text smoothing, which increases contrast
- display the document in other colours for better contrast

There are various standards for accessibility of internet documents, for example the *Web Content Accessibility*

Guidelines (WCAG) and the *PDF Universal Access* (ISO 14289). If you are generally interested in the topic, a source for quick oversight information is <http://www.section508.gov> by the government of the United States. (There is no special prevalence here to standards set by that country; it just happens that they have a good website on the topic in English.)

What do I need?

- Computer or laptop
- Adobe Acrobat Pro. – Note that this is not the Adobe Reader. Adobe Acrobat Pro is a full-sized PDF manipulating tool, wide-spread in professional publishing, both print and screen. It is not cheap.
- A word processor (such as Microsoft Word or OpenOffice Writer) that allows you to output a document as PDF. – If you have Adobe Acrobat Pro installed, the respective plug-ins should be available in your MS Office applications automatically.

How do I prepare?

Here are some rules for “accessible” PDFs. They are basic things that are good to know in advance before diving further into the topic.

- The visible (and invisible) structure of your original document should be clear and easy to follow. Headings, table of contents, links and bookmarks are elements to help structure a document. – That’s of course a thing everybody writing any documents should heed anyway.
- Visual content (pictures) should have text alternatives. That’s text to be displayed or to be read aloud instead of the picture. – We will show you how to create these.
- PDFs must be properly tagged. Tags are (invisible) mark-ups in the document that provide structure, especially for robotic readers. – We will show you how to check for these tags and set or improve them.
- The language of the texts should be specified explicitly so that robotic readers know what to do. – We will show you below how to do this.
- The security settings of the document should be operable also for users of assistive technologies. – Security settings include rules on what can be printed, and whether a password is needed to read (or manipulate) the document. – If you have never used these settings in PDFs, don’t worry as you will most likely not be affected.

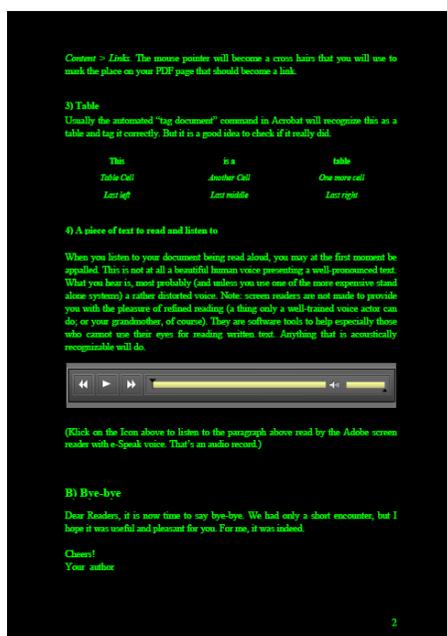


Fig. 4.36 – Two of the high-contrast colour settings available in Adobe Acrobat via *Edit > Preferences > General > Accessibility*. This can be helpful for people with certain forms of visual impairment. (If you are old enough, you may like the sight because it remembers you of your first steps with computers, in the 1980s and 1990s.)

Know how to make Acrobat read documents out loud to you

One feature of Acrobat (Reader and Pro) not many people know about is the ability to read out text aloud. You can test this very easily by switching the function on: *View > Read Out Loud > Activate*. In any open PDF document click on something with your mouse pointer, and it should be read aloud (with some artificial voice and an ugly mechanic but intelligible pronunciation).

Note: by default your computer system might provide only one single “voice” to use for reading, and that voice will most probably speak English only. Although you indeed can make it read also your German, Spanish, Greek or Italian texts, and have fun with that for five minutes, that’s just a nonsensical game. So, if a “voice” for your language is not already available, you have to install additional languages. That’s surprisingly simple. We show you how, below.

View your documents in high contrast mode

Also, you can make a quick experiment to get acquainted with “high contrast screen” views. You simply have to tell Acrobat to display documents that way. In Acrobat Pro or Reader: *Edit > Preferences > General > Accessibility > Document Colours Options*. Try out the various options. You may end up with screens like those below (Two of the high-contrast colour settings available in Adobe Acrobat. This can be helpful for people with certain forms of visual impairment):

(See Fig. 4.36, previous page)

Letting a screen reader read your document aloud

There are various assistive tools available, e.g. high contrast screens as seen above. However, the most outstanding tools are screen readers, that’s robotic voices reading aloud what your document says. There are specialty software programmes to do that, both open source and commercial.¹ Also, modern operating systems (Windows, Apple OS, Android) usually have some form of a screen reader built in.

A basic screen reader is built in in Adobe Acrobat Pro and Adobe Acrobat Reader. Start it with *View > Read Out Loud > Activate Read Out Loud*.

You will probably find that this reads only English texts. Not good for you if you are living in some other country. The solution is: you have to install additional screen reading elements to your operating system. For Windows the current solution (2019) can be found at <http://espeak.sourceforge.net/download.html>. You have to follow the instructions given there. instructions by Microsoft on the same topic are available here: <https://support.office.com/en-us/article/download-voices-for-immersive-reader-read-mode-and-read-aloud-4c83a8d8-7486-42f7-8e46-2b0fd753130?ui=en-US&rs=en-US&ad=US>.²

This let’s you add one or several of the most common languages in use . Once installed in your operating system, you have to tell Adobe Acrobat (Pro or Reader) to use this in the screen reader. You do this via *Edit > Preference > Reading > Voice* (dropdown field where the newly installed languages should be visible now.) This will look something like:



When you listen to your document being read aloud, you may at the first moment be surprised as it is not a beautiful human voice presenting a text in good pronunciation and prosody. What you will hear is most probably (and unless you use one of the more expensive stand alone systems) a rather distorted voice like of a caricature robot. Screen readers are not made to provide you with the pleasure of a refined reading experience (a thing only a well-trained voice actor can do). They are software tools to help especially those who cannot use their eyes for reading; aesthetics is not considered.

1 For more on that: https://en.wikipedia.org/wiki/Screen_reader. A list of currently available screen readers, with comparison of their features is at https://en.wikipedia.org/wiki/List_of_screen_readers.

2 All links mentioned here were tested in April 2019.

Where to look for help?

The Adobe Help Centre (in the internet) has useful tips on how to get started. There are tutorials and step-by-step instructions. You can also join the community forum to ask for specific issues.

https://helpx.adobe.com/gr_en/support.html

Especially for accessibility:

<https://helpx.adobe.com/acrobat/using/create-verify-pdf-accessibility.html>

If you are interested in the topic of “accessibility” of documents more generally: the US government has a website on the topic that is very good. It also offers checklists for accessibility of various document formats.

<http://www.section508.gov>

A basic video tutorial for using Adobe Acrobat for creating interactive PDFs can be found here:

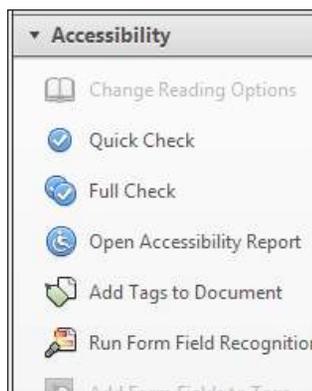
<https://www.youtube.com/watch?v=kWCciN7y64M>

What do I do?

1) Checking the accessibility of an existing PDF

For checking accessibility of PDFs, Adobe Acrobat has an automated way, called **Full Check**. This feature checks a PDF for many of the characteristics that accessible PDFs should have.

- Choose **Tools > Accessibility**. Then the respective toolset will be displayed in the toolbar.¹



- Click on the **Full Check** button. You get displayed a large dialogue with plenty of settings.
- In the **Report Options** area, choose options for how the results shall be displayed. Basically you can choose between a report to be saved somewhere on your computer, and “Create comments in document”.
- In case you want to check only specific pages in the document, select a page range.
- Choose one or more of the **Checking Options**. You can also select from various standards to be used in the **Checking Options - Name** dropdown field. There you find e.g. the “Section 508” standard used by US authorities to ensure accessibility of their documents; but also other standards. If you choose “Adobe PDF” as the standard to check against, the check will use the following criteria:

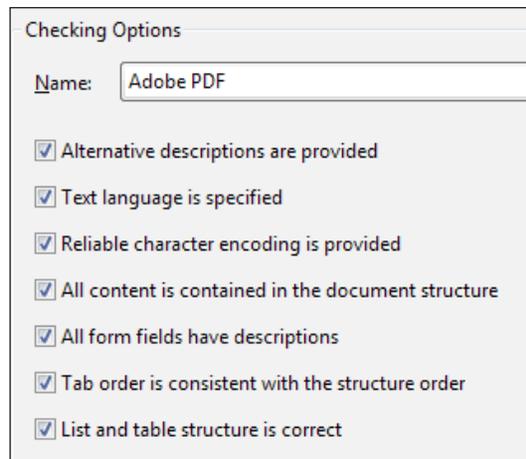


Fig. 4.38 – The “Adobe PDF” criteria set for checking for accessibility issues. This is a relatively concise set of criteria. Some of the other standards available have considerably more detailed lists of criteria.

- Click **Start Checking**.
- The results will be displayed in the **Accessibility Checker** column on the left of your screen. (What you see there is actually the report that has also been saved to some place on your computer.)

(See Fig. 4.39 on next page)

If you selected **Create comments in document** your document will show highlighting like this:

¹ If your Acrobat has a different screen language, you might need to look out for something fitting the idea. In German the tool is called Ein-/Ausgabehilfe. If a tool like that is not visible at all, use **View > Tools** to select the tool you need. It will henceforth be visible in the Tools column right hand side of your Acrobat window.

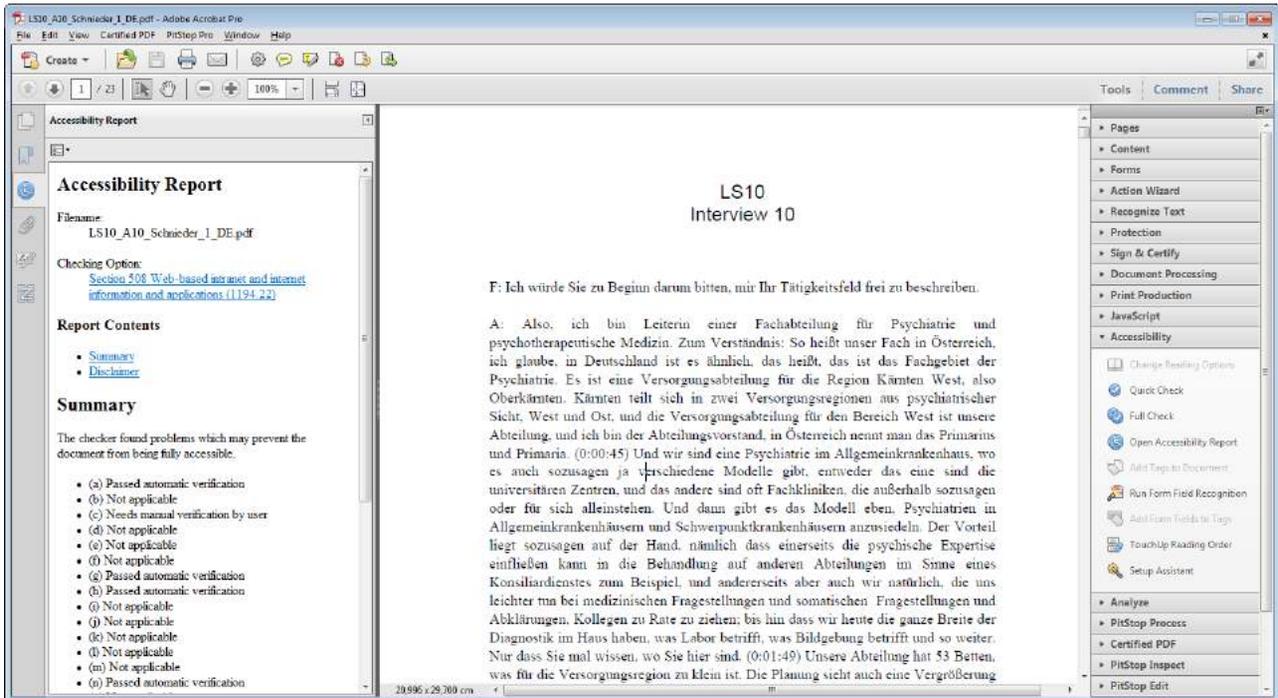


Fig. 4.39 – Window of Adobe Acrobat Pro (here version X) with a document opened in the middle, the tools column to the right, and the report in the column to the left.

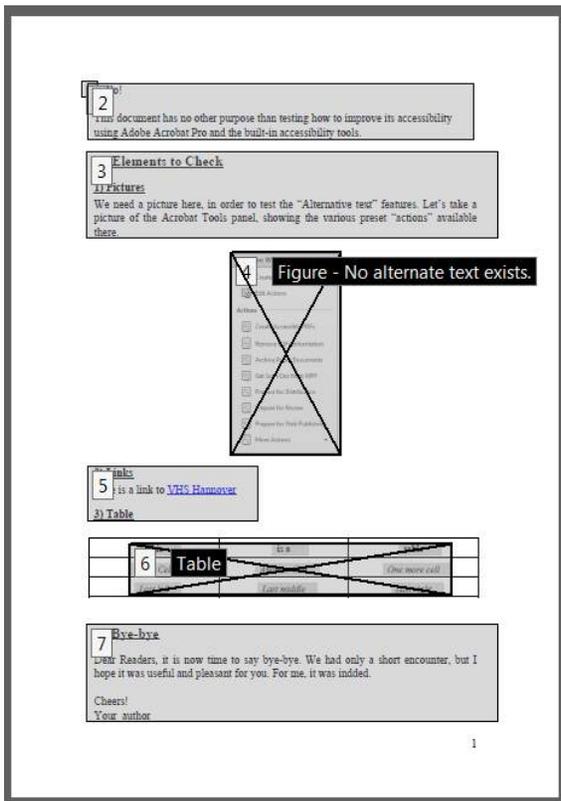


Fig 4.40 – Reading order view of a page. On this document the Add Tags to Document command was used. The tags are more or less okay, but could be improved by assigning individuals tags to the headlines (as they are currently included in tags 3, 5, and 7 together with text.

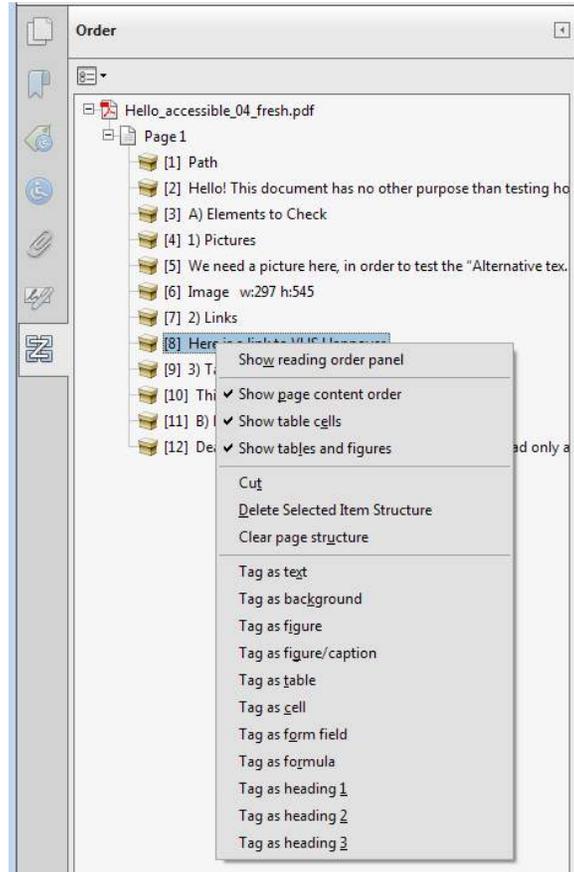


Fig. 4.41 – Left column of your Acrobat window. The Order pane is open. We right-clicked on one of the elements on Page 1 and got a dialogue displayed to adjust the properties of the element.

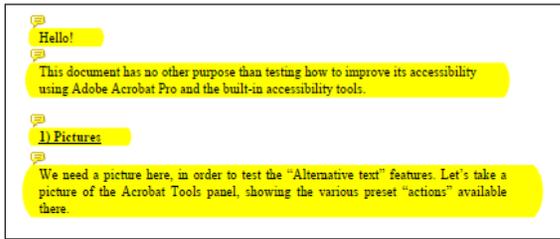


Fig. 4.42 – Document with highlighted sections where problems were identified.

- According to what the report says, and of course according to what accessibility features your document is set to have, you can now start fixing the issues. Here are some typical issues, and quick advice how to solve them:
 - **Language not defined:** This means that screen readers will not be able to read your document correctly. It might happen that your French text will be read by a voice trying to read it as if it was English (if you want to have fun, try). – For correctly setting the language use *File > Properties > Advanced > Language*
 - **Image does not have alternate text:** Select, in the left column, the *Order* pane. Pictures that do not have alternate texts should be marked like so:



- You can now right-click on the black note and select *Edit Alternate Text*.
- **Document not tagged.** This means that the various elements on the pages (headers, text blocks, pictures, etc.) are not marked explicitly as such. You can use the *Add Tags to Document* command (in the tools column, section *Accessibility*) which will do the tagging automatically, as good as possible. This works usually well in documents that are not too complex. If you are not happy with the result, you can fix everything manually by using the *Touch up Reading Order* tool (same place). Or

you can use the *Touch up Reading Order* tool right away without a detour through the *Add Tags* tool.

- To check your document structure visually: open the *Order* pane (left column, where the bookmarks are) by clicking this icon:



- You now will get your pages displayed in “reading order view” like this:

(Fig. 4.40 on previous page)

You can now use the *Touch up Reading Order* tool. Basically you mark with the mouse a rectangle around any element on the page, then press one of the buttons available to identify the marked section as headline, text, picture, table, or whatever it is.

Alternatively, you can access all individual elements in the left column, *Order* pane (right-click on the items listed there), and assign new values.

(See Fig. 4.41 on previous page)

2) Use the Make Accessible action

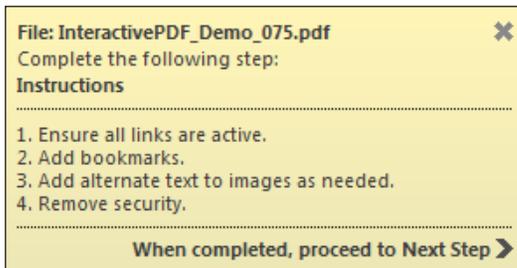
As an alternative way to do it, Acrobat Pro has the *Make Accessible* action that provides you with step-by-step guidance on how to make a PDF accessible.¹

“Actions” in Acrobat are tiny programmes to carry out a series of tasks that otherwise would need to be done manually one by one. The *Make Accessible* action leads you through a number of checks and shows you what needs to be fixed.

- First, open the PDF that you want to check and improve.
- Choose *Tools > Action Wizard*. Then, the Action Wizard toolset is displayed in the toolbar.
(See Fig. 4.45)
- From the Action list, choose *Make Accessible* (in Acrobat Version X it is *Create Accessible PDFs*)
- The panel appearing displays each task that needs to be done in order to make the document accessible, as well as instructions of how to execute.
(See Fig. 4.46)

¹ May be called completely differently in your localized Acrobat version. In German this is called „Barrierefreie PDF-Dokumente erstellen“.

In the process you will repeatedly get advice on what to do, for example:



Advice given during the "action". Obviously it is expected that you know how e.g. to add alternate texts to images.

- Follow the advice given. For example when it says "Add alternate text to images as needed", do so. – From notes such as this it becomes clear that Adobe expects you to know how to do this. (That's why we showed you the manual way first. Old Chinese proverb: *There is no knowledge without knowing.*)

Teaching Benefits

You will use accessibility features for your PDF documents especially when you have learners with special needs. Whilst in general adult education it will not happen so often, it might. Often blind and visually impaired people will already be equipped with assistive technologies (special screen readers etc.), and in this case by preparing your documents accordingly you are really assisting them and making their life easier.

Admittedly, doing this for only one learner, with documents that are one-off for a one-semester course, is perhaps a bit unrealistic with regard to the work required. However, if you have documents that are expected to be used over years and are directed to a wider public, checking them for accessibility features is definitely a good idea.

Common Mistakes to Avoid

- Be careful with colours. Good contrast for reading is important not only to visually impaired, but actually for everybody.

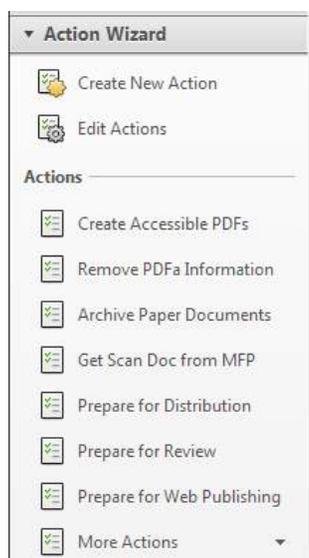


Fig. 4.45 – Adobe Acrobat Action Wizard (here from Acrobat X, other versions may appear slightly different.)

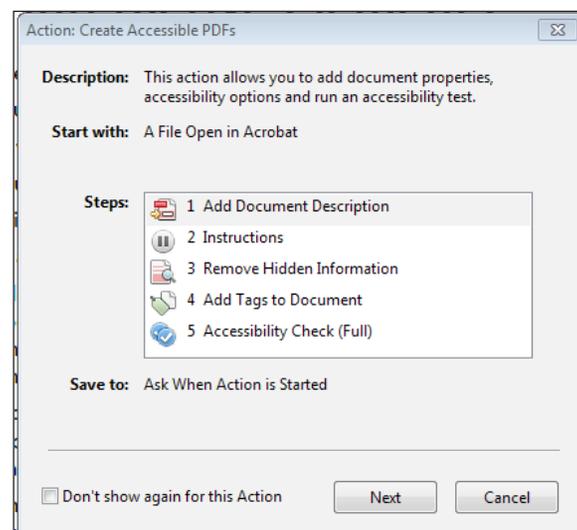


Fig. 4.46 – The "action" starts with showing you the steps you will be going through.

- Do not use images just to decorate your content. All material included in your document should convey useful information.
- Pay attention that repeating headers and footers should be exempt from the reading order for screen readers.
- It is better not to try make your *interactive PDFs* (see previous chapter) “accessible”. Making PDFs accessible may remove crucial elements of their interactivity such as links or included files.

Online or Offline?

For making your PDF “accessible”, use the Adobe Acrobat Pro, which is by its nature an offline application. The resulting PDF file can of course be published both offline and online.

4.5 Games

Games and gamification are becoming a very important tool in the blended educators' skillset. Games allow

learners to enjoy their learning, and look at topics from a new direction.

4.5.1 Creating and Using Interactive Games

The internet allows you to both play and create a wide range of games that can be very helpful for learners. This activity is focussed on the creation of quizzes and word games. We introduce you to two of them in detail. For more examples, see Chapter 7 where more tools are presented briefly.

What do you need?

- A mobile phone, desktop, laptop or tablet
- Internet access
- Game generator tools – We will introduce you to three of them. The idea is simply to give you some idea what is available. You can take this as a point to start to search for others. New gaming opportunities in the internet with an educative agenda appear constantly.

Where to look for help?

Generally on the topic of games in education:

- A good collection of short, introductory articles and resources on the topic of game-based learning is provided by www.edutopia.org (run by George Lucas Educational Foundation). This is predominantly school-oriented, but it is not bad for a first glance.

<https://www.edutopia.org/game-based-learning-resources>

More tools:

- On word-grabber.com you can find various word generator tools to make words from letters for different word games like Scrabble Word Finder, the Words with Friends Cheat and Anagram Solver. The site is one of several run by a small company based in Bavaria, Germany, that specialises in crowd-based information portals.

- Free crossword generators, for example:

<https://crosswordhobbyist.com> (we present this below)

<http://www.crauswords.com>

<http://www.eclipsecrossword.com> How do I prepare?

Reading this book will be helpful but the most useful thing for you to do is to actually go and try play the various games.

In this chapter we will introduce you to two tools: Kahoot, a platform to create and play quizzes and surveys, and Crosswordhobbyist, a tool to create crosswords.

- For the **Kahoot** quiz, go to <https://kahoot.com> and register an account filling in your role (educator). You will create your username and a password.
- For **Crosswords**, except from registering an account at <https://crosswordhobbyist.com>, you may, in preparation, think about a list of words relevant to the topic of your classes, plus "clue" for each of them. The clues can be used in the crossword, as well as for hints in Hangman, and as questions in the quiz activity.

What do I do?

1) Create Quizzes and Surveys with Kahoot

Kahoot is an internet platform offering user-created quizzes and surveys that can be used for spicing up events starting from normal classrooms up to very large auditoriums. Kahoot quizzes and other online tools are used by schools, universities, and in other educational environments.

The platform is run by a company in Oslo, Norway. It was started in 2013 by a number of students and academics of the Norwegian University of Technology of Science. In 2019 it announced that it had registered 2

billion players with 60 million games created by users.¹ The company name uses an English expression “cahoot” meaning to be in company or partnership.

The main product are user-generated multiple-choice quizzes that can be accessed via a web browser, smartphone apps, etc.

The most typical way to use Kahoot-quizzes is, first, to create a quiz for a certain lecture you are giving. In the classroom you then can display the quiz on your whiteboard. Questions will be displayed on that screen. Students use the Kahoot! app on their smartphone: after entering the code number of the current quiz, they can use their smartphones as voting devices to answer the multiple choice questions displayed on the white board. A typical quiz could for example have 10 questions. Participants get scores for correct answers, with the speed of answering also factored in. Between the individual questions, the current scores of the participants are displayed on the white board, which adds a spirit of competitiveness.

This can be fun for students while offering an entertaining way of repeating the core things learned in that lesson. Obviously this approach will work best with learners who are what today is called “digital natives”, i.e.

people who operate their mobile phones all day long and are familiar with using all sorts of apps. It will not work so well with learners who are not familiar with using smart phones that way.

No user account is needed for simple participating in quizzes. For creating quizzes, however a user account is needed. Basic user accounts are free. More advanced accounts are available for 12 and 36 Euros annually (prices as in April 2019).

Test our sample quizzes

Enough theory. Just try it! We created a mini quiz about the fascinating topic of Blended Learning for you:

<https://create.kahoot.it/share/blended-learning/0093de63-d390-4d88-bd1b-0a992fd2087d>

This one is quite similar, created by somebody else:

<https://create.kahoot.it/share/blended-learning/189beb65-d0c2-40bb-a40d-0ba83a84caa4>

This one is about current issues of sustainability on planet earth. It was one of the most-used quizzes in April 2019:

¹ Data from their website: <https://kahoot.com/company>, accessed April 2019. Note: „2 billion players” is not to be misunderstood as „2 billion registered users”. It means 2 billion counts of somebody participating in a quiz etc.



Fig. 4.50 – A typical screen of a simple quiz. The question is displayed on top. The four answers have buttons with different symbols and colours. These buttons are displayed also in the smartphone app (right).

<https://create.kahoot.it/details/1ec244d9-87fa-45fa-81b6-c3fe63e-fafd0>

These are quizzes with multiple-choice questions with 2-4 answers.

Currently Kahoot allows users to create three types of online games:

- Quizzes with multiple-choice questions
- Quizzes where four answers have to be put in correct order
- Surveys, a classical voting tool: participants can vote on up to four options (without there being wrong and correct answers).

Kahoot can be used to review students' knowledge, for formative assessment, or as a break from traditional classroom activities.

Create a quiz yourself

For creating your own quiz in Kahoot, log in to the platform and choose an activity you want to create: a quiz, a jumble, or survey.



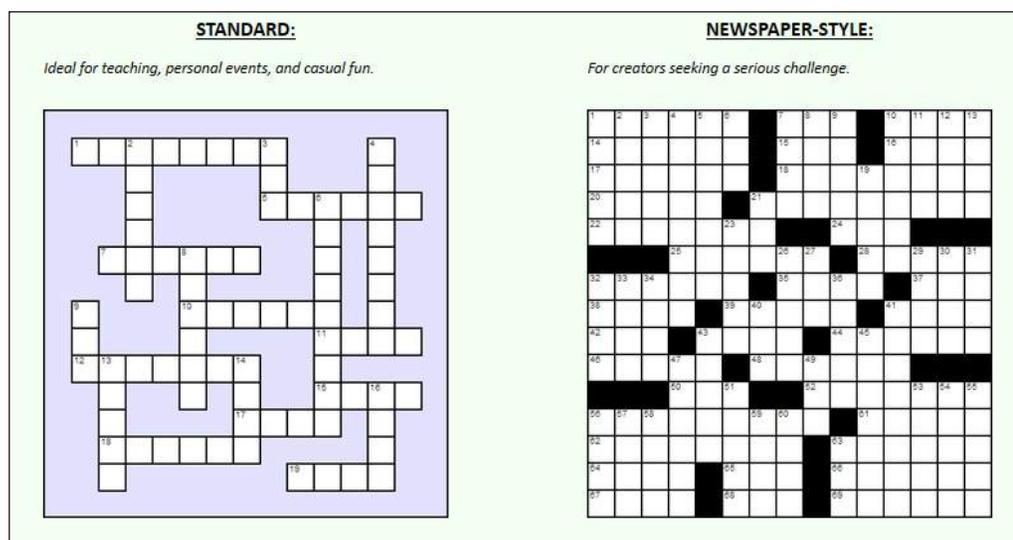
The website will lead you through the process of creating your quiz. Here are some tips to keep in mind:

- Questions have a 95 characters limit.
- There can be 2-4 answers, each with a 60 characters limit. At least one of them must be marked as "correct"
- You can set a time limit to answer the question. The default is 20 seconds, but you can set it between 5 and 120, depending, chiefly, on how thoroughly the question and the answers need to be read.
- You can embed an image or a YouTube video into the question. Thus, for example, you can show some object and ask something about it.
- Select whether you want to make your game public or private. Public games can be used by everybody, private ones only by people who know the link.

Play the game – or let your students play

- When you want to launch a game, select it from "MyKahoots", or via the link identifier, and press the Play button. You will get a game PIN (a number consisting of 6 figures).
- To participate, learners start the Kahoot app on their smart phones or computers, enter the game PIN,

Fig. 4.51 – Two types of crosswords available on the Crosswordhobbyist website: "Standard" and "Newspaper Style".



and also some make-shift username (pseudonym) that will be displayed on the central screen.

(See Fig. 4.50)

2) Create Crosswords with Crosswordhobbyist

The Crosswordhobbyist offers assistance for quickly creating crosswords.

<https://crosswordhobbyist.com>

Here you can create two types of crosswords, "Standard" and "Newspaper":

(See Fig. 4.51)

The "Newspaper" type is extremely complex to create. Even experienced crossword creators need 3-4 hours to create one such (with 15 x 15 squares), and beginners may need 6-8. All the placement of words must be done manually, or better: by the human brain. Clearly not an option for the average adult educator. Not due to lack of brain, of course, but due to lack of time.

Much easier is the "Standard" type. Here, the task is simply: collect a number of words (ten perhaps) that belong to your teaching topic. On pressing a button, the software behind the website will arrange them in the best way possible, i.e. with as many cross sections as possible.

For each word you also enter a "clue", that's the description of the word to find, for example, the famous "male

sheep" when "mutton" is the solution. Or, of course, something more in the form of a riddle: "What we do when we are not passive", as a clue for "activity".

Here are some tips for using the Standard crosswords mechanism of the Crosswordhobbyist website:

- Enter all your words in the 'Auto-Arrange' section at left.
- You can arrange your words manually, automatically, or any combination of the two.
- You can add all your words at once or a few at a time, as you think of them. If you are adding words a few at a time, try to start with at least 6 words to increase the likelihood that they all intersect.
- You can also add words directly to the grid, if that's your style. Type across or down, and use the spacebar to switch directions.
- When you are ready, click the *Make Printable* button to save your puzzle. That's the moment when you need to pay. Subscription plans cost 4,25 - 6,80 USD per month, payable via credit card (Paypal was not accepted when we tested in April 2019). Conveniently you can also pay for individual puzzles (6 dollars).
- Your puzzles are saved to your account. They are accessible from any computer with connection to the internet. They can be solved online, or you can download them as PDF.

(See Fig. 4.57)

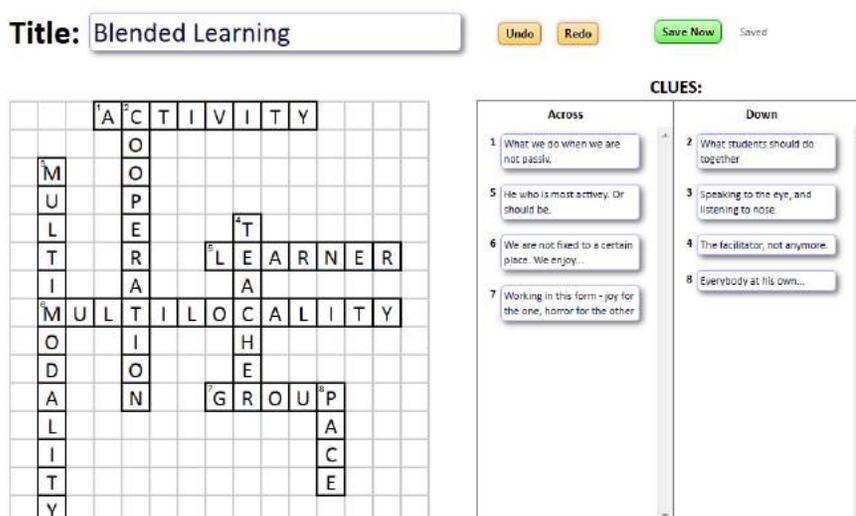


Fig. 4.57 – For testing the tool we quickly created a „Blended Learning“ crosswords. That's how it looks on the computer screen at the time of creating.

Teaching Benefits

- Using games, an educator can organise teamwork and competition which is motivating for some types of learners.
- Games bring interaction to the classroom. Some types of learners enjoy the competitive nature of the game and comment that it helps them retain concepts.
- Some games are good for making people cooperate in groups.
- Word games can be used to introduce key words/terms of a topic; quizzes help to check learners' performance, and to consolidate the understanding of key concepts.
- Some games can be used in the online part of a Blended Learning environment.

Common Mistakes to Avoid

In Kahoot:

- Remember that there is a character limit of 95 for questions and 60 for answers.
- Be sure to extend question time limit in a proper way as images don't show before answer options do.
- There is no limit for the number of questions in quizzes and surveys, but it is recommended to keep them between 10-20 questions.
- If you're a Kahoot admin or educator of a team, you can edit and host other educators' quizzes or surveys, but at a time only one person can edit a Kahoot.
- Be sure your audience (your students) are familiar with using smartphones and apps. If there are people without smartphones in your audience, they cannot participate and might feel excluded.

In Crosswords:

- Sometimes it's not possible to connect all the words from your list into an intersecting group because the combination of letters doesn't line up. To solve this you can try adding word, or you can set the number

of groups you are willing to accept at more than 1. Bigger numbers make larger puzzles.

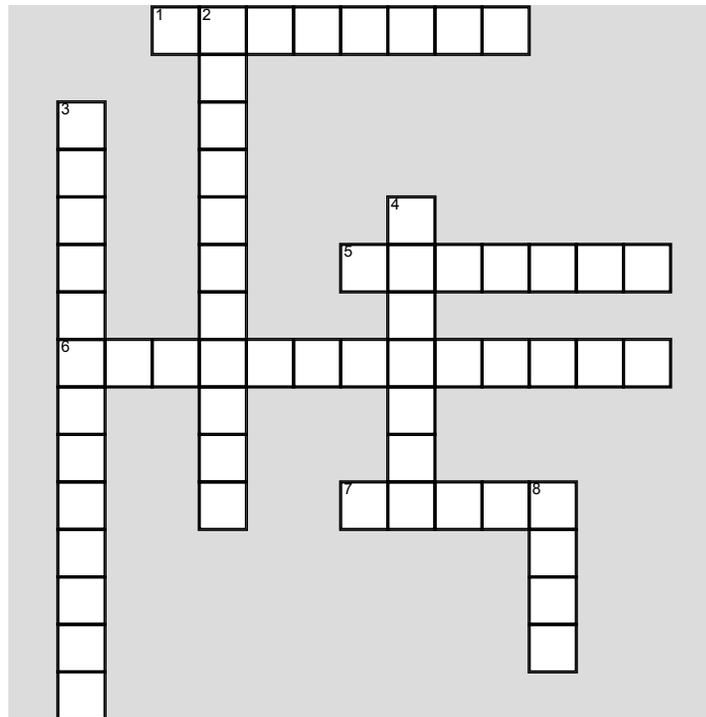
- In Newspaper style crosswords (which however are time-consuming to build), if you use grey (instead of black) squares to fill the gaps, you will need less ink for printing

Online or Offline?

Online games are, obviously, played online.

- Kahoot can be played online (with users sitting at their devices at home or elsewhere), but this still requires a synchronicity (everybody participating at the same time). Unless a person fills in a quiz just for herself, without competing others. The more typical case is however to use Kahoot quizzes and surveys in a classroom or an even larger auditorium.
- Crosswords can be played online one by one. Or they can be used in classroom setups, for example to be solved in groups. In this case you will have to print your crosswords out.

Blended Learning



Across

- 1 What we do when we are not passive.
- 5 He who is most active. Or should be.
- 6 We are not fixed to a certain place. We enjoy...
- 7 Working in this form - joy for the one, horror for the other

Down

- 2 What students should do together
- 3 Speaking to the eye, and listening to the nose.
- 4 The facilitator, not anymore.
- 8 Everybody at his own...

Words used:

Activity - Cooperation - Group - Learner - Multilocality - Multimodality - Pace - Teacher

Fig. 5.58 – The crosswords created on previous pages how it looks when output to PDF, ready for use.

4.5.2 Using Digital Badges

Digital badges are a form of recognition of educational achievements. They are a bit like the textile badges that for example youth scouts organisations hand out to girls and boys when they have proven to be able to do certain things: light a fire, erect a tent, and so on. Digital badges are similar, just in the internet. In this section, we present the topic in more detail. There will also be two or three practical things for you to do in order to get a feeling for what digital badges are. Don't, however, expect a full introduction into issuing digital badges to your learners. This would require an entire book.

What do I need?

- Internet access
- Typically (but not necessarily) an LMS (Learning Management System) for e-learning.
- Learners who are susceptible to symbolic recognition of achievements. Typically younger learners are more interested than older ones. But adults who love collecting will enjoy the digital badges experience.
- If you take it very seriously, you have to make sure that the badges you issue are aligned with the educational standards of your country. (See below the example how Technical University Dublin uses digital badges.)

Where to look for help?

- A good, comprehensive introduction into digital badges is on the OpenBadges website.
<https://openbadges.org>
- History and background are explained, along with technical details, on the elearningindustry.com website in form of a 15 pages e-book (for free, but you have to leave them your e-mail address). Despite its brevity, it is of high quality as it manages to see things from a certain distance not usual for this industry:
<https://elearningindustry.com/guide-to-digital-badges-how-used>
- Also have a look at the Wikipedia pages for "Digital Badges" and "Open Badges"



Fig. 4.60 – A veteran participant of the "Great Patriotic War" of the Soviet Union with many (non-digital) badges.

How do I prepare?

Read this section of the book

What do I do?

One topic you will come across at some point as a teacher or educator facilitating Blended Learning is *digital badges*.

Digital badges are a form of recognizing a learner's efforts and achievements. To understand the concept, think about the badges – physical signs of metal and textile – stuck to the breast of high ranking or well-performing military persons, most prominently in the Soviet Union. Or if you are familiar with the traditions of some youth scouts organisations: some of them hand

out textile badges that boys and girls can sew onto their shirts for achievements like lighting a fire or erecting a tent.

This concept has, beginning with about 2010, been introduced into online learning. It started from online games, where a user – identified through his or her user account – got awarded certain “badges” usually in form of images shaped like medals.

From there, the concept was transferred into online learning environments. Various systems were developed, both commercial and free, that should allow assigning “badges” for achievements to individuals across platforms. This means that these badges are not fixed to a certain environment, for example the Learning Management System (LMS - think of Moodle, Canvas, etc.) of a certain adult education organisation. Rather they are fixed to the individual user (i.e. his/her e-mail account), and different online learning environments (or education providers) are able to process these badges: they can create such badges fitting their courses, and assign them to their learners.

If you are working in an adult education organisation that provides online teaching (or Blended Learning) it is possible – but not obligatory – that your organisation uses such badges already. For example, Moodle has badges built in since 2012. Other such platforms such as Canvas also have them. It is, however, well possible that your organisation simply does not use them although it uses an LMS. (See below the section about problematic aspects of digital badges.)

(See Fig. 4.61)

You can also use the services of a number of companies and organisations who provide badges implementation either for free (in smaller quantities) or for paid subscription. Such organisations include Badgr (www.badgr.com)¹, Accredible (www.accreditable.com) and RedCriter (www.redcriter.com). These offer various services sometimes including an online application that helps do create nice looking images for the badges.

(See Fig. 4.62)

“Open Badges” is the name of a group of specifications and open technical standards originally developed by

¹ Badgr is an open source project started in 2014 to serve as a reference implementation for Open Badges.



Fig. 4.61 – Using the services of the Accredible company (www.accreditable.com) we quickly created this badge for potential use by the Blended Learning project. The idea is to assign it to people who in some way prove that they have read the book. But so far we only created the visual badge; we have not yet done all the other steps necessary. There is also a special technology (called “baking”) to include certain invisible data into the image.



Fig. 4.62 – If you find one of these logos on a website of an educational organisation, you know that they issue digital badges based on the Open Badges standards.

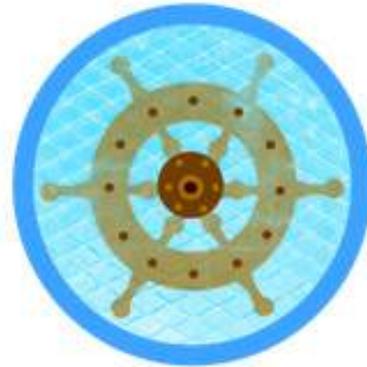
the Mozilla Foundation¹ since 2011.² The Open Badges standard describes a method for packaging information about accomplishments, embedding it into image files as a digital badge, and establishing an infrastructure for badge validation.

As you see from the above paragraph, we are here already deeply into technology relevant predominantly for IT personnel who has the task to integrate a badge system into some organisation's online learning environment. Most probably you are not such a person, and we will not dive deeper into these technological aspects. However, it is good to have an idea of the "ecosystem" (the network of stakeholders) that makes a badge system work. There are "issuers" (schools, adult education organisations, etc.) "recipients" (the learner), "displayers" (various websites and online environments where the badge can be shown, and "consumers", that's in this case people to whom the recipient (learner) will eventually show the badge to prove how skilled she is. This could for example be an employer.

(See Fig. 4.63

Back to practice:

Below you see a badge one of the authors of this book received while writing this book and testing various things:



- 1 Mozilla Foundation is a foundation in the USA. It was created to support free software products such as the Firefox Browser and the Thunderbird e-mail application. Income is generated chiefly through contracts with Google (and other search engine providers) who pay for their search engines being set as default search engine in the Firefox browser. For these contracts, Mozilla Foundation runs a 100 per cent subsidiary commercial company, Mozilla Corporation, with revenues of about 60 million dollars per year (data as of April 2019).
- 2 A paper titled An Open Badge System Framework published in 2011 by Peer2Peer University and Mozilla Foundation is commonly seen as a cornerstone of the development. See this article under <http://bit.ly/badgепaper4>.

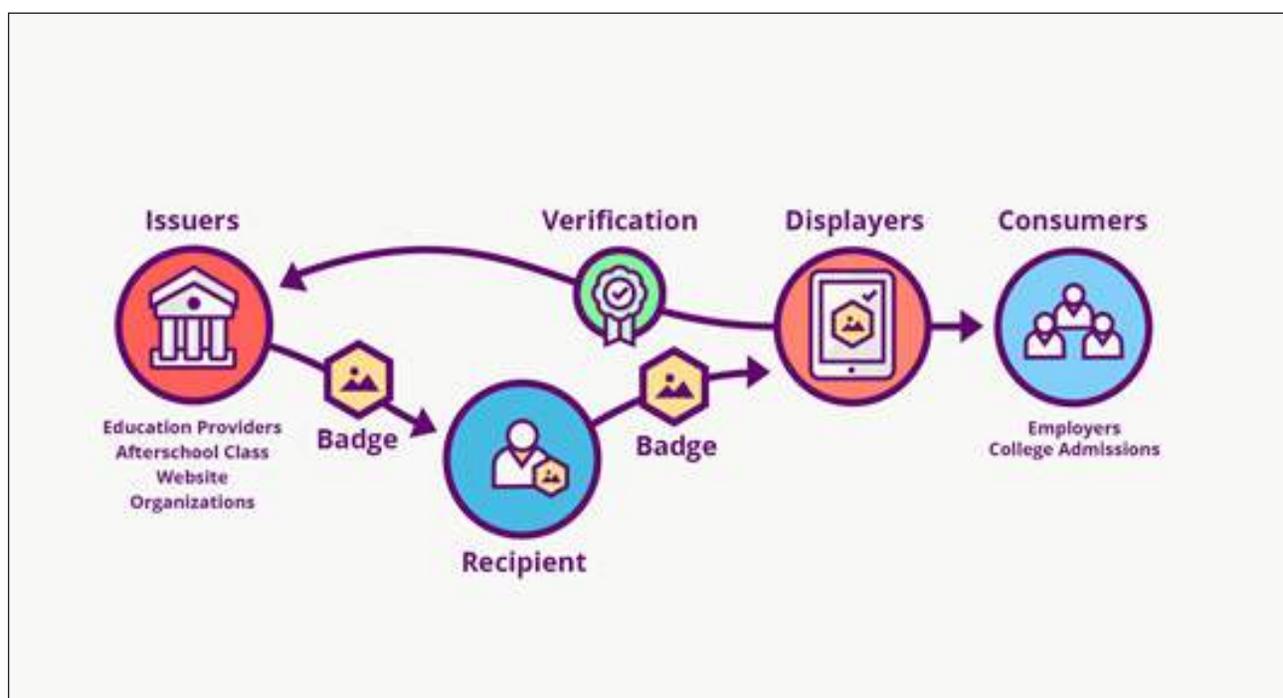


Fig. 4.63 – The Open Badges Ecosystem with the various types of stakeholders involved. (Diagram by Erik Knutson, Concentric Sky, licensed CC-BY)

This is a badge by the name of “Navigator”. The author of this article got it awarded after he fulfilled a number of tasks related to using an internet browser: tasks like typing an URL into the address field, re-sizing a resizable form field, and so on.

You can try this yourself. It will cost you 5-10 minutes:

- Go to <https://backpack.openbadges.org>
- and create yourself an account. This “Backpack” is used to store your badges. You identify yourself via your e-mail account.¹
- Go to <http://toolness.github.io/hackasaurus-parable/navigator-badge/#>
- This is a website giving you a quick task to fulfil, on completion of which you will get awarded with the “Navigator” badge proving that you have demonstrated to be able to use an internet browser skilfully. – This badge was created to give a simple example how such badges work. The badge you get will be sent to the “Backpack” mentioned above.

One important feature of digital badges is that their various claims must be verifiable. Therefore, each badge has a set of information fixed to it. For the “Navigator” badge this looks as follow:

(See Fig. 4.64)

- 1 Note however that this service is planned to be retired, and all accounts are going to be moved to the “partner” project Badgr (www.badgr.com). When we checked in Mai 2019, Backpacker worked still fine.

This includes information about the issuer (who awarded the badge), the awardee (who received the badge; here blurred out by the book editors for privacy), and what are the criteria for awarding the badge. To see these details, one can follow the links. (In this case, the “criteria” are simply the website where one can fulfil the tasks.)

Some or all of this information will be shown wherever the badge is displayed, but it is also stored within the digital badge’s meta-data (i.e. information hidden in the image) so it can be verified any time – even if you only have the image.

Problems

A dose of scepticism

Back to the general context. When you read information on digital badges published by organisations (companies included) who provide them, you will usually find an enthusiastic sermon on how useful badges are, especially how motivating they are for learners.

But it is important to look also at the other side. First, although there are many education providers who use digital badges, there are also many who don’t. Some out of inertia, some for good reasons.

Web Navigator



Remove this Badge 

Issuer Details

Name	Hackasaurus
URL	https://navigator-badge.hackasaurus.org/
Organization	Experimental Badge Authority

Badge Details

Name	Web Navigator
Description	Can operate a Web browser with celerity.
Awardee	 @web.de
Assertion	http://poof.hksr.us/elwjihxl
Criteria	http://toolness.github.io/hackasaurus-parable/navigator-badge/

Fig. 4.64 – Information given on the issuer of a badge, and other details. These data are stored in the badge itself and can be read at any time.

Criticism of digital badges points out that digital badges come with significant problems or question marks.

- Given the long history of physical badges in military context, some critics say that the proximity to military culture is unbecoming for the humanistic idea of education. Education should be a means of autonomy and emancipation of the human being, not of discipline and subordination.
- Badges have been criticized for rewarding tasks that are not inherently interesting to badge recipients. The argument is that badges are created to promote behaviour that aligns with the goals of the badge issuer, and not necessarily the badge recipient.
- Some critics have observed that badges are a type of extrinsic motivator that could compete with an individual's intrinsic motivation for accomplishment and mastery.
- A permanent problem of badges is their validity: can they be viewed as "trusted credentials"? For example, in fact the badge earner's performance is often not directly observed, so there could be some difficulty in making sure that the badge is awarded to the person who completed the assignment or met the specific criteria. Is an e-mail address sufficient to prove the identity of a badge earner?
- Some sceptics see the "gamification" of education critically. They feel that students would be driven to be concerned with earning the most badges rather than focusing on the material presented.
- There is also the danger of a slew of badges that do not mean anything at all, like earning a badge because your name starts with the letter A. Issuers may feel compelled to issue such badges just in order to keep learners (who might be paying customers) in good mood. The creation of these meaningless badges reinforces the issue of validity because now the badge earner needs to decipher which badges are valuable, and various institutions need to do the same.

Benefits

A positive perspective

After so much criticism, should we at all consider the use of digital badges in (non-military) adult education? There is at least one aspect that can be used for a strong argument in favour of digital badges in adult education:

For many years now the countries in the European Union have been trying to develop their education systems further in order to get away from acknowledgement of time spent in the education system ("she has passed a 5 years higher education course in xyz") to acknowledgement of concrete skills and competencies ("she has proven to be able to write a book that complies with scientific standards"), ideally independent of time spent in the system. This long-term goal, labelled "competence orientation", has proven to be difficult to achieve, especially as the idea is to create a uniform system of recognition of skills and competencies across all sectors of education (school, vocational, higher, non-formal, etc.) and to include also skills and competencies that have been achieved by the individual completely on herself, without the involvement of an educational institution. This overarching (dreamed of) system is called the *European Qualification Framework* (EQF), which breaks down into country sub-systems called *National Qualification Frameworks* (NQF).

One attempt to realize such a method of recognition of skills and competencies of the individual is the so-called *Europass* initiative to provide individuals with standardized documentation of their skills and competencies including CV, documentation of experience abroad, and various credentials about educational achievements and competencies, made comparable between countries. However, getting this system broadly accepted seems to be a very long process.

All the more it strikes the eye that digital badges actually deliver many of the things the EU countries try to achieve with these policies: they provide recognition of skills and competencies on the individual level; they are international; and they are independent of sectors of the education system.

Therefore, perhaps can digital badges become a step towards a common competence-oriented education system in European countries?

And in Reality?

What are we really doing?

So far for theory. Looking at practice can bring further insights. While writing this book, we quickly asked around at organisations involved in the project (and also one external) to see what role digital badges actually are playing in their everyday educational work. Here is what we found:

TU Dublin is clearly a champion in using digital badges: they use digital badges in a number of educational programmes implemented through both the Moodle and Blackboard systems. The programmes range from IT to Education/Pedagogy; and to more learner-focussed content such as Induction and Volunteerism. Badges are both pre-existing badges, and badges created for specific modules. Some badges have accreditation (or recognition) from discipline-specific professional bodies. Often the learners are awarded a number of badges per module, so for example if a learner has to do one activity (or milestone) for each week in a module, the learner may be awarded a badge per completed task. Students extol the virtues of digital badges, specifically mentioning that they aid in the pacing of a module, as well as giving a clear roadmap to the content associated."

VHS Hannover has a proprietary Moodle platform used basically for computer courses (computer literacy, IT) and as an add-on for some language courses. As digital badges are a built-in feature of Moodle, they

are available, however, they are not used systematically but perhaps by individual teachers who on a course-by-course basis decide to use them. Overall, the use of badges is currently a marginal thing at VHS Hannover. This has clearly also to do with the type of learners VHS Hannover has: they are interested in the actual topic they learn, and in the social experience with co-learners. Most of them would see digital badges as something from primary school where teachers gratified them with stars written into their notebooks for well-done homework.

Ljudska universa Žalec does not use badges so far.

Västerås folkhögskola is a Swedish adult education organisation providing many online and distance courses in a professional way, partly to enable people living in remote places to partake in their courses. Asked if they used digital badges, they answered us, displaying their typical humanistic Scandinavian understanding of education: *"Sorry, we do not make use of badges or other outside rewards, just the participants' inner pride and deep personal satisfaction."*

Online or Offline?

- Using digital badges somehow seems to be requiring an internet connection. Badges themselves (the images including the data hidden in them) can be stored on non-connected computers.
- Sewing textile badges for your classes can be a fun project, too.

4.6 Searching

Searching in the internet is sometimes an under-estimated activity. Many of us are so used to it in everyday life that we take it for granted and do not think about it very much. However, there are things to consider when internet search is used in a context of education and learning.

In this chapter we will focus on two different topics regarding internet search:

One is related to you as a teacher who wants to prepare e-learning materials for Blended Learning contexts. We introduce you to techniques of searching especially for multimedia content that you may not be fully aware of even if Google is your daily companion for quickly looking up something. Of course there would be much more to say. Take the section on multimedia search simply as an appetizer.

The second part of this chapter focusses on using the internet as a source of information for students, and thus as a method of learning through self-directed work. This is largely based on constructivist and connectivist concepts of learning: the claim that learning works best when a topic is not presented to students as a ready-made unit; rather students should explore things themselves step by step, in their own way and pace, and thus construct their own understanding related to experience they already have as the individuals they are; and that learning should make use of networks where people mutually recognize and apply their different pre-existing knowledge and competences. One form of leading students into such self-directed learning activities are Web Quests. You will learn about them in the second part of this chapter.

4.6.1 Searching for Multimedia Content

Multimedia is a frequently used word today. But what does it actually mean? Here is a short definition: "Multimedia is content that combines different forms such as text, audio, images, animations, video, and interactivity." In contrast, traditional media concentrates on one form of content delivery. (Hence one could call them "monomedia"). For example, newspaper publishers once concentrated on information printed with ink on paper. Music cassette producers sold magnetized plastic ribbons that could be used to reproduce sound. With the advent of computers in everyday life, the separate media started to merge, giving rise to "multimedia": a form of delivery that uses virtually all possible channels simultaneously. One day, sensory and olfactory channels will be used, too.

So, in a strict sense, multimedia is a word for media that use multiple channels (or "modes", as communication and education academics call it) to address multiple human senses: show a text, include a movie, let the user do something (interactivity), and so on. That's the narrower meaning of the word. In a broader sense, the term "multimedia" is also used as a short word for "pictures, videos, audio etc." without these modes being necessarily combined. "I use multimedia in my lessons" often means simply "I hand out written material, I draw pictures, and I show movies."

In this section we will look at two different approaches to retrieving specific multimedia content from the internet. First we will look at searching for images using the TinEye Multicolr (<https://labs.tineye.com/multicolr/>) search tool. Second we will look at a search tool for multimedia content (<https://search.creativecommons.org/>) licended for free use.

What do I need?

- A computer
- Internet access
- The TinEye Multicolr site:
<https://labs.tineye.com/multicolr>
- Creative Commons search:
<https://search.creativecommons.org>

Where to look for help?

Helpful websites

- The TinEye help page:

<https://tineye.com/how>

- The TinEye API:

<https://services.tineye.com/TinEyeAPI>

Useful books

- Simone Aliprandi (2011): *Creative Commons: A User Guide*. Ledizioni Publishers.
- Sarah Pearson, Paul Stacey, and Sarah Hinchliff (2017): *Made With Creative Commons*. Ctrl-Alt-Delete Books.

How do I prepare?

- The first thing to do is decide what type of content you are looking for. Be as specific as possible. If you are looking for an image, sketch on paper what you would like to find; if audio or a movie, note down a sentence or two about what you want it to contain. (These are simple techniques to become aware of your ideas and intentions. Some people do not need this, for others it is helpful.)
- Next decide what impact you want the multimedia to have on your learners, and well as what mood you wish to set by using it.
- Determine how much storage space you have available to store this content.

What do I do?

1) Image Search by Colour

- Go to the TinEye Multicolr page.

<https://labs.tineye.com/multicolr>

This site allows you to search images by colour. The site uses the picture database of Flickr (a large pictures and videos sharing website).¹

- Click on one colour on the colour palette:



Each colour you add will appear in the “Slide Dividers” beneath the colour palette:

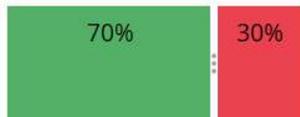


- Also images of that colour will appear in the main window
- Click on another colour on the palette and it will appear in the “Slide Dividers”

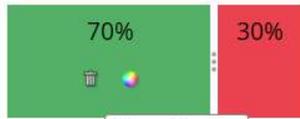


- The main window will have images with 50% green and 50% red content
- If you wish more green than red, slide the bar in between the two colours to the right:

¹ In June 2019 it was not possible to find this service via the www.tineye.com start page, but the direct link as stated above was working.



- The main window will now have images with 70% green and 30% red content
- If you wish to remove the green, and just leave red, place your mouse pointer over the green block, and two small icons will appear:



- The first icon, the dustbin, will allow you to delete that colour.
- The second icon will let you change the brightness or darkness of the colour:
(See Fig. 4.76)
- You can add up to five colours in each search.
- Underneath the "Slide dividers" is a text box that you can type in a word to further refine your search.
- The result you get may look like the image below; results of a TinyEye Multicolor search where we asked for pictures with 50 % yellow and 50 % blue.

(See Fig. 4.77)

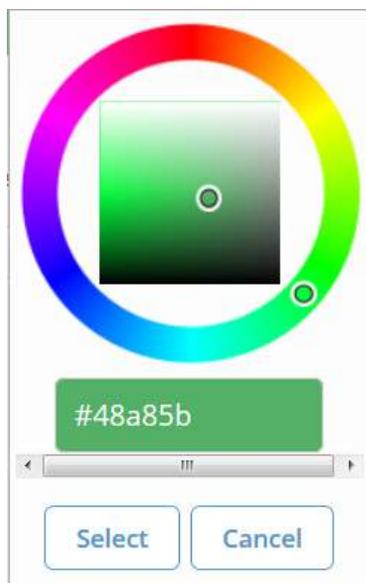


Fig. 4.76 – TinEye colour selector wheel.

2) Search for Creative Commons Licensed Content

When searching for pictures, videos and audio on the internet you cannot always use what you find in your classes or your Blended Learning materials because authors may not grant you the right to use it (or only when you have a contract with them). That's where Creative Commons licensing comes in again. (For details on this see Section 3.4.) There is a website that offers search for visual and other material with special preference on material that can be used under a CC licence.

- Go to the Creative Commons search page:

<https://search.creativecommons.org>

- Using this site, you will be able to search for a range of multimedia content. The clue is: this search engine looks especially for content that is (likely to be) CC licenced, i.e. it is legally available to you to be used for developing educational content. (For details on CC see Section 3.4.) Content that isn't legally licensed won't appear. Or at least that's the idea. The Creative Commons organisation that runs the website recommends its users to individually check the licence status of material retrieved, to be on the safe side.
- The site does not present you the result directly. Rather, you will be redirected to one of the site's source sites (see list below), on which a search is ex-



Fig. 4.77 – Result of a picture search by colour, with settings 50 per cent blue and 50 per cent yellow.

ecuted with special parameters to possibly restrict results to such with Creative Commons licence. Such a search string can for example look like this (here we searched for European cultural heritage pictures of hamsters): *Hamster AND RIGHTS:*creative* AND NOT RIGHTS:*nd**

- Search will be based on a range of websites with media repositories including:¹
 - Europeana.eu – the EU site for cultural heritage, including images, audio, documents, and video.
 - Flickr – video and image hosting site.
 - Google – text search.
 - Google Images – Google image search.
 - Jamendo – a music hosting site.
 - Open Clip Art Library – an image library (openclipart.org)
 - SpinXpress – an image and audio hosting site
 - Wikimedia Commons – has text, images, audio and video
 - YouTube – a video hosting site you may have heard of
 - Pixabay – an image and video hosting site
 - ccMixter – a music hosting site.
 - SoundCloud – a music hosting site.

To summarize: the Creative Commons Search website gives you quick access to various online databases with multimedia content, with a good chance to pick material you are allowed to use in your lessons and for your blended teaching material to to Creative Commons licensing.

Teaching Benefits

For certain learners, there can be great novelty and thus motivation in using multimedia content. For others, it may be confusing do deal with so much new things at once. You are the teacher or learning facilitator. You should know what is good for your learners.

- When explaining intangible concepts, like magnetic fields, animation can help learners to get the idea.
- Multimedia content can appeal to a wide range of learners, including those with a range of language abilities
- Multimedia content can encourage discussion and feedback
- Multimedia can help make learning personalised.

Common Mistakes to Avoid

When using multimedia content, always ask yourself, what is the educational value of each element? It is very easy to add a wide range of multimedia content to teaching materials, but they must have a purpose to help the learners learn, so don't add content unnecessarily.

- There is no need to clutter all the multimedia content in one place. You should spread the multimedia content over the lessons.
- Make sure you have the hardware resources (memory, and processor power) to store and display the multimedia content.
- Make sure you have the correct viewers and players available for the learners to interact with the multimedia content.
- Read one of Edward Tufte's books.

Online or Offline?

- If you want to distribute multimedia content offline, you can copy the content onto a USB memory stick and hand it out in class.
- If you and your learners have access to the internet, you have a lot of options to distribute your multimedia content to your learners. You can share it with them using cloud storage (e.g. Dropbox, Google Drive, AWS, etc.), you can email it to them, if you have a website you can upload it there, or to a Virtual Learning Environment (e.g. Moodle, Blackboard, and Edmodo).

¹ Information as in autumn 2018. In the meantime (May 2019) the website has developed further. The „old style search“ that included buttons to select these sources, is available only as a secondary option.

4.6.2 Developing a Webquest

If you have been in contact with pedagogical studies in the past decade, you'll be familiar with notions such as critical thinking, co-operative learning, digitalisation and authentic assessment. You have heard of the learning theories of cognitivism, constructivism, and recently also connectivism. If you are like many educators, you feel positive about new ideas for helping learners learn; but then you ask yourself how you could implement these abstract ideas in your everyday practice? Being motivation-rich but time-poor, how can we add these concepts in our adult education activities? Here is a suggestion: try webquests.

Webquest – that's a name for a method to facilitate learning processes in groups by bringing together the most effective instructional practices into one integrated learner activity based on self-directed exploration of a topic. Wow. That sounds complicated. So what is it, actually?

In a more everyday type of language you could say: a webquest is research done in groups of learners using all possible sources of information, most prominently the internet (simply for practical reasons: the internet provides vast amounts of information instantly). Some call webquests a learning facilitation strategy. As the word "web" suggests, the internet is part of it; but so is also cooperation and exchange with others. These two things together make webquest a natural candidate for Blended Learning activities.

Webquests as a form of learning activity were developed starting from 1995 by a number of educators including Bernie Dodge and Tom March around San Diego State University, California. Since then thousands of teachers have embraced webquests as a way to make use of the internet while engaging their students in the kinds of thinking that the 21st century requires. The model has spread around the world, so far especially to Brazil, Spain, China, Australia and the Netherlands.

In what follows we approach the topic in three ways:

First, we outline a bit more of theory why webquests are a good learning tool aligned to the ideas of constructivism and connectivism.

Second, we present a simple form of a webquest (so simple that it almost does not deserve the name) for a short Blended Learning activity. This can be implemented as part of an ordinary classroom teaching lesson, or

as Blended Learning homework plus subsequent presentation and discussion in the classroom.

Third, we relate you to some databases where you can find more elaborate webquests so see real-world examples beyond the superficial insight we can give you in this book. These are descriptions of blended learning activities that can take up to a week.

The Theory Behind Webquests

Webquests are good learning tools because they use and promote learners' intrinsic motivation, learners' cognitive competences, and learners' ability to co-operate with others.

a) Motivation

Motivation is key to learning. WebQuests use several strategies to increase student motivation.

First, good webquests use a central question (task) that honestly needs answering. Students are asked to understand, hypothesize or problem-solve an issue that confronts the real world, not something that only carries meaning in a classroom.

Second, when doing webquests, learners use real-world resources of information, not dated textbooks. Students can directly access individual experts, databases, current reporting, and even fringe groups to gather their insights. Seen under this angle, doing a webquest with learners is like making them act as investigative journalists.

Third, when students take on roles within a cooperative group, they must develop expertise on a particular aspect or perspective of the topic. Their teammates count on them to bring back real expertise, and this boost motivation.

b) Thinking skills

Built into the webquest process are strategies of cognitive psychology and constructivism. The question posed to students can not be answered simply by collecting information and spitting it back. A good webquest forces students to transform information into something else: a comparison, a hypothesis, a solution, etc.

However, learners should not be left completely alone with the task. You, the facilitator, should help them by breaking the task into meaningful chunks. You can advise them to undertake specific sub-tasks, to help them step through the kind of thinking processes that more experienced people would use. This form of support is called scaffolding. The challenge for you as an adult educator is to know your learners and their abilities very well so that you can provide suitable scaffolding to them.

Constructivism claims that learning is a process in which the individual extends her existing knowledge by actively dealing with new situations. What students need are many examples with lots of information and opinions on the topic through which they will sift until they have constructed an understanding that connects to their individual prior knowledge. Webquests offer exactly such a rich playing field related to real-world tasks.

c) Co-operative learning

In good webquests, students cooperate in small groups to solve tasks with distributed responsibilities. This allows webquests to tackle large, complex and controversial topics. (Think of climate change, abortion, or the social responsibility that comes with wealth.) Nobody can be an expert in all relevant aspects of such a topic, but everybody can concentrate on one aspect, and contribute expertise. This teaches also a lesson about how knowledge is organised in society in general. Moreover, if you run several webquest groups in the same class, students will also see that teams come up with different solutions.

Summary

Putting the fancy word “webquest” aside, if you had to describe a webquest to your colleagues in standard terms, you could say:

“I am doing with my students a form of project based learning. They get tasks they have to solve, ideally in groups. A larger part of the task is related to finding and assessing information; we mostly use the internet for this, but they can also use other resources, for example the municipal library, or interviewing experts or whatever. Based on their research, they have to produce something, usually a written document like a

report or an article. The idea is to work self-directedly, and in teams, and the task they get should be relevant for them, so they do it with intrinsic motivation, not just because I say so. So, these are actually research projects with the purpose of exploring a topic. Depending on the topic, this can be done in one hour, or it can last several days.”

Examples

To give you some examples, here is a list of webquests prepared by teachers at colleges and universities in the USA in recent years and published on the Questgarden website for the benefit of everybody who wants to use (or further develop) them.¹ We filtered the database for webquests made for an adult auditory (as opposed to students at school), dealing with the broader subject of economics and business.

Aesthetics and Visual Design in Word Processing

You know good design when you see it. Let’s enhance your intuitive ability with a framework of principles on message and communication theory, design theory, and colour theory.

Macroeconomics

The economy is a complex being. In the blink of an eye, a booming economy can be hit with a crippling recession. For centuries, economists have been left wondering what is in charge of the market and how they can modify it. The goal of this webquest is for students to create an in-depth economic analysis of different aspects of global economies and determine what factors are helping and which ones are hurting them.

Pizza Project – Entrepreneurship Training

The purpose of this webquest is to teach students about some of the challenges that face entrepreneurs starting a new business including ways to identify a market, reach the market, and keep the market. The webquest follows many of the National Business Standards. Work is done in teams.

Build Your Budget! – Financial Skills Training

Building Your Budget! is designed for students to learn, understand and practice the basics of building a realistic budget, and sticking to it. Students will learn

¹ <http://questgarden.com>

to evaluate all aspects of their spending, and create reasonable spending boundaries based off of their predicted income.

Our recommendation is: visit the website, filter the webquests for a topic of your interest and read through four of five of them (Intro, Tasks, Process, Evaluation...). This will considerably improve your understanding of the idea of webquests.

Here are now some more practice-oriented tips:

What do you need?

- Your learners should have computers and internet access.
- Good webquests are complex and need time. Although it is possible to create very simply webquests that can be solved in an hour, the idea is rather to explore a topic more deeply, so 2-3 days of work for the learners would be a good orientation

Where to look for help?

Internet resources:

- The article *Why WebQuests* by Bernie Dodge and Tom March (the fathers of the webquest idea):
https://www.internet4classrooms.com/why_webquest.htm
- Web quest databases to look up good practice examples:
<https://www.quickbase.com/articles/the-complete-guide-to-creating-web-quests>
<http://questgarden.com>
- The Webquest Generator, an online tool to quickly draw a plan for a simple webquest:¹
http://www.teach-nology.com/web_tools/web_quest

¹ Teach-nology is a website with online resources for teachers. Its services are free of charge. The service is financed via advertising and sponsorship. It is run by a small company in New York, USA. The website provides a broad range of materials and tools (in English), for example more than 30 000 ready made lesson plans in various subjects relevant for school teachers. –Just when we checked the WebQuest generator in Mai 2019, they had a programming problem on their site, and we are not sure when they will fix it.

Books on the topic:

- Margaret M. Thombs, Maureen M. Gillis, Alan S. Canestrari (2008): *Using WebQuests in the Social Studies Classroom: A Culturally Responsive Approach*. Corwin Publishers.
- Charles Wankel, Patrick Blessinger (2012): *Increasing Student Engagement and Retention using Online Learning Activities: Wikis, Blogs and WebQuests*. Emerald Group Publishing.

How do you prepare?

- The best thing to do first is developing a better understanding of what webquests are. This description here will definitely not be enough. You will need to see at least three or four real-life examples. Therefore we strongly recommend you to visit one of the various webquest databases. These are websites where people publish their webquests for further use by others (addresses mentioned above). – With that understanding, the following steps become self-evident:
- Choose a topic for your webquest. For example, if your task is to lead a group of young adults through a process of learning how to make a business plan, then “Create a business plan” can be your topic. Depending on circumstances, you would narrow down your topic (“Create a business plan for a new pizza restaurant in your city”), or leave it open to increase complexity.
- Be aware that webquests can be as short as for one hour, or as long as for two weeks. It simply depends on what you are planning.
- Break your topic down into manageable chunks that you can explain to your learners (see below, part “Process”). As part of this you will probably also identify a series of resources (online, or what ever is available) that will help students fulfil the task and thus automatically learn about the topic.

What do I do?

Without this being a necessity or dogma, it has become a tradition to use the following structure to setup and present a webquest:

- **Introduction:** provides the learners with background information: what is this webquest about, and why are we going to do it; what is the purpose general problem to be addressed.
- **Task:** a summary description of what students are expected to do. – A good webquest offers a task that needs, for solving, thorough investigation of various topics. Moreover, a good webquest makes learners work cooperatively in groups with distributed roles for the individuals. However, there are also many webquests out there made to be solved by single learners, without much interaction with peers. That's not the exact idea of a webquest, but, well, the world is not a perfect place...
- **Process:** This is the breakdown of task in single steps, in detail. Here you provide learners with all information they need for getting started, and for working through the various phases of the task. This can be detailed description of sub-tasks, hints for helpful sources of information, and general requirements for the product students are invited to deliver. Also you would ideally include advice about distribution of work to different people in the team. (For example, in a webquest with the aim of developing a business plan for a new restaurant, teams may consist of a boss, an office manager, a marketer and a finance guy.) You can offer advice on how to manage time, collect data, and provide strategies for working in group situations.
- **Resources:** Links to websites and videos, or clues to tools that will help learners complete the task. (If not already included in the "Process" part). Sometimes it can be necessary to provide materials such as prepared readers with crucial information on a topic, a glossary of core terminology to get acquainted with, mathematical tables or other things for download.
- **Evaluation:** Here you lay out your criteria: what is needed for the webquest to be considered well-solved? For example, if part of the solution is providing a written document (as essay, a business plan, a news article, a CV...), probably correct spelling and grammar are first (but not sufficient) requirements

for a good rating. Criteria really depend on the topic. – It is common practice to organise criteria in form of a table, like "solved excellent if...", solved acceptably if... solved badly if..." (see examples in webquests published on <http://questgarden.com>).

- **Conclusion:** Here you sum up the task.

You find an example for a webquest described in a grid like this on the next pages. But do not take this as mandatory or as too prototypical. You can of course use a completely different system of describing the task to your learners for organising their work.

Teaching Benefits

- Webquests can be a novelty and thus a source of motivation.
- They encourage learners to develop independent study skills.
- They encourage a structured use of web resources.
- They accommodate a wide range of learner needs.
- They can be done individually or in groups.

Caveat: as a teacher in adult education, you probably have already understood that the concept of webquests was developed initially mostly in traditional school environment. Webquests are certainly not appropriate for all groups of learners in your adult education centre because often your participants prefer other forms of interaction. However, for certain groups of learners and for certain subjects, webquests may anyway be a suitable method.

Common Mistakes to Avoid

- Try to make sure each of the phases are clearly explained, and the "Process" phase covers enough information to complete the task.
- Ensure all learners have access to computers and sufficient connectivity to complete the WebQuest
- Try to make sure the students don't lose focus and end up wandering around the internet with no purpose

- The first webquest needs to be easy to complete, and a success for all learners, otherwise some will be put off.

Online or Offline?

Learners need internet access to do the research part of a webquest. – If the webquest is part of a Blended Learning arrangement, this is of course anyway a given.

On the next page you find a template you can use to quickly create WebQuests for your learners.

The form is also included in the collection of supplementary documents to this book:

[BL_Sup02_WebQuestTemplate.docx](#)

Webquest		
 Quality Blended Learning	Title	Blended Learning - What is it?
	Subject Area	Pedagogy / Andragogy
	Tutor	Franziska Maier-Müller
	Academic Year	Spring 2019
1. Introduction	<p>“Blended Learning” has become something like a buzz word. But not everybody has a clear idea what it actually is, or what people who use it mean by it.</p>	
2. Task	<p>Do research in the internet to find out what Blended Learning is.</p> <p>Then, write a short article of 150-200 words, like for a dictionary, to explain it.</p>	
3. Process	<p>Search in the internet for suitable sources.</p> <p>Read them, and take notes of things that seem important to you.</p> <ul style="list-style-type: none"> - Don't copy-paste. Your article must be your original work. - Write an article (150-200 words) to explain “Blended Learning” to a broader, average public. You have 60 minutes for research and writing. - Print your article 	
4. Resources	<p>You can use whatever internet resources you think are useful.</p> <p>You may start with</p> <ul style="list-style-type: none"> - Wikipedia - A general search engine such as Ecosia or Google - The website www.blenditwell.eu 	
5. Evaluation	<p>When you are finished, we will gather in the classroom, (anonymously) compare them (method for this will be explained by teacher) and discuss which is best, and why.</p>	
6. Conclusion	<p>Do we have come to a comprehensive and consistent idea of “Blended Learning?” - Let's discuss.</p>	

Fig. 4.78 – Example for a very simple WebQuest concept, using the WebQuest planning form available next page.

WebQuest	
<Picture illustrating the topic >	Title
	Subject Area
	Tutor
	Academic Year
1. Introduction	
2. Task	
3. Process	
4. Resources	
5. Evaluation	
6. Conclusion	

Fig. 4.79 – You can use this form to create a simple WebQuest activity for your learners. (You can do this of course also without this form; the form is meant only to remind you of the most crucial issues to be thought about.) This form is available also in the collection of forms (supplement to this book) at www.blenditwell.eu/handbook/templates/BL_Sup02_WebQuest.docx



5. The Blended Learner

*The mind is not a vessel that needs filling,
but wood that needs igniting.*

Plutarch – De auditu

The Blended Learner

One of our jobs as educators is to equip our learners for the future. Ensuring that they have the ability to use online content in the most useful way possible is crucial. Many learners will have familiarity with the online world, but possibly as a casual user rather than in a teaching and learning context. They may therefore have developed attitudes and strategies that are ineffective for Blended Learning in a teaching and learning setting.

For example, learners who are familiar with sending emails to their friends might potentially have the habit of using casual language, or abbreviations (sometimes called “SMS language”), which might not be acceptable in a teaching and learning context. In addition, learners may consider it acceptable to be excessively critical of others on social media, and think that attacking some-

one’s character is acceptable, which definitely is not acceptable in a teaching and learning context. Finally, learners who are using the internet to search for content may have become used to picking the first article related to that topic, irrespective of whether or not that article is authoritative, which might not be acceptable in a teaching and learning context.

In this chapter we will look at some of the key online skills that need to be taught to learners, particularly in a teaching and learning context. It might be the case that your learners already have some of these skills, and if you feel they are sufficiently equipped in a particular skill, please feel free to skip that section of this chapter.

The Six Key Skills of the Blended Learner

	Basics Learning to use a mouse, point-and-click, drag-and-drop, double-click.		Referencing and Citation Correct referencing and citation of both offline and online content.
	Conducting Yourself Online Understanding how to interact and react online in a learning context.		Notetaking How to take effective notes for offline and online content.
	Assessing Online Content Questioning the authority and accuracy of online content.		Team work How to work in an offline team, and the additional challenges online.

5.1 Computer Basics

Sometimes it seems that all learners have very good computer skills, but this is not always the case. Lack of computer skills can be a significant barrier for learners to successfully engage in Blended Learning. You do not want your learners sit alone at home and struggle with basic operations.

Giving advice how to teach computer basics to beginners is clearly a task beyond the scope of this book. There are other books out there, doubtlessly also in your home language.

Here is a simply a list of things a participant in a Blended Learning setup should be able to do:

- Switch a computer or mobile computing device
- Have a basic idea what an operating system is and what it does
- Use a mouse (behaviour of the mouse pointer)
- Use a touch screen (various universal gestures)
- Use a keyboard. – Being able to use all ten fingers (“touch typing”) is already the master class here.
- Use text processing software (such as OpenOffice Writer or MS Word) to produce simple documents

- Know what an internet browser is and how to use it
- Have some experience with online communication tools (chat tools, messaging tools, e-mail etc.)

Useful is also

- Have some understanding how content in the internet is created: by whom, and why, with what intent. Is everything that is said in the internet true? How can I assess the reliability of information?
- Be self-confident enough to explore new software tools without the help of a teacher.

Therefore this section will outline an approach to teaching the basic computer skills. If all of your learners already have these skills, please feel free to skip this section.

We think it is best to start with the basics when explaining to the novice learners how to use a computer, so you may want to explain the use of: let us start simple:

5.2 How Learners Should Conduct Themselves Online

The learners may or may not have experience online, but we want them to think about these blended activities as very different from their normal online activity, the same way that reading a book for study is different from reading a book for pleasure. We need them to think that each time they are going online for blended activities that they are representing your organisation, particularly if they are using your organisation’s equipment to go online. The basic rule of online conduct is to treat others as you would have them treat you, and below we are suggesting a series of ten specific suggestions for good online communication:

Using email

Another technology that learners will use as part of a Blended Learning experience is email. It is such a com-

monly used technology that many learners will have used it casually already. However, again we need to remind them that when they are using email for educational purposes they should communicate in a professional manner.

Digital Identity

A digital identity or cyber identity is the online presence of an individual, including any social media accounts, any pictures, any email accounts, any accounts for online interaction with government bodies and/or other organisations. Our digital identity is a dynamic and changing thing. There are a wide range of places data about us is being stored: organisations store data about us, our browsers store data about us, our computer and mobile devices store data about us.

As mentioned in Chapter 3 digital identity can be divided into four distinct concepts:

- *Digital footprint*
- *Digital reputation*
- *Digital shadow*
- *Digital tattoo*

Some general advice about digital identity management includes:

- If you create a social media account and later decide that you no longer wish to use it, do not just abandon it, make sure you delete it.

- Learn how to use the privacy settings on all the various social media.
- Google yourself regularly to make sure there is nothing coming up that you do not want.

Sometimes learners have an unquestioning faith in online services, and are surprised when services like Dropbox or Google Drive become temporarily unavailable. Therefore we would always remind them that it is important to make a backup of all important material. There are multiple ways of doing that, from emailing themselves that material, to using cloud storage, to backing up using USB memory sticks.

(See also next page, Ten Commandments of Online Communication.)

5.3 Assessing the Quality of Online Content

Before the creation of the World-Wide Web, the main source of information that learners had were libraries. The quality of content in libraries is very high, which stands in stark contrast to the highly variable quality of information that is available online. Learners need to develop a new set of skills when engaging with online content. These skills are sometimes called “Information Age Skills”, and they include things like:

- **Discernment:** The ability to know what you are looking for, and recognise it when you find it.
- **Searching:** The ability to find what you are looking for using a range of search techniques.
- **Monitoring:** The Web is changing constantly, the nature of the information you require changes constantly, so searching for what you need to know is an ongoing activity.
- **Just-in-Time Learning:** The quick, continuous learning and unlearning of new skill sets.

It is important that the learners have some appreciation of how search engines work and therefore understand why they are getting the results that they do when they run a search. The web is not centrally developed or catalogued. Individuals and organisations all over the world are adding content to the web and because there is no central catalogue of what has been added (or removed) the search engine companies have to run computer

programs that jump from website to website looking for new or changed content. Once the list of websites are compiled, the search engine company has to decide an ordering of that list (trying to rank the list from highest quality to lowest quality websites). The search engine companies have specific rules as to how they determine what represents a high-quality website. One of the key rules that many search engines use to rank a website is that they look at how many other websites link to that website. The assumption is that if many websites link to that site, it must have good content in it. Unfortunately, no matter how good a ranking process is, there will always be some excellent websites that are not ranked as highly as they should. Therefore the learners should be willing to not simply look at the first few results of a search, but to look at the first few pages of results. It is worth noting that many search engine companies accept payments from organisations to rank their websites more highly, as well.

To help learners develop a critical eye on the contents of a website we think the two-page check sheet developed by researchers Damian Gordon and Ciarán O’Leary¹ (starting on the following page) is extremely useful. We recommend you to ask your learners to complete this check sheet a few times, each time on a different website. Then after a while the learners will internalise the questions and become more discerning about the quality of the websites they are reading. The check

¹ Gordon, D., O’Leary, C. (2003): *Zen and the Art of Web Site Evaluation: Tools to Assist in the Successful Development of an eLearning Portal*. CAL 2003, Queens University, Belfast.

1. Do not use **CAPITAL LETTERS** in online communication. It is the equivalent of shouting at someone in the offline world.
2. Do not post anything online that you would be embarrassed your family to see.
3. Do not personally attack people online. You can strongly disagree with people's ideas, but never call people names or insult them.
4. Do not post copyrighted materials online. You might get in trouble, and the online site where you post it, too.
5. Do not criticise people for their spelling or grammar. You do not know what their native language is, and you do not know if they have dyslexia or another specific difficulty.
6. Do not use rude or coarse language.
7. Do not post pictures online unless you have permission of everyone in the picture to do so.
8. Do not write long, rambling essays; try to be concise and to the point.
9. Do not overshare personal information. People can use it to harm you and your family.
10. Do not ignore the *Rules of Conduct* and *Community Standards* on given online sites.

sheet has divided the analysis into four categories, as presented below:

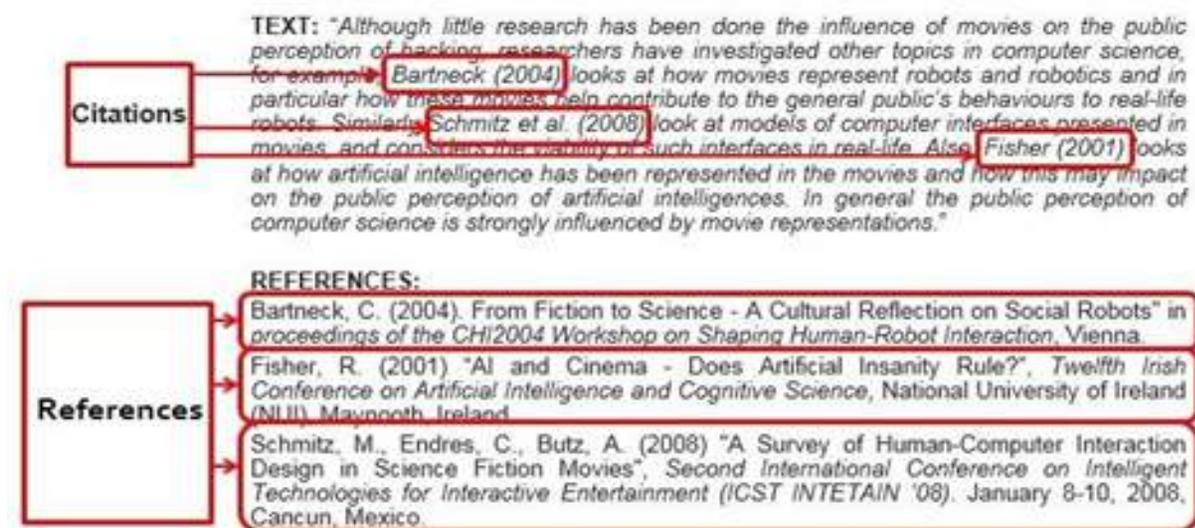
- **Content:** What type of information is on the site and is it useful?
- **Format:** Is the layout of the site effective and easy-to-read?

- **Technical:** Is the site compatible and does it have useful technical features?
- **Authority:** Is it clear who created the site and what perspective they represent?

5.4 Correct Referencing and Citation

Part of the job of a learner is to read teaching and learning content, to summarise, and to reflect on that content in their assignments. To identify the content that the learner has read they normally have to do two

things. They have to put a label in the body of their text (called a citation) and at the end of the assignment, the learner lists details about the teaching and learning content (called a reference):



This of course is chiefly a concern of learners in academic of some kinds of vocational training, not that much of learners in typical adult education situations.

In academic writing, there are many very detailed rules as for how to cite and refer correctly, the rules being different for different branches of academic studies and even for different journals and publishing houses. Referring them here does not make sense. The teacher, who usually will have academic training, will be able to explain the rules to learners where necessary.

Here are, just as an example, suggestions how to cite in an orderly manner:

Citations

To cite in text:

Cite the name of the author and the date published or last revised:

(International Narcotics Control Board, 2017)

References

To reference a website:

Author/Article title, Year, Publisher, Date of Publication, <Retrieved from URL>

International Narcotics Control Board 2017, United Nations, accessed 1 October 2017, <www.incb.org>

To reference a book:

Last, First, Year, *Title*. City: Publisher.

Smith, Henry, 2017, *The Ambassadors*. Rockville: Serenity.

To reference a research paper:

Last name, First initial, Year published, Title of Paper or Proceedings, *Title of Conference or Journal*, Location, Place of publication: Publisher.

Cloyd, A.M., 2017, "Surveying Students: A Look at Citation Habits of College Students", *EasyBib Info Lit Conference*, New York City, 2014. New York, NY: EasyBib Publishing.

Plagiarism

Because there is so much free content available to learners online, they can become tempted to simply copy-and-paste text without referencing the source of that text. We have to emphasise that they actually get more credit if they locate quality content online and either quote it, or restate it in their own words, and cite

the source. One of the most important skills a learner involved in Blended Learning can develop is the ability to engage with other people's ideas by reading about those ideas online or hearing about them in videos. It is very important that they learn to give credit where it is due, in accordance with the scholarly method. Various definitions exist as to what plagiarism is, including that it is "*regarded as either intentionally or unintentionally the 'passing off' of others' work as one's own. This includes the using of others' ideas, information presented or accessed in either visual or audio formats and asking or paying another to produce work.*"¹

Our purpose in reminding learners about plagiarism is not to catch them out. It is to teach them the correct teaching and learning behaviour and conventions of referencing.

Below is a quiz you can give to the learners to check their understanding of plagiarism:

Table 5.1. – Plagiarism Quiz

	Scenario	Is this OK?
1	Copying and pasting text from online content without acknowledging its source	
2	Copying and pasting text from online content with a citation at the end, e.g. (Smith, 2006)	
3	Half-copying the author's sentence – either by mixing the author's phrases with your own without using quotation marks or by plugging your synonyms into the author's sentence structure without acknowledging its source	
4	Copying and pasting text, and putting it in italics, with quotation marks (" "), with a citation at the end, e.g. (Smith, 2006)	
5	Restating the author's views in your own words without acknowledging its source	
6	Restating the author's views in your own words with a citation at the end, e.g. (Smith, 2006)	

Answers:

- 1) No – This is obviously not OK.
- 2) No – If the learners do not put it in quotes, they should not just copy-and-paste, they should restate
- 3) No – Not Okay, and very underhanded
- 4) Yes – This is Okay, but we do not want too much of this.
- 5) No – This is just as bad as the first one

- 6) Yes – This is the best one, we want to hear the learner's own words and opinions, informed by their reading.

1 D.I.T. General Assessment Regulations, <http://www.dit.ie/services/academicregistrar/student-assessment-regulations/general/>

5.5 Successful Note Taking

Another key skill that learners need to develop is note-taking. It is a skill that is rarely taught but a useful skill for learners to have. One of the most difficult issues to decide about notetaking is how much detail is necessary for good notes; should your learners take down every word said, or just the key words, or somewhere in between? For us the answer is somewhere in between. They need to be discerning in what they write down. The types of things we recommend they write down are: the ideas that are new to them, the facts that might be asked on an exam or would be useful for an assignment, and most importantly that they write down things (in a classroom setting or a webinar) based on the verbal cues of the educator.

Cornell Note Taking

Cornell Note Taking is a method of notetaking when the learner fills out the main body of notes during a lesson..

If at any point during the lesson (or later when reviewing the notes), the learner comes up with a question or memory aid (a diagram, a mnemonic, an acrostic, an acronym, or an association) they write it in the left hand margin. When revising the content, the learner writes a 2-3 line summary of that page on the bottom of the page.

This approach helps the learners to create effective notes, encourages them to revisit their notes a few days after they have taken them, to complete the summary section, and therefore encourages good study habits. We recommend that the learners feel free to change the Cornell Note Taking system to suit their own preferences. A template for Cornell note taking is provided after the next page.

5.6 How to Work Effectively in Teams

Working in teams is seen as a necessary key skill for learners to develop, and can be a very effective approach to learning. Although sometimes people distinguish between the notion of a team (formed to achieve multiple goals) and a group (formed to achieve a single goal), in this document we will use the terms interchangeably. In 1965 psychologist Bruce Tuckman¹ developed a model of four phases that all teams must go through to become effective:

Forming

This is the first stage of team development. At this point the team members are polite to each other and usually reasonably positive. Some members of the team are worried about the task ahead, whereas others are looking forward to it. The team must define their individual roles at this stage and clearly define the problem they are going to solve, as well as some strategies to solve it. Unless team members make a genuine effort to get to know each other, they can get stuck in this stage. It might be worth getting the learners to search online

for a Team Charter template (an agreement on how the team will work) that suits their needs.

Storming

The next stage sees team members pushing against their assigned roles, and pushing against the approaches defined in the previous stage. This will cause conflict in the team, and might result in the team breaking up unless they can get past these issues. It is important to recognise at this stage that different team members have different styles of working, and they need to be tolerant of their diverse approaches. It might be worth exploring a model like the Myers-Briggs Type Indicator to understand each other's approaches. The general advice here is "be soft on people, and hard on the problem", as well as making sure to listen to everyone and communicate in clear, non-judgmental language.

¹ Tuckman, B.W. (1965). "Developmental Sequence in Small Groups", *Psychological Bulletin*, 63(6), 384-399.

Cornell Note Taking

Title: _____ Date: _____	
Questions, Diagrams, /Cues	Main Notes
Summary:	

Fig. 5.1 – The Cornell note taking system is meant to help learners develop good note taking and study habits.

Norming

In this stage, people begin to appreciate the importance of the diversity that exists amongst team members, and are able to see the strengths of all members. At this stage, team members are also more strongly committed to the team goals, and see that the goals can be accomplished. Because of this shared appreciation of each other's strengths, the team will develop the ability to express criticism constructively. As new tasks come up, the team members may temporarily revert back to the previous stage in their behaviour, so it is important to see that there is some overlap between these two stages.

Performing

In the final stage, the team is able to work well together to successfully achieve their goals. The various roles that team members had in the first stage may have changed, but by this stage, everyone knows their role and how it supports the team. The structures and processes that have been developed support this process very well. This is the stage that the team will remain at until they are disbanded.

In an online context, the stages will be the same, but the challenges of developing the social dimension are more complex. It is important that you require the learners to create a profile page where they upload a real picture of themselves and they write a few paragraphs about themselves, listing interests, hobbies etc. It is also important that groups are formed early and are encouraged to contact each other regularly using both email and a range of social media applications. Finally, the educator must be available online for weekly meetings to ensure that the team members can express their concerns, and ask questions.

6. The Blended Manager



*If you put fences around people,
you get sheep.*

William McKnight, 3M

The Blended Manager

This chapter is written for the educational manager who has overall responsibility for the entire delivery of educational content in a department or school. It will help you understand some of the challenges and opportunities that blended learning can offer.

The first section of the chapter deals with some of those challenges that you might face, including understanding the costs associated with blended learning, understanding some of the technology challenges, and understanding some of the organizational challenges.

The next section will look at some of the potential organisational benefits of blended learning, including the cost effectiveness, the extended reach and flexibility, and the political benefits it offers.

The final section will look at advice for you, the blended manager, including looking at sample financial costings, contingency planning, compliance issues, and forming a team to help the blended process.



Fig. 6.1 – Main topics in this chapter.

6.1 Management Challenges of Blended Learning

6.1.1 Understanding and Justifying the Costs

It is important to understand that there are additional costs associated with the development of a Blended Learning module, particular at the initial stages of development. There are all manner of cost considerations to take into account, but broadly speaking we will think about costs as falling into one of two categories; (1) set-up costs, and (2) on-going costs.

The set-up costs include both equipment and software (but we will note that it is possible to source open source software for most requirements). The equipment might include cameras, lighting, green screen, and microphones, but it is important to start small, using existing

equipment like the camera on your phone. There may be other costs including personal and training costs, as well as the hosting of the online content.

The on-going costs include issues such as maintenance, upgrading, and patch management, which all relate to the ongoing upkeep of the software. Another crucial consideration is the training costs associated with the equipment and software, and how much training will be needed.

Finally, there will also be security considerations, back-up costs, as well as the potential cost of system failure. These must also be factored into the overall cost.

6.1.2 Understanding the Technology Issues

This issue has some elements in common with the previous one, but is broader in scope. Cost is only one consideration to be taken into account when purchasing new software or equipment. We must also consider what features all the alternative systems might provide. Sometimes people are tempted to purchase the system with the most features, but most of the features might never be used, so it is important to know exactly what you need, and identify the system that most suits those requirements.

Another crucial consideration is to determine how easy the system will be to use. You want something that will

have a high adoption rate. A further consideration is whether or not the system comes with dedicated support, and another is around the area of compatibility (which applies equally to software and equipment). We must consider whether the new system will function within the existing technology ecosystem.

One final consideration is how you will liaise with your potential IT department. Granted that your organisation has such a service it is important you liaise with them regarding

6.1.3 Understanding the Organisational Issues

Some of the organisational challenges that a manager needs to be aware of include most significantly staff resistance and resentment. Staff must feel that blending learning is going to be good for them, and that it will benefit them professionally. If they feel that blended learning is in any way a threat to them, it will become a potential source of conflict. It is therefore important to introduce blended learning in a thoughtful and con-

sidered way. Another consideration is the nature of the educator's contracts of employment- It is important to check if there are any restrictions or prohibitions that prevent staff receiving full credit for their work in the blended context. For example, if the contract states that to be paid, the staff must physically stand in front of the class. It may also be worth investigating if there

Table 6.1 – Studio Inventory List (Example)

Item	Description	How many	Cost (per unit)	Overall cost
Canon XF200 HD Camcorder	1920 x 1080, 1/2.84" CMOS Sensor 20x Zoom with Zoom, Focus, Iris Rings 50Mbps MPEG-2 & 35Mbps MP4 Recording 4:2:2 Color Sampling	1	3,100.00 €	3,100.00 €
Rode Video Mic Pro	Compact Directional On-camera Microphone with Rycote Lyre Shockmount	1	187.00 €	187.00 €
Sennheiser EW 100 G3	Wireless Lapel Mics - UHF Wireless System	1	789.00 €	789.00 €
Fancier Studio Softtbox Lights	with 10'x12' Chromakey Green Screen and Three Softbox Lights	3	€40.00 €	120.00 €
Manfrotto MN502AH	Camera tripod with Fluid Head	1	170.00 €	170.00 €
Fotodiox 5'x7' Collapsible Chromakey Green	Portable GreenScreen	1	47.00 €	47.00 €
Prompter Tablet Ultralight Teleprompter UL-IPADU	Flexible Mobile Prompting Solution Supports Any Size Camera Universal Tablet Bracket (7" and Up) Weighs Only 4.5 lb	1	325.00 €	325.00 €
SanDisk SDHC Card Extreme, SD, 64GB	SDXC and SDHC compatible Memory Cards	1	64.00 €	256.00 €
Interfit Matinee LED Lights	LED Lights	3	60.00 €	180.00 €
Total				€5,174.00

any organisational, political or union issues that might be worth taking into consideration.

6.2 Management Benefits of BL

6.2.1 Costing Effectiveness

We have already seen the costs associated with blended learning. In this section we will look at the potential cost savings and gains that blended learning can produce. It has to be acknowledged that there will be an initial cost in terms of software and equipment. As we have said we can use open source software to mitigate that cost, and acknowledge that this cost is a short term one. What studies have shown is that within three years¹ of developing blended learning programmes, they pay for themselves, and in the long term, they can generate significant revenue.

It is possible to package up all the blended content into a professional training course as well as create a new course on how to develop blended content based on your experience. Once you have sufficient blended content there is also the opportunity to write eBooks. Once you have a number of effective blended templates for

your content, you could sell those templates to other educational institutes.

Blended learning can also be used to increase the number of learners taking programmes, which is always important to the senior management. The blended aspects to our programmes mean that learners who previously could not take our programmes because they cannot commit to a full-time programme can now participate in these programmes because they can do the blended aspects of the content in their own time.

There will also be a huge interest in this new approach, so there will be publicity about it on social media and in the newspapers. This could increase your geographical reach as learners will not have to travel to classes every night, thus you will be able to attract a completely new section of the learner market who do not live in close geographical proximity to your organisation.

6.2.2 Extended Reach and Flexibility

The extended reach that blended learning offers can be a significant advantage. This includes extended geographical reach, and extended demographical reach, as well as improved retention and improved re-application of learners.

Blended learning that is done well will result in increasing the number of learners taking programmes. The blended aspects to the programmes mean that learners who previously could not take our programmes because they cannot commit to a full-time programme can now participate in these programmes because they are either geographically dispersed, or they would be unable to attend due to work, personal, or other commitments.

This approach also means that learners are more likely to find time to undertake the programme, and therefore retention and programme/course completion is more probable. A positive experience with blended learning

will also mean that students are more likely to apply for further programmes of study.

Blended learning can offer a great deal of flexibility to a teaching institute in a number of dimensions. That flexibility includes flexibility for the learners, in terms of the number of days they need to attend college physically. It also means there is flexibility in terms of the scheduling of the programmes, and well as the delivery of the programmes. This, in turn, means that there is more flexibility in terms of staff scheduling and staff availability.

¹ Maloney, S., Nicklen, P., Rivers, G., Foo, J., Ooi, Y.Y., Reeves, S., Walsh, K., Ilic, D. (2015) *A Cost-Effectiveness Analysis of Blended Versus Face-to-Face Delivery of Evidence-Based Medicine to Medical students*. *Journal of Medical Internet Research*, 17(7).

6.2.3 Professional and Political Benefits

It is important to be aware that many organisations have a clearly articulated series of strategic aims, often incorporated into organisational policy documents. If blended learning can be aligned with the organisational policies or its goals and vision, it makes it more likely to be granted support at an institutional level. Typically, an organisation's strategic plan will include an aim to incorporate more technology-based learning into the delivery of content. Therefore when proposing the introduction of blended learning, a knowledge of these documents would be beneficial, and would reflect well on your department.

In a larger context, there will be government policies and statements that highlight the importance of technology-based learning. This could also help justify the need for blended learning. It would be beneficial to collect a series of policies and statements, as well as looking for any legal rationale, including improving accessibility.

6.3 Some Advice for Blended Managers

6.3.1 Financial Costs

We have already mentioned the costs in the two previous main sections. In this section the goal is to mention that once we have some blended content developed, it can be used for other purposes including recruitment and advertising. The content can be used in mainstream media, as well as on social media. All promotional content can be branded with a stamp saying something like “Now with Blended content”, and this will hopefully result in additional revenue. It is worth reflecting that there will be an initial cost of creating new promotional material and advertising.

There will be costs associated with staff in terms of allocation of time both for the development and the delivery of the blended content. The allocation for the development of the content should be given in the pro-

ceeding school year to the educator involved, and the allocation should be the equivalent number of hours to the amount an educator would be given for a typical module.

There may be additional staffing needs for developing the blended content, for example, you might need videoing experts, or video editors, or other production staff, on either a part-time or a full-time basis, depending on the volume of content being developed.

As mentioned before, the technology costs include hosting, software, equipment, and support. It is worth exploring free hosting sites, as well as open source options for the software, and attempting to source second-hand equipment, and use existing support if possible.

6.3.2 Blended Teams

A crucial element for the introduction of successful blended content will be to create a strong team around the process. The most obvious members of the team will be the educators who are developing the content, but

it is also important to encourage other educators who can advise and provide guidance on the development process to have legitimate peripheral participation in this process.

Good Management

“As our business grows, it becomes increasingly necessary to delegate responsibility and to encourage men and women to exercise their initiative. This requires considerable tolerance. Those men and women, to whom we delegate authority and responsibility, if they are good people, are going to want to do their jobs in their own way.

Mistakes will be made. But if a person is essentially right, the mistakes he or she makes are not as serious in the long run as the mistakes management will make if it undertakes to tell those in authority exactly how they must do their jobs.

Management that is destructively critical when mistakes are made kills initiative. And it is essential that we have many people with initiative if we are to continue to grow.”



William McKnight, 3M

Another crucial dimension to team is the technical support staff. They must be informed from the beginning about the process, and they must be made aware of any new software and equipment introduced, as well as being given a schedule to indicate when there may be an increased demand for online resources. There may also be an instructional designer and a video expert involved in the team.

It may also be possible to work with your colleagues who are in charge of marketing and PR activities to internally advertise the blended innovation (on the organisational website, at internal meetings), and well as to liaise with them to give interviews to local newspapers, and potentially national ones about the innovative approach being taken on your blended programmes. This

Hi,
I just wanted to let you know a little bit about a new teaching approach we are taking in our school, and put together a little article for the website about it if you think it might be useful to put on the organisation's website. I am also going to liaise with a few local newspapers to see if I can generate some interest in this.
Kindest regards,
[Your Name]

Department of [Department]/Name of School says the Future is Blended

The X Department of Y School is introducing a bold, new initiative in the delivery of their programmes by incorporating elements of Blended Learning and bringing technology into the classroom. Blended Learning refers to any educational activity that combines traditional classroom teaching with online teaching activities.

Fig. 6.2 – Sample Letter to the colleagues who deal with marketing and PR activities.

way you could generate both interest and support in the blended initiatives.

Sample letters are provided below.

Dear [name],
I am an educator in [Institute], and I wanted to make you aware of what I think could be a potentially interesting story. Our institute has recently been delivering some of our courses using a mixture of classroom and online teaching, and we have found that it attracts many different types of learners than we used to get. One case in particular is a learner who [sample learner]
Kindest regards,
[Your Name]

A Second Chance at Learning Using 21st Century Technology

[Learner name] was 15 years old when she left school. A few weeks later she got her first job, she did not realise then that it would take twenty years until she would be going back to school. She could have never guessed that her studies would mean that she would be spending as much time online as she does in a classroom. [Institute name] have introduced a number of innovative programmes of study that mean people in full-time and part-time employment can get back to education in a mix of classroom and online teaching.

Fig. 6.1 – Sample Letter to Newspapers

6.3.3 Compliance Issues

There are a number of compliance issues that are important to take into account when introducing a blended initiative. Clearly, there are the organisational compliance issues, including some of the considerations mentioned in Section 6.1.3, relating to staffing issues, and the strategic organisational considerations discussed in Section 6.2.3. There may also be issues about staff that are full-time versus those who are part-time in terms of issues like hourly pay, and how that applies in a blended context.

There may also be data compliance issues that must be taken into account when engaging in Blended activities as well as potential security compliance issues. It is worth consulting experts within or outside your organisation about these issues.

There will almost certainly be some copyright issues and considerations that must be taken into account, particularly if blended content is being made available for recruitment or advertisement.

It is important to explore the blended innovation in the context of contingency planning and corporate governance. Creating a risk register, and ensuring that there is a coherent policy on risk management, as well as how risk monitoring will be done, and what forms of risk mitigation will be undertaken. The key risks to consider are related to technological issues that may occur, and the challenges of maintaining a consistent online service, and what to do if the content cannot be delivered.

It is also worth remembering that the blended materials represent a large cache of content that is available for emergencies, e.g. new programmes, staff issues, training programmes, public presentations.

7. Blended Technologies

A photograph showing a Canon lens cap, a smartphone, and a laptop keyboard on a wooden surface. The lens cap is black with white text that reads "CANON LENS FD 50mm 1:1.8" and "LENS MADE IN JAPAN". The smartphone is black and positioned vertically. The laptop keyboard is silver and black, with keys for "é", "!", "2", "3 #", "4", "→", "Q @", "W", "E", "·", "A", "S", "D", "↑", ">", "<", "Z", "X", "fn", "control", "option", and "command" visible.

Technology is just a tool. In terms of getting the kids working together and motivating them, the teacher is the most important.

Bill Gates – software industrialist

Blended Technologies

In Chapter 4 we presented detailed instructions how to use particular technology and particular popular software supporting the six activities we have been using throughout this book:

- Presentations
- Podcasts
- Videos
- Documents
- Games, and
- Searching

This chapter now looks at alternative tools you could use to do those same tasks.

Some of them are free, others are not. This is useful information when discussing the costing of the blended activities with your manager.

We have tried to identify as wide a range of technologies as possible for you, to show you the variety of choices that exist.

We also present some details on other educational tools that might be useful for you. In this section we will look at website development tools, as well as virtual learning environments, and finally we will look at learning object standards.

When thinking about these technologies it is useful to consider the V&R Model¹, the *Visitor and Resident Model*, which is a continuum that describes modes of engagement with technology, when on the one extreme a learner uses technology to complete a task with no online social interaction (Visitor mode), to being online to connect to people and leave very visible digital footprints (Resident mode). We need to consider how much of each mode we will be using in our Blended Learning.

Chapter Guide

<p>Presentations</p> <ol style="list-style-type: none"> 1. Shapechef 2. Office Timeline 3. Participoll 4. Aploris 5. Pickit 	<p>Podcasts</p> <ol style="list-style-type: none"> 1. Spreacker 2. Adobe Audition 3. Podbean 4. Smart Podcast Player 5. Speakpipe 	<p>Videos</p> <ol style="list-style-type: none"> 1. Filmora 2. iMovie 3. Openshot 4. Final Cut Pro 5. Camtasia
<p>Documents (PDF)</p> <ol style="list-style-type: none"> 1. InDesign 2. PDFelement 3. PDFill 4. PDFTK Builder 	<p>Games</p> <ol style="list-style-type: none"> 1. Kahoot 2. Educaplay 3. Factile 4. Open Digital Badges 5. Open Badge Designer 	<p>Searching</p> <ol style="list-style-type: none"> 1. DuckDuckGo 2. Ecosia 3. Metager 4. Qwant 5. Wolfram Alpha
<p>Other Technologies</p> <ol style="list-style-type: none"> 1. Website tools 2. Virtual Learning Environments 3. Learning Object Standards 		

¹ Booth, C. (2009): Informing innovation: Tracking student interest in emerging library technologies at Ohio University. Association of College and Research Libraries.

7.1 Presentations

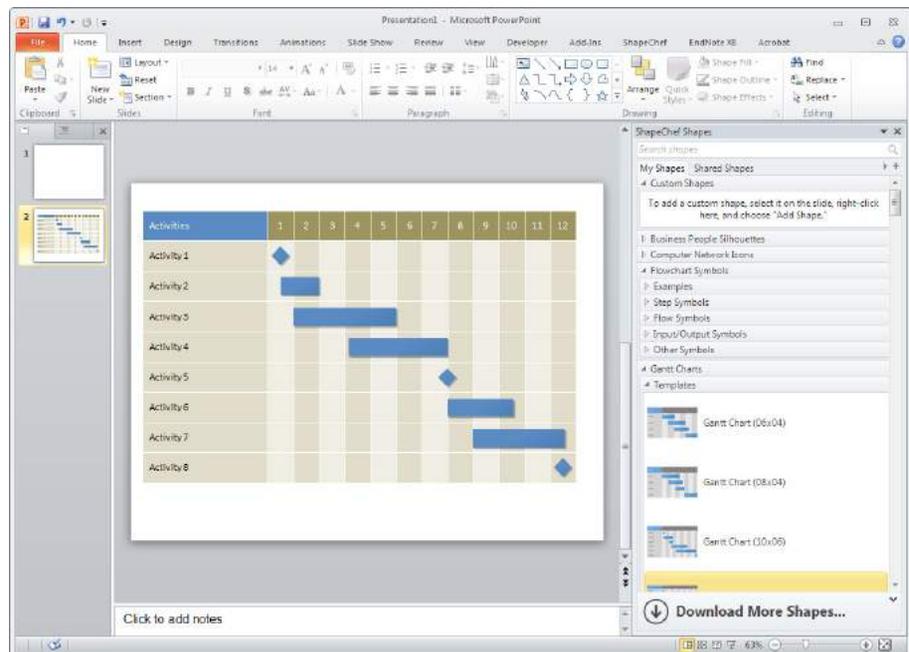
In this section we will look at some options in terms of what suitable software and hardware tools are available for presentations. The software options will vary in terms of cost from free to expensive.

ShapeChef

Description Shapechef is a graphics and charts library for Powerpoint issued by a software company from Münster, Germany. It combines design with a number of samples to make graphing and charting in Powerpoint easier. The plugin gives you access to a set of high-quality graphics, charts and icons. This includes computer network icons, flowchart symbols, Gantt charts and illustrative stick figures. Once installed, the plugin integrates a library pane into your Powerpoint window, allowing you to download premade graphic collections for your work.

More useful than the collection of icons and graphics itself you might find that ShapeChef allows you to store icons and graphics from your existing charts for easy re-use in other presentation. Think of your organisation's logo, for example.

Impression



Platforms

- Windows (Microsoft PowerPoint)
- Mac

Cost

- Free trial (30 days)
- Individual licence 40 US dollars. Friendly surprise: this is one-off, not a monthly rent.
- Team licence 180- 1400 US dollars (prices as in July 2019)

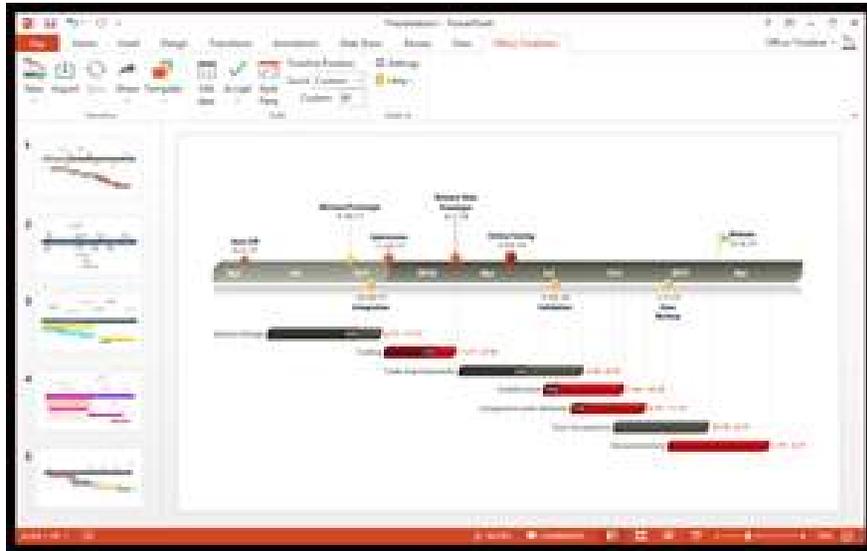
More info www.shapechef.com

For Presentations

Office Timeline

Descripton Office Timeline is an interactive timeline maker and project scheduler for professionals who need to build visual project plans, schedules and Gantt charts. Office Timeline is equipped with intuitive design tools and powerful automation features. It also comes with several free timeline templates that feature different visual styles and colours. The software is offered with a fully-workable free version and premium editions for individuals and businesses.

Impression



Platforms

- Windows (Microsoft PowerPoint)
- Mac

Costs

- Free edition
- Premium edition: 59 US dollars (prices as autumn 2018)

More info www.officetimeline.com

 Office **TIMELINE**

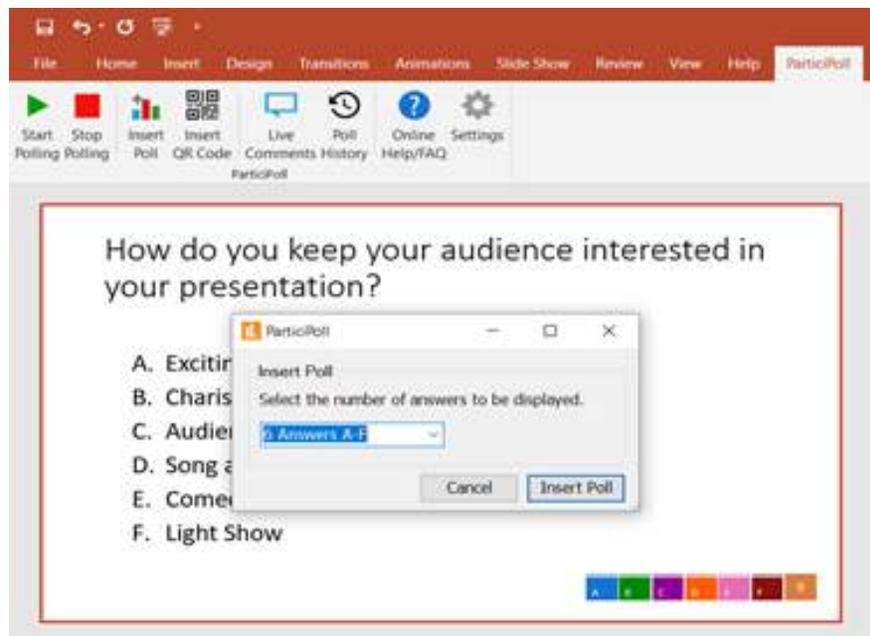
For Presentations

Participoll

Purpose Collect audience response in Powerpoint

Description Participoll is a PowerPoint add-in that collects audience participation responses via any web-connected device and displays live results in your slides. No-hardware clicker-free polling using your audience members' devices. It drops polls straight into your slides without having to preload questions.

Impression



Platforms

- Windows (Microsoft PowerPoint)
- Mac

Costs

- Free trial (14 days)
- Individual licence 199 US dollars
- Team licence 799 US dollars (prices as in autumn 2018)

More info www.participoll.com

participoll.

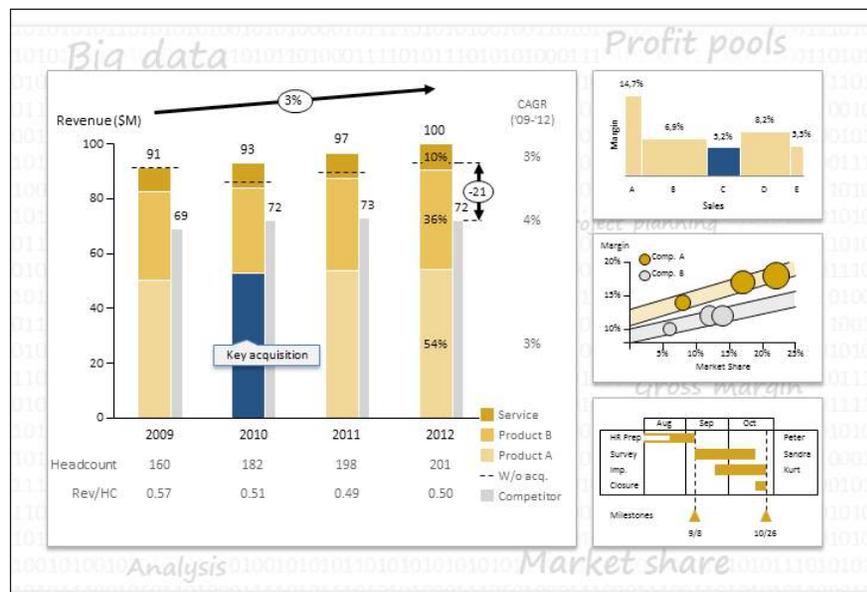
For Presentations

Aploris

Purpose Charts creation

Description Aploris is graphing software designed to aid in the creation of charts in business presentations or in education – wherever statistics needed to be visualised. It integrates with MS Powerpoint and MS Excel to help you effectively create charts: Marimekko/Mekko, waterfall, Gantt, spider, bar and more. It supports descriptive elements including data rows, trend lines, growth arrows, and average lines.

Impression



Platforms

- Windows (Microsoft PowerPoint)
- Mac

Cost

- Free trial (30 days)
- Yearly fee depending on the number of licenses. The fee is 220 euros for one user (plus VAT!) – which makes it a bit unrealistic for educational environments.

More info www.aploris.com

Aploris

7.2 Podcasts

In this section we will look at some options in terms of what suitable software and hardware technologies are available for podcasts. The software options will vary in terms of cost from free to expensive.

Spreaker

Purpose Produce and distribute podcasts

Description Spreaker is a podcasting platform allowing you to create, distribute, measure, and listen to live or on-demand audio shows.

Spreaker's features include recording console on both the web and mobile, the ability to migrate content using an RSS feed importer, as well as ways to connect to external tools and mixers. It further includes audio storage space for hosting shows, distribution by connecting to social networks, the ability to export to YouTube, Apple Podcasts, and Stitcher, and embeddable players and measurement tools with detailed audience analytics like plays, sources, and geolocation.

Impression

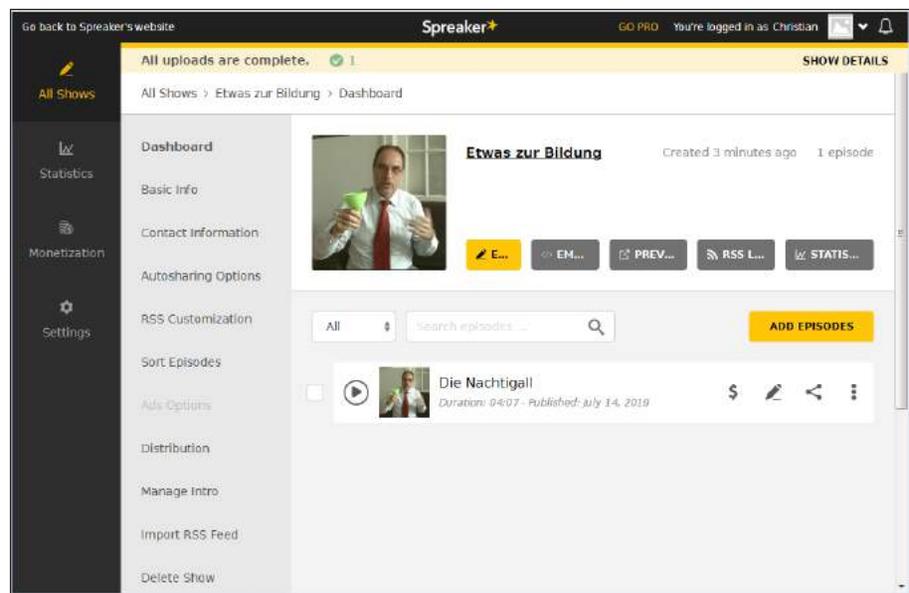


Fig. 7.6 – The Spreaker website, with the account of one of the authors of the book opened. One podcast is currently published.

Platforms iOS, Android, Windows, Mac

Cost

- Free with limited features.
- When we checked last (in July 2019), they had four different payment schemes for individuals and organisations of different size, starting from 7 euros per month (or 72 euros per year), up to 120 euros month (or 1200 euros per year).

Website <https://www.spreaker.com>

Spreaker★

For podcasts

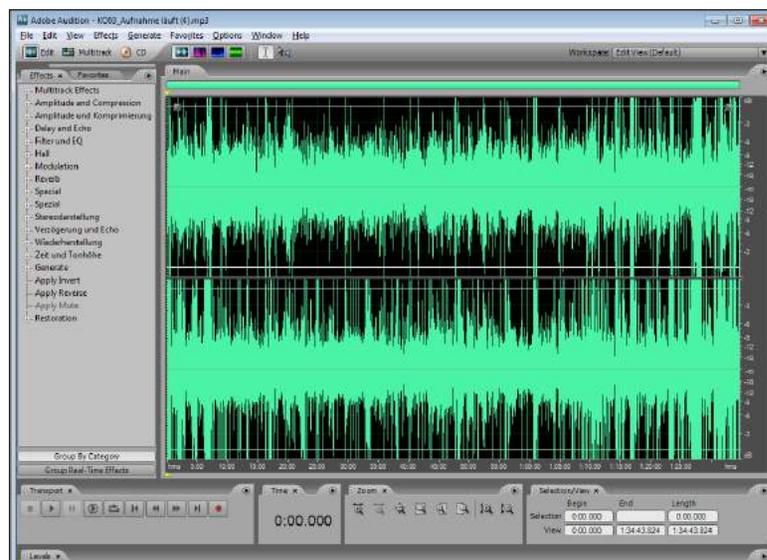
Adobe Audition

Purpose Audio editor

Description Adobe Audition is a digital audio workstation. It offers a multitrack, non-destructive mix/edit environment waveform editing view. When used along with a suitable sound card, the programme provides a complete digital recording studio to the user's computer. The programme is used in producing music, radio broadcasts, or audio for video. Adobe Audition also supports thousands of royalty-free music loops that can be used to compile songs and soundtracks.

However, the free alternative Audacity (presented in Chapter 4) will be as useful to you for most use-cases.

Impression



Platforms iOS, Android, Windows, Mac

Cost

- Free trial version
- 25 euros per month for the ordinary individual users

Adobe has a chaotic mess of special offers for various types of institutions, including educational organisations. It could be cheaper to lease a full Creative Cloud licence for an educational organisation than an Audition-only licence for an ordinary person. You have to check on their website. (We checked last in Mai 2019.)

Earlier versions of Audition could be bought on a DVD once for a lifetime. You can search in places where older software is sold (second hand included) and buy this, probably cheaply

More info www.adobe.com/it/products/audition.html

For podcasts

Podbean

Purpose Hosting and tools for podcasting

Description Podbean provides hosting and tools for podcasters, from beginners to enterprise level organisations. The podcasting platform includes tools for publication, management, broadcasting syndication, and analysis of your traffic and listeners. It provides everything you need to manage and distribute your podcast.

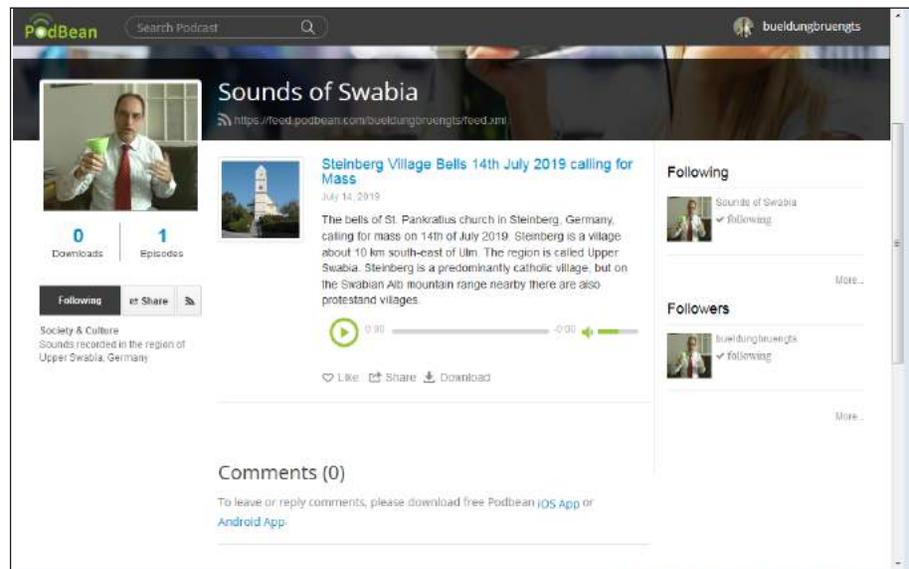


Fig. 7.8 – Screenshot of the Podbean website, with the account of one of the authors of the book opened. He currently has one single podcast published there.

Platforms – iOS, Android, Windows, Mac

Costs

- Free with limited features
- Various payment schemes; when we checked last (2019) they had:
 - 9 US dollars per month, billed annually
 - 29 US dollars per month, billed annually
 - 99 US dollars per month, billed annually

More info <https://www.podbean.com/>



For podcasts

Smart Podcast Player

Purpose Audio player to be integrated into website

Description Smart Podcast Player is a customisable podcast player that can be integrated in a Wordpress website (yes, only the Wordpress content management system). It includes an email capture feature. Visitors can skip forward or backward by chunks just like on most smartphone podcast players. Visitors can also change the speed of your podcast. One can display unlimited podcast episodes, including pagination and search. The player follows responsive design principles so that it looks good on all devices, including mobile devices.

Impression



Fig. 7.9 – As Smart Podcast Player is a piece of software that can be integrated into websites, there is nothing really characteristic to show. Therefore we publish here a simple screenshot of the website selling the player. The player itself is integrated at the bottom of the page.

Platforms – Works on Wordpress websites only

Costs Wenn we last checked (July 2019) there were two payment schemes:

- 8 US dollars per month (billed annually)
- 12 US dollars per month (billed monthly)

More info <https://smartpodcastplayer.com>



For podcasts

Speakpipe

Purpose Message recorder to be integrated in your website

Description Speakpipe is an online service that allows people to leave you an audio message directly in the internet, typically while visiting your website or blog. They do not need a telephone (their computer or mobile device must have a microphone, of course).

This audio file then gets emailed to you, so that you have the opportunity to respond by email or by sending another voice mail.

Impression



Platforms

- iOS
- Android
- Windows

Costs

- Free trial
- Several pro plans with different features
 - Premium 45 US dollars per month
 - Gold 15 US dollars per month
 - Bronze 8 US dollars per month

More info <https://www.speakpipe.com>



7.3 Videos

In this section we will look at some options in terms of what suitable software is available for video capture and editing for the development of blended learning content. The software options will vary in terms of cost from free to very expensive.

Wondershare Filmora

Purpose Video editor

Description Filmora is an video editing tool developed by a Chinese company that enables also uploading of videos onto social media. Features include correction of colour issues, and camera shake as well as use it with a green screen.

Impression



Platforms

- iOS
- Android
- Windows
- Mac

Costs

- Free trial with watermark
- 1 year licence for approx. 50 US dollars a year (prices checked in autumn 2018)

More info <https://filmora.wondershare.com/>



For videos

Apple iMovie

Purpose Video Editor

Description Apple iMovie is a video editing tool offering many templates to help make movies. As a typical video editing tool, its features include special effects, sound editing, adding logos, cast names and credits, add background music and voice-over narration. It also helps share movies with social media and online storage.

Impression



Platforms

- iOS
- Mac

Costs - Free for Mac (last checked in late 2018)

More info <https://www.apple.com/imovie/>



For videos

Openshot

Purpose Video editor (open source)

Description Openshot is a free and open source video editing tool. It does what you expect from a video editor: running a (theoretically unlimited) number of tracks/layers; resize, trim and rotate footage, editing titles and templates, and so on. It provides desktop integration, frame-by-frame editing and easy compositing and overlaying. The bit advantage over other videos presented here is of course that it is completely free to use. Simply download it, install it and work with it.

Impression

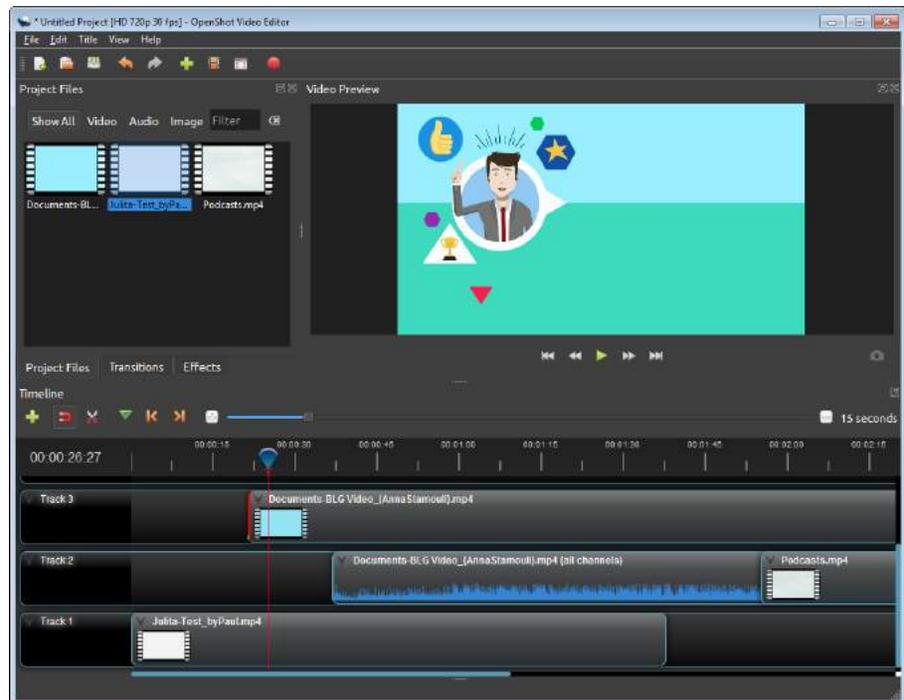


Fig 7.13 – A typical work situation for video editing in Openshot. Visible are currently three separate tracks carrying various footage and sound records.

Platforms – Windows, Mac, Linux

Costs Free (last checked in laste 2018)

More info www.openshot.org



For videos

Final Cut Pro

Purpose Video editor

Description Apple Final Cut Pro is a video editor that offers multi-camera editing, an extensive music library and a range of transition and motion elements. You can add text and titles easily as well as split-screen.

Impression



Platforms – Mac

Costs – Free trial with watermark
– Licenced version: 300 US dollar (last checked in late 2018)

More info www.apple.com/lae/final-cut-pro



For videos

TechSmith Camtasia

Purpose Video editor

Description Techsmith Camtasia is a video editor providing multiple video and audio tracks and a range of transitions. You can add text, shapes and quizzes and do green screen. It also features video and audio stabilisation.

Impression



Platform

- Windows
- Mac

Costs 200 US dollars (last checked in late 2018)

More info www.techsmith.com/video-editor.html



7.4 Documents (PDF)

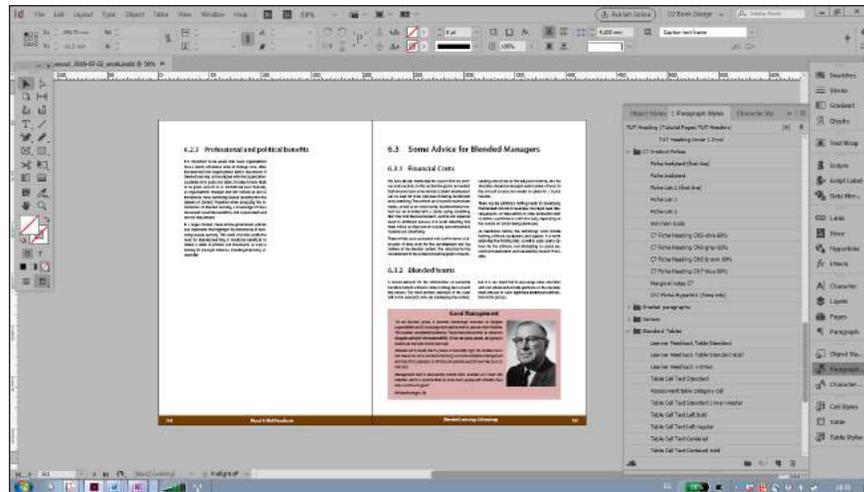
This section will address some of the best and most popular tools that educators can use to create interactive and accessible PDFs. We try to summarize some of the main features of the tools, their cost and a short description of their use.

Indesign

Purpose Graphic design & type setting

Description Adobe InDesign is a full-scale professional print layout application, usually seen as the industry standard in print production. It is being used to create posters, flyers, brochures, magazines, newspapers, presentations, books and e-books. The most usual production flow is to export documents to PDF (which is also the form in which print shops receive them and process them further). Other output formats are EPUB and SWF to create e-books and digital content suitable for computers and tablets.

Impression



Platform – Windows, Mac, Android, iOS

Costs – 7-day free trial

- Various annual plans paid monthly according. A typical plan for an ordinary customer (individual) would be available for about 25 euros per month. However, there are many special offers for institutions, including educational organisations, and it can be cheaper to lease an educational licence for the full Adobe Creative Cloud package than to take a one-application-only licence for an ordinary customer. You have to check on Adobe's website.
- Earlier versions were available as once-for-a-lifetime software. You can search at places where older software (including second hand) is being sold. The older versions are good as well. One of the authors of this book produces entire books till today with the now very old CS3 version of Indesign.

More info www.adobe.com/gr_en/products/indesign.html



For documents (PDF)

PDFelement

Purpose Create and edit PDF

Description PDFelement is a PDF editor produced in China that allows you to create, edit, convert, print, annotate and protect PDF files. It is an alternative to Adobe Acrobat. Some of its (more or less self-evident) features are: highlighting, strikethrough, add comments; text and image editing; create PDFs from various other document formats.

Impression



Platforms – Windows, Mac

Costs – Free trial

- Various plans paid yearly, starting from 100 US dollars per year for one licence of the Pro version. Alternatively, a lifetime licence can be bought for about 30 per cent more. (Last time checked: May 2019) There are also special offers for students and educators.

More info <https://pdf.wondershare.com/pdfelement/>



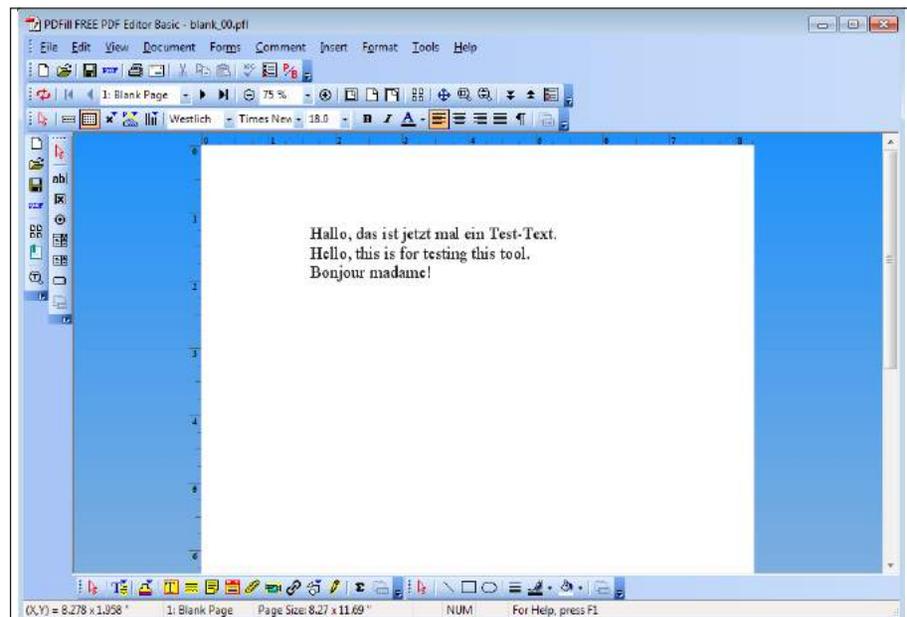
For documents (PDF)

PDFill

Purpose PDF editing

Description PDFill is a PDF editor quite different from others. It looks like a classic text editor (like MS Word in the early 2000s), but what you produce with it is directly a PDF. You could use it and write a letter directly in PDF instead of writing it in Word and then exporting it to PDF. However, you will then miss many of the practical features of a full-scale text editor. So probably it is better to use PDFiller rather for editing / changing existing pdfs, like you would do with Adobe Acrobat. The big advantage of PDFill is that it is free (basic version), or cheap (20 US dollars for the Pro version). It is produced by a small company in California named . The website is visible a couple of years old. (In April 2019 we tried to buy the Pro version for testing, but the company had problems to process the PayPal payment, so we got stuck with this. You can try anyway.)

Impression



Platform – Windows, Mac

Costs – Free version
– Pro version for 20 US dollars (last checked in May 2019)

More info www.pdfill.com/download.html



For documents (PDF)

PDFTK Builder

Purpose Processing PDF files

Description PDFTK Builder is an open source PDF tool created by one-man programmer Angus Johnson (www.angusj.com) that allows you to do certain operations with PDF files on the level of pages: you can split a document into separate pages; you can combine documents into one; you can reorder pages; you can add backgrounds, watermarks and other things; you can rotate pages; and you can encrypt your document using passwords.

Well, all that can be done also with full-size PDF editors. But the fine thing here is: it is free, and it is very light-weight.

Impression

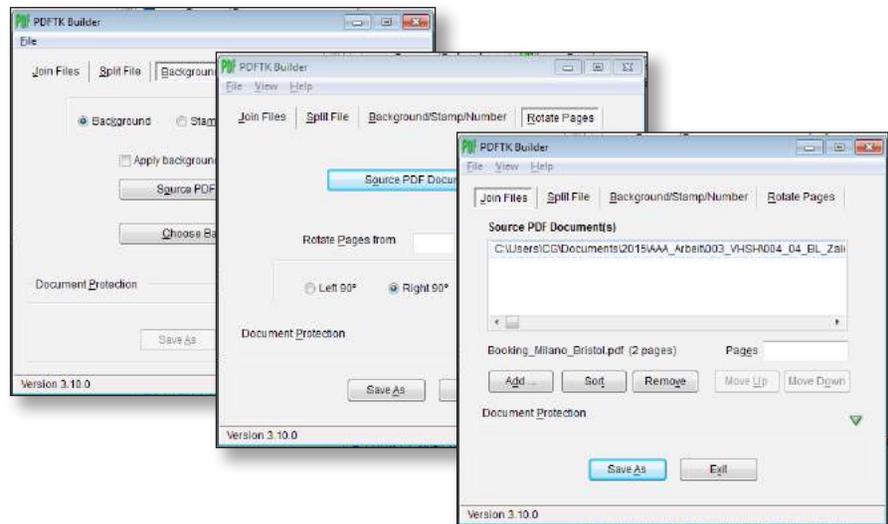


Fig. 7.19 – Three of the four core dialogues PDFTK Builder offers.

Platforms Windows

Costs Free

More info www.angusj.com/pdftkb



7.5 Games

This section will feature some websites educators can use to design educational games for their learners. We will also look at some software options available for badge creation. The options will vary in terms of cost from free to very expensive.

Kahoot!

Purpose Prepare quizzes for audiences in a venue

Description Kahoot! is a tool for game-based learning. Teachers can create quizzes, discussions or surveys for their classes, or even for large audiences. It is a response system played by the whole group in real time. Multiple-choice questions are projected on the screen, and learners answer the questions with their smartphone, tablet or computer.

For a more detailed description, see Chapter 4.5.2.

Impression

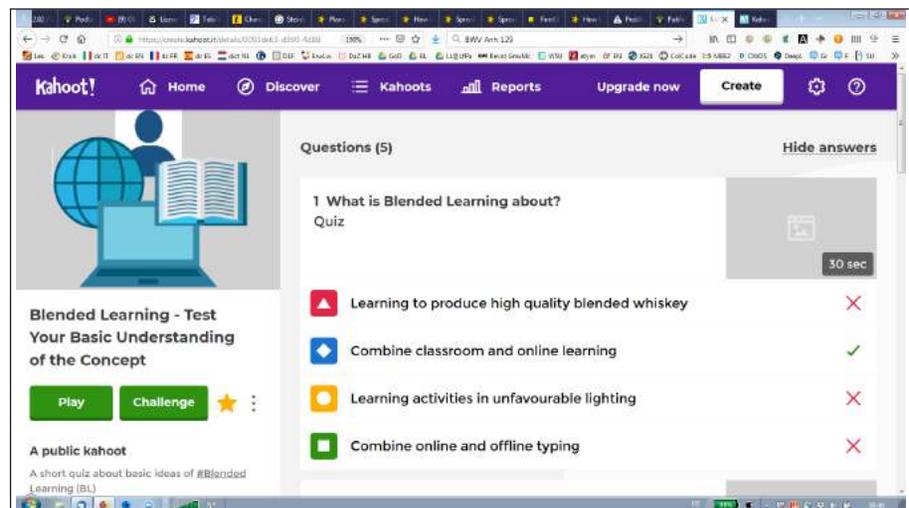


Fig. 7.20 – The Kahoot website in edit mode: one of our authors is currently creating a simple quiz about Blended Learning. Students will later have to pick answers by touching their smartphones.

Platforms – Windows, Mac, iOS, Android (relevant for the smartphone app)

Costs – Basic use is free
 – There are various subscription models (1-3 dollars per teacher and month) offering various helpful additions such as free pictures to use, folders, team space, advanced reports etc. (Last time we checked was in May 2019)

More info <https://kahoot.com>



For games in education

Educaplay

Purpose Website for creating educational games etc.

Description Educaplay is a free website which lets educators create a wide variety of different educational interactive resources and link them to blogs or websites. Activities that can be created include Listen and Read Dialogues, Jumbled Words, Jumbled Sentences, Matching, Quizzes, Image Maps, Riddles, Crosswords, Wordsearch Puzzle, Fill in the gaps. Features include:

- Export your activities to any SCORM-compatible Learning Management System such as Moodle, Edmodo, Blackboard, Chamilo, etc.
- Get the results of your learners
- Create groups with your activities
- Share created resources in any CMS like WordPress, Drupal, Blogger or Joomla! or in websites with custom programming

Impression

Was ist Blended Learning?

0 / 2 VERSUCHE

100 PUNKTE

00:48 ZEIT

Blended Learning ist ein _____, mit dem man die _____ herkömmlicher _____ (typisch: im Klassenzimmer oder _____) mit Lern- und _____ ohne _____, aber mit _____ und _____ meint. Gutes Blended Learning heißt, dass diese beiden grundsätzlich verschiedenen _____ nicht einfach _____ nebeneinander herlaufen. Vielmehr sollen sie möglichst _____ aufeinander _____ und _____ verschränkt sein. Man erhofft sich dadurch, dass die _____ die _____ besser _____.

Diese Wörter kommen in die Lücken

Lernenden Seminarraum
Computern verinnerlichen eng
Verbindung Präsenzaktivitäten
bezogen Begriff Präsenz
additiv Internet
Aktivitätsphasen Lernformen
miteinander Inhalte

Prüfen

Fig. 7.21 – A gap filling game using a text that describes what Blended Learning is. We created this little game in about 5 minutes just to test the website. You can play this here (German needed): https://www.educaplay.com/en/learningresources/4666185/html5/was_ist_blended_learning.htm

Platforms Irrelevant, as this is first of all a website. There is also an app, running on all present systems.

Costs

- “General” (you can create activities, collections, groups and get results): free
- “Premium”: from 4 to 39 euros per month (last checked in late 2018)

More info www.educaplay.com

For games in education

Factile

Purpose Learning platform

Description Factile is a free learning platform where educators can create jeopardy-style quiz games for different subjects and types of learners. They can also use the database of already created games.

- Good tool to create revision games and keep learners motivated and challenged
- Simple, user-friendly gameboard templates to create games
- Easy to share your game with learners

Impression

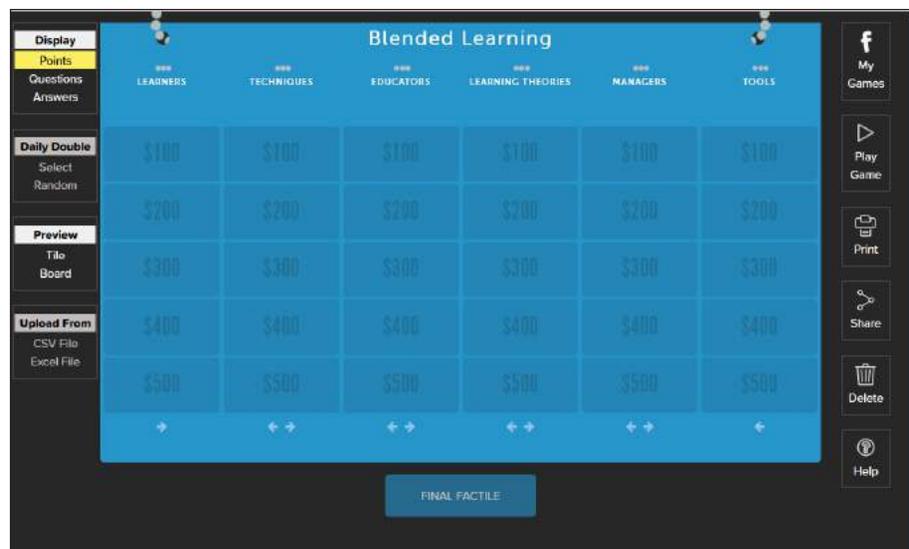


Fig. 7.22 – A typical Factile screen with a quiz not yet started. For each of the dollar fields, you will have to create a question and an answer. You have seen this type of quizzes in TV shows.

Platforms

- Windows
- Mac
- iOS
- Android

Costs

- Standard version: Free
- Pro version 5 US dollars per month, or 48 US dollars per year

More info www.playfactile.com



For games in education

Open Digital Badges

Purpose A standart for defining “badges”

Description Mozilla Open Badge is an open technical standard to create “badges” than can be assigned to individuals for learning achievements documented on e-learning websites. For more on this see Chapter 4.5.2.

Impression



Fig. 7.23 – The *openbadges.org* website offers information about the concept of open badges and explains how education organisations can start issuing such badges.

Platforms All systems that have web browsers.

Cost Free (last checked in late 2018)

More info <https://openbadges.org>

For some practical overview see also University of Texas:

<https://openbadges.coerll.utexas.edu/create-badges>

This website lists some useful information for creating and issuing Open Digital Badges. This includes basic information on digital badges, a list of Learning Management Systems that offer integration with Open Badges, and tools for new designers of badge systems.

For games in education

Openbadges.me

Purpose Providing “badges” for educational websites

Description Openbadges.me is one of several services that provide digital badge management for educational organisations. This includes the typical features for such a services, for example a design tool for badges (with shape templates), import images and backgrounds, custom attributes, etc.

Impression

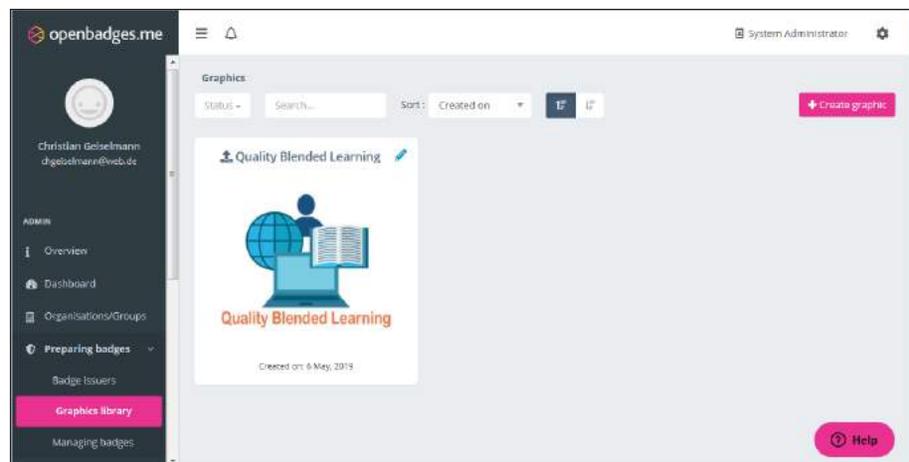


Fig. 7.24 – Website of Openbadges.me. Here we are logged in as a badge issuing institution, and are on the way of creating a badge showing the logo of the Blended Learning project.

Platforms All systems that have web browsers (so, all systems)

Costs

- Starter mode: 50 unique recipients: free
- Teams mode: up to 500 unique recipients: 50 US dollar per month
- Embrace mode: up to 3000 unique recipients: 150 US dollars per month (all prices last checked in May 2019). More expensive modes have also more features.

More info www.openbadges.me



7.6 Searching

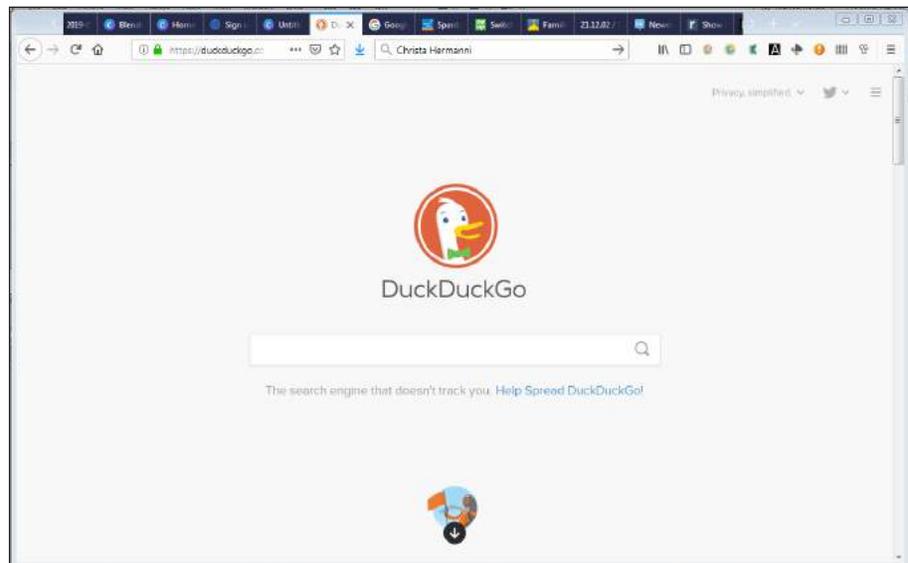
In this section we look at some options in terms of what is available for searching. In Chapter 4 we have seen that we can search for images using the TinEye Multicolr (<https://labs.tineye.com/multicolr/>) search tool, and the Creative Commons search tool for multimedia content (<https://search.creativecommons.org/>). Statistics show that over 90 per cent of search activities online use Google. We do not want to support monopolies, so let us look at a few others:

DuckDuckGo

Purpose Search website

Description DuckDuckGo presents itself as “Privacy – simplified”. The site claims that it does not collect data of people using it. As a consequence, the results on a search are independent on who is searching. Technically it is a combination of a meta search engine and a web crawler. The name goes back to a childrens’ game by the name of Duck Duck Goose. The site is run by a small company in the USA. Free

Impression



Well, it's the internet.

Costs Free, but as all internet search machines, the company running it sells ads.

More info <https://duckduckgo.com/>



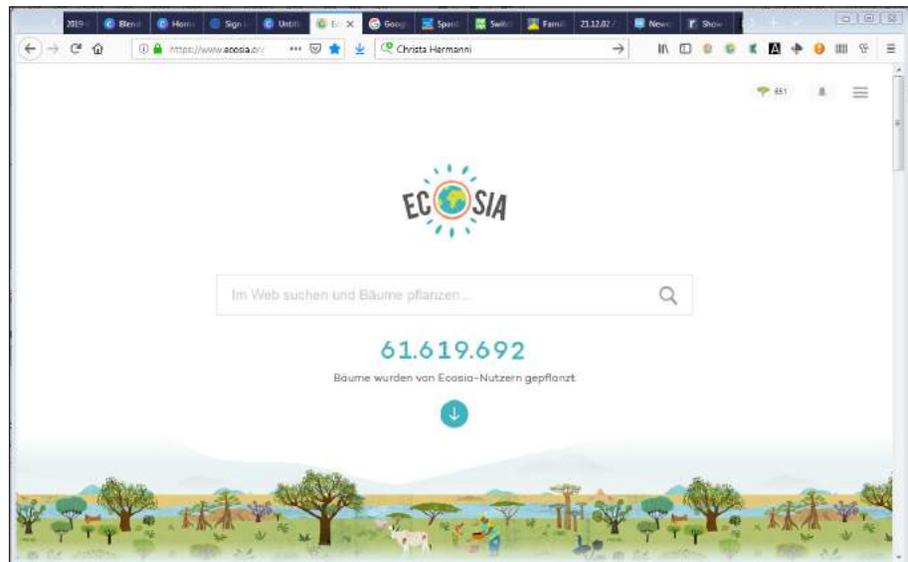
For search & research activities

Ecosia

Purpose Search website

Description Ecosia is run by a small company in Berlin, Germany. It focusses on a sustainable, ecological mission: 80 per cent of its profits are claimed to go into reforestation projects in Africa and elsewhere. According to the company, the number of trees planted through their financing was 57 million by May 2019. Technology-wise, the search results are taken from Bing. - The company in Berlin received various startup awards.

Impression



Platforms Whatever reads the internet

Costs Free, but as all internet search engine providers it sells ads, of course.

More info www.ecosia.org



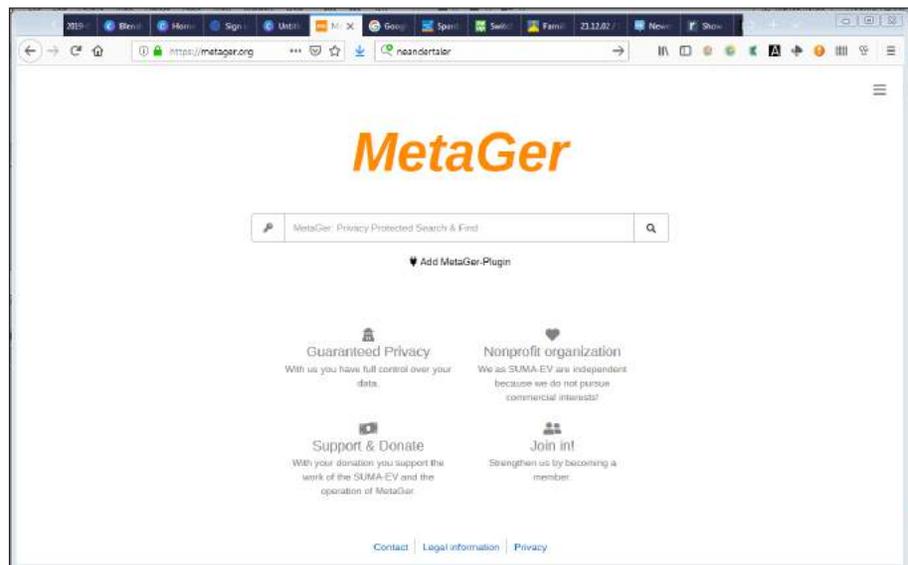
For search and research activities

MetaGer

Purpose Search website

Description MetaGer is a so called meta search engine. It uses the results of many (in this case: up to 60) different search engines, filtering these results in a meaningful way. In addition, MetaGer has its own crawlers and indexers (like DuckDuckGo). You may find MetaGer a lovely project because it is not a business but a university project (started in 1996) by Hannover University in Germany (that's a university with a focus on technology). In 2012 they created an association (NGO), the Association for free Access to Knowledge to help maintain the project. Since 2013, MetaGer is available also in English, and recently a Spanish user interface was added. MetaGer has a very high level of privacy for the user.

Impression



Platforms Well, it is the internet. As long your device has a browser, you are fine

Costs Free, but as all internet search engine providers it sells ads, of course.

More info <https://metager.org/>

MetaGer

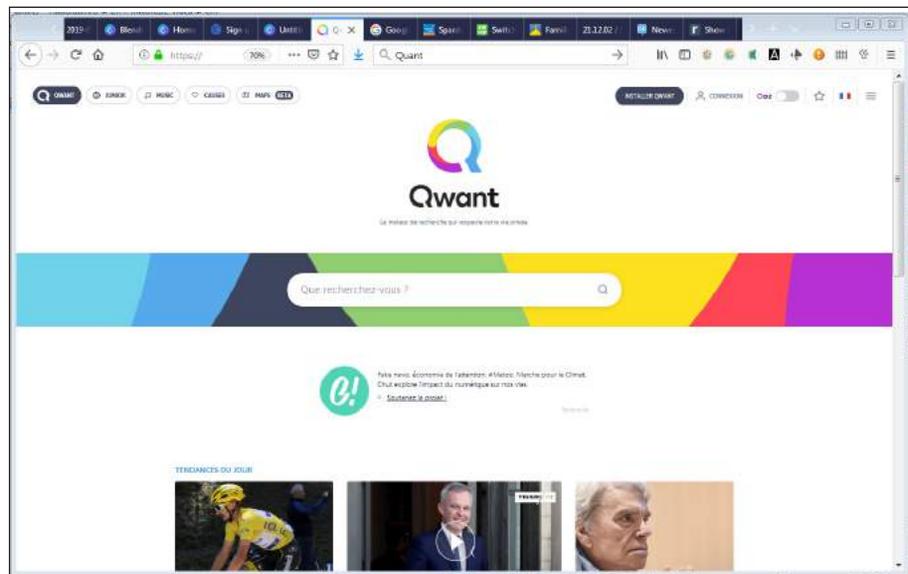
For search and research activities

Qwant

Purpose Search website

Description Qwant claims to be “the search engine that respects your privacy”. For example, cookies are deleted with the end of the session. It is based in France (small company), and recent data said that about 65 per cent of its use are from French users. In independent tests, search results of Google, Bing, DuckDuckGo and Qwant turned out to be of similar quality

Impression



Platforms Well, as long as your device has an internet browser, it will work

Costs Free , but all internet search services sell ads., and so does Qwant

More info www.qwant.com



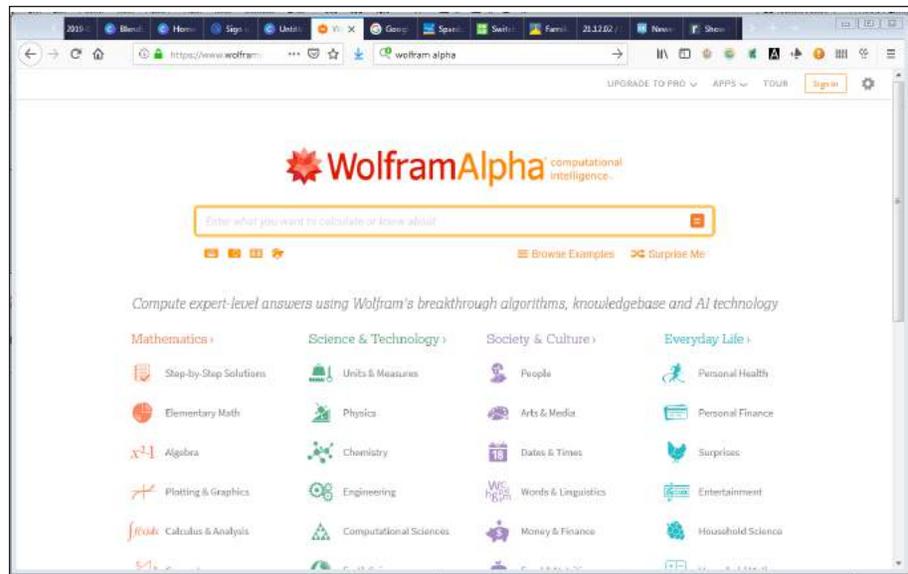
For search and research activities

WolframAlpha

Purpose Search website

Description WolframAlpha is a complex search engine, sometimes called a computational knowledge engine or answer engine. It answers factual queries directly by computing the answer from externally sourced data and works out problems in maths, science, media, and everyday life.

Impression



Platforms Whatever is able to read the internet will be able to read Wolfram Alpha

Costs Free, but as all search engines, of course they try to generate some income through ads etc.

More info <https://www.wolframalpha.com>



7.7 Other Educational Technologies

This section will discuss some technologies that focus particularly on the development of web-based content. First we will look at some website tools, next we will dis-

cuss virtual learning environments. Finally we will look at learning object standards.

7.7.1 Website tools

The www (World-Wide Web) consists of a collection of web pages, stored on computers called web servers, which can be viewed using software programmes called web browsers. The web pages are plain text files with special tags in HTML (Hypertext Markup Language) that the web browser uses to format the content for display on the computer screen.

There are many ways to create web pages. A simple one is to create a document in Microsoft Word (as this is a programme almost everybody has available). You would then use the *Save As* option to save, and select the *Web Page (*.htm; *.html)* file type.

The html-file then needs to be put onto a web server. You can use your own, but more typically you would use the services of a commercial web hosting provider. The file needs to be made accessible to the public through a web address such as *www.hurray-my-first-website.eu*

HTML Editors

For tasks more complex than creating just a single html page, you usually would choose a dedicated html editor. Such dedicated web page development tools include Dreamweaver, Frontpage, and KompoZer.

- **KompoZer** is a free and open-source web development tool, available for MacOS, Windows, Linux, and OS-2. It provides a simple development environment that generates HTML code automatically.
- **Dreamweaver** is a commercial web development tool from Adobe, available for MacOS and for Windows. It provides a simple development environment that generates HTML code automatically.
- **Frontpage** is a commercial web development tool from Microsoft (available for Windows and MacOS). It also provides a simple development environment that generates HTML code automatically.

For larger websites with many pages, constantly updated content, and multiple contributors you would proba-

bly prefer using a **content management system (CMS)** such as Joomla or Wordpress.

Web Hosting Services

Besides a plethora of commercial service providers selling web space for a monthly rent, there are a number of free web hosting services. Here are three of them.

- **Wix** allows you to create websites the use of online drag and drop tools. You can add in a range of tools, such as social plug-ins, e-commerce, online marketing, e-mail marketing, and community forums.
- **Weebly** also allows you to create websites through the use of online drag and drop tools. Basic features for blogging and e-commerce are supported, including payments via PayPal, etc.
- **Tripod** offers free and paid web hosting services, including 20 megabytes of storage space. In addition to basic hosting, Tripod also offers a blogging tool, a photo album manager, and a simple page editing.

Checking Accessibility

We have already discussed the idea of website accessibility, therefore it is worth pointing out that there is a number of tools you can use to assess the accessibility of your site, once you have created it.

These tools include WAVE from WebAIM, which is a free evaluation tool that provides visual feedback about the accessibility of web content by adding icons and indicators into the web page. Another tool, AChecker, which produces a report, identifying known, likely, and potential accessibility problems. Finally, CheckMyColours is a tool for checking foreground and background colour combinations and determining if they provide sufficient contrast when viewed by someone with visual impairments.

7.7.2 Virtual Learning Environments (VLEs)

A VLE (Virtual Learning Environment) is a website that allows educators to upload content (lessons, images, presentations, documents, etc.), as well as allowing educators to create quizzes and other forms of assessment. The learners can log into this site, read the content, and take the quizzes. It provides a controlled environment that allows the educator to monitor the learners' progress.

WebCT

A very common Virtual Learning Environment is WebCT (also known as the *Blackboard Learning System*) which is a proprietary VLE that can be licensed to educational institutions, and is used in many campuses internationally for e-learning. The latest version of WebCT is called Webcourses. It has a number of in-built tools including discussion boards, mail systems, and live chat. A typical tool listing includes the following (Fig. 7.1):

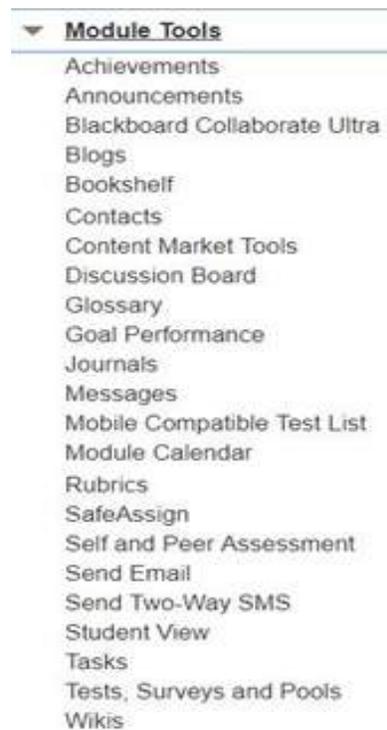


Fig. 7.1 – A typical collection of tools in a VLE

Moodle

The most popular rival VLE is Moodle, which is free and open-source. It is much more configurable than WebCT, and runs on a wide range of operating systems. It also allows for extending and tailoring using open-sourced plugins. There are over 1000 plugins available, including the following:

- **Filtered course list:** Displays a configurable list of courses.
- **Completion Progress:** A time-management tool for students.
- **MathType:** Type and handwrite mathematical notation in Moodle.
- **AutoEnrol:** Adds functionality to automatically enrol users onto a course.
- **Geolocation Condition:** This adds GPS coordinates to sections and course modules.
- **Reader:** This tracks the students' reading achievements.
- **Questionnaire:** Custom Survey Creation

7.7.3 Learning Object Standards

A learning object is a file that contains special tags that help describe any type of electronic learning content (a lesson, a presentation, an image, an assessment, etc.). The tags are in a language similar to HTML, called XML (Extensible Markup Language). This means that the learning content can be easily embedded into a VLE, and easily transferred into a new one, if needed, so educators are not locked into one specific VLE. It also makes it easier for educators to locate content that is useful to their teaching, and it encourages educators to think more deeply about their content.

SCORM

A very common learning object standard is SCORM (Sharable Content Object Reference Model), which has tags that not only provide descriptors of the learning content, but can also specify a sequencing of learning objects, so it might say something like “The learner must read *Learning Object A* before reading *Learning Object B*”. SCORM also communicates to the VLE that is using it, and tells the VLE how to present the learning object to the learner, as well as how to track the learners’ interac-

tions with the object. Below is a sample of SCORM tags: (See Fig. 7.2)

xAPI

A newer standard that is seen by many as the successor to SCORM is called xAPI (Experience API), also known as Tin Can API. It provides all of the functionality of SCORM but also includes new capabilities, such as taking learning objects outside of VLEs and using them in mobile applications. It also provides improved security features, and places much more emphasis on facilitating group-based learning.

```
<content>
  <globalProperties>
    <externalMetadata>
      <source>ADL</source>
      <model>ADL SCORM 1.1</model>
    </externalMetadata>
  </globalProperties>
  <block id="B1">
    <identification>
      <title>Golf Explained - CP Single SCO</title>
      <description>Content packaging</description>
      <labels>
        <curricular>COURSE</curricular>
      </labels>
    </identification>
  </block>
</content>
```

Fig. 7.2 – Markup code (tags) for a SCORM compliant document (sample).

8. Blended Evaluation



You can't control what you can't measure.

Tom DeMarco – Controlling Software Projects. Management Measurement & Estimation

Blended Evaluation

This chapter is perhaps one of the most important ones in the whole workbook, as it focusses on a wide range of evaluation processes. In order to be able to reflect on what occurred, and see what lessons can be learned for further iterations, it is very important to include an evaluation step in all educational innovations. We have already seen some approaches to evaluation, and this chapter will provide a wide menu of options in terms of evaluation. We do not expect you to use all of them. We want you to see which ones best appeal to you.

The chapter will start with a look at different ways of evaluating learners, first by you (the educator) looking at formative and summative assessment, as well as approaches to feedback. Next, we will look at how learners can assess themselves and how they can assess each other in groups.

From this we will then look at how to assess the blended learning content, particularly focusing on the online

content, and look at standard evaluation rubrics that are used to assess the quality of learning objects. In addition, we will look at ways that learners can help you assess the quality of the blended assessment using usability approaches including interviews, surveys and focus groups. Furthermore, more specific techniques like shadowing, observation, GOMS, the Think-aloud protocol, and personas will be outlined.

Next, we will look how to evaluate the blended module or programme, looking at a variety of reviewing process, as well as a SWOT approach.

Finally we will look at the evaluation of the financial cost of blended learning, looking at concepts such as RoI (Return on Investment), and looking at the costs of technologies, in both the short-term and the long-term.



Fig 8.1 – Key Sections in Chapter 8.

8.1 Educational Evaluation

Whether in a blended classroom or a traditional one, it is vitally important to evaluate the performance of the learners, and to provide them with sufficient feedback. This way they can understand their current educational attainment, and be given assistance on how to improve

their subsequent performance. In this section we will look at two categories of assessment (summative and formative assessment), and three types of assessment (examinations, continuous assessment, and informal Evaluation).

8.1.1 Categories of Assessment

There are many different definitions of these two categories of assessment, but in this case, we will use the following simple, common-sense definitions:

Summative assessment

Summative assessment is any form of assessment given by an educator where the learners receive a numeric score. Many also receive some quantitative feedback to

help them to improve their attainment. It typically focuses on the learning outcome of a programme.

Formative assessment

Formative assessment is any form of assessment given by an educator where the learners do not receive a numeric score, but rather receive qualitative feedback to help them to improve their attainment. It typically focuses on the details of content and performance.

8.1.2 Types of Assessment

There is a wide range of types of assessment that an educator can give a learner, but in this case we are going to use three broad groupings:

Examinations

Examinations are usually summative in nature, and in a blended context usually work in the same way as they do in a traditional classroom. The learners have a fixed amount of time to complete a specified number of questions, and are either allowed to consult educational material (“open-book exam”), or are not allowed (“closed-book exam”).

or weeks to complete the task, and it involves some independent research or problem solving.

A blended environment provides a wide range of novel opportunities for continuous assessment: learners can be asked to do activities such as creating their own videos or audio recordings. They can be asked to edit a wiki, post to a blog or to a social network account. They can also be asked to develop their own game or undertake a search activity. They can also create a quiz, interact with someone in another country, and virtually visit important locations around the world.

Continuous assessment

Continuous assessment can be either summative or formative, and in a blended context can be done in a wide variety of ways. In the traditional classroom setting, it typically involves presenting the learners with a series of tasks that they are required to complete in their own time. Typically the learners are given several days

Perhaps the most important thing to say about teaching in general is something we have mentioned already in Chapter 3. There is one factor that can affect learners’ performance significantly more so than all others can, and that is *feedback*. Australian researcher John Hattie published a seminar paper in 2003¹ where he did an analysis of over 500,000 educational studies, and identified feedback as being the factor that is the most powerful and has the most meaningful effect on learner learning.

¹ Hattie, J. (2003): *Teachers Make a Difference: What is the Research Evidence?* Paper presented at the Australian Council for Educational Research Annual Conference on Building Teacher Quality, Melbourne.

On the following page, we present a more detailed feedback form, based on the form in Chapter 3. This one is more detailed and includes more information on the assignment, and some quantitative categories to give quick, and effective, feedback to the learners. It is important to develop a feedback form that can be completed quickly as many studies¹ show that if feedback is not given in a timely fashion, it is ineffective (typically, feedback within two weeks is considered effective). In addition, if you create a model answer when developing your assessment, it can be helpful to refer to that in your feedback, and give the learners a copy of it. To ensure the learners fully understand your feedback some educators choose to give the learners an additional task of responding to the feedback. Alternatively, you could

consider giving feedback in such a way that it points to relevant revision for the learners exams.

Feedback can be given informally in class as well. This can be extremely effective in immediately correcting misconceptions and steering the learners in the right direction. This feedback can be given either verbally or even by putting a small message on a post-it note and sticking it to a learner's desk. Informal feedback needs to be honest, simple and supportive. When giving informal feedback it helps to start with something positive, and to share with the learners the challenges you yourself encountered when learning the topic under discussion.

Table 8.x – Feedback Form

Table 8.x – Feedback Form					
Reviewer:		Assignment:		Date of Submission:	
Learner:		Learner:		Date of Marking:	
Key Points					
I like that you:			I would have liked if you had:		
1.			1.		
2.			2.		
3.			3.		
	Excellent [70%-100%]	Good [60%-69%]	Satisfactory [50%-59%]	Weak [40%-49%]	Fail [0%-39%]
Format [0-10%]	[7-10]	[6-7]	[5-6]	[4-5]	[0-4]
Coverage [0-10%]	[7-10]	[6-7]	[5-6]	[4-5]	[0-4]
Research [0-10%]	[7-10]	[6-7]	[5-6]	[4-5]	[0-4]
Knowledge [0-20%]	[14-20]	[12-14]	[10-12]	[8-10]	[0-8]
Critical Thinking [0-25%]	[18-25]	[14-18]	[12-14]	[10-12]	[0-10]
Creativity [0-25%]	[18-25]	[14-18]	[12-14]	[10-12]	[0-10]
Signed:				Date:	

¹ Harrison, S. H., E. D. Rouse (2015): *An Inductive Study of Feedback Interactions over the Course of Creative Projects*. *Academy of Management Journal*, 58(2), p. 375-404.

In a blended context, there are a significantly wider number of formats that the feedback can be presented in. One method that is growing in popularity is audio feedback where the educator records verbal feedback; many consider this a faster way of producing the feedback, and if several learners need to be given the same feedback, the same audio file can be sent to them without any additional effort. The educator is able to elicit praise based on the tone of their voice as well as the content of the feedback, this is something which learners appreciate.¹

Other educators have used video feedback, something which many learners feel is more personalised and motivational. Research suggests that video feedback can be easier to comprehend, and easier to act upon.² With video feedback, the educator can include demonstrations and show how to improve the submitted content easily.

There are also a number of e-Assessment tools that can be used in a blended context, including tools like Kahoot (<https://kahoot.com>), that allow the educator to develop a range of quiz type games, including multi-choice questions, which the learners can vote on collectively using their mobile phones. The results of which can be displayed on screen. It can also be used with chat tools like Skype and Google Hangouts.

Peer and self-evaluation

To help learners to “learn how to learn” (metacognition) it can be very useful for learners to reflect on their own work and the work of their peers. This can also help them to understand both the assessment criteria of a given assignment, and understand how the learning outcomes are being achieved in the assessments. Peer and self-evaluation increases the amount of feedback a learner receives, develops the learners’ critical thinking skills, and helps them to do better in assessments.

Peer evaluation involves the learners using a set of assessment criteria to evaluate the work of their peers. They should be providing clear feedback to their peers, as well as a grade. This will make them more actively engaged in their learning process and can result in them being more deeply engaged in the assessment processes. Peer evaluation can be done either on a one-to-one basis or in small groups of generally no more than five

members. If it is the preference of the learners this can be done in an anonymous manner. It can be helpful to start with something simple, for example, get learners to look at each other’s notes taken in class and have a structured discussion around the differences in perspective evidenced in the notes. This can also be a way for them to look at the gaps in each other’s notes and a means to compare previously marked assignments. This approach gives the learners a feeling of having their voices heard in the classroom, and it is often easier for learners to learn from each other as they speak in a similar vernacular. There are a wide range of tools that support peer evaluation, including:

- PeerWise: <https://peerwise.cs.auckland.ac.nz/>
- CATME: <https://www.catme.org/>
- peerScholar: <https://peerscholar.com/>
- PEAR: <https://peartool.opened.uoguelph.ca/>

Self-evaluation can involve the learners cooperating with the educator to define a series of assessment criteria, and then applying them to their own work. The focus here is not about learners giving themselves a mark, but rather that they learn to understand the features of a well-written assignment. This can also allow them to develop their ability to reflect on a learning activity. If the assessment criteria are clear and transparent, learners will often be more critical on themselves than an educator will be. Typical questions a learner should be encouraged to consider during self-evaluation include:

- Do I understand what I have answered?
- Do I understand why it is important?
- Do I understand why the assessment is asked in the way it is being asked?
- Do I understand how this is contributing to my learning?
- Do I understand that there are multiple ways I can answer this assessment?
- Do I understand my own preferred communication style?

To introduce this approach to learners it can be best to start with something simple, for example, give the learners a set of multiple-choice questions, and after they have completed it, hand out solutions, and get

1 Hooper, D. (2010) *Towards an Understanding of Students’ Use of Audio Feedback: An Exploratory Study*, presented at iCERI2010, 15-17 November, Madrid, Spain.

2 West, J., W. Turner (2015): *Enhancing the Assessment Experience: Improving Student Perceptions, Engagement and Understanding Using Online Video Feedback*. *Innovations in Education and Teaching International*, 38 (2), p. 240-252.

them to reflect on the answers they got wrong. They should consider if it was a lack of understanding of the question, or a lack of knowledge about the topic. Once they have completed this task, give them more complex assessments to self-evaluate. This approach encourages

learners to pay close attention to assessment criteria, and to reflect on how effectively they are meeting each of those criteria. It also give them some control over their own learning, and it enhances their critical thinking skills.

8.2 Evaluation of the Blended Process

To understand and evaluate the effectiveness of the blended activities you have developed, this section presents us with four evaluation processes. First, evaluation based on standard categories, second, evaluation from

learners, third, evaluation of technological challenges, and finally, the programme-centred evaluation of the content.

8.2.1 Categorical Evaluation of BL Assets

LORI

A number of organisations have developed evaluation criteria for online content. These include eLera, a distributed group that researches and evaluates e-learning. eLera provides a range of tools and information for learning object evaluation and research, and they maintain a database of learning object reviews. They have developed the Learning Object Review Instrument (LORI). LORI has nine criteria. LORI is used to evaluate the quality of e-learning resources. LORI is a form consisting of rubrics, rating scales and comment fields. The form is usually provided online. Table 8.1. gives a detailed description of the nine criteria.

For this workbook, we have created a simplified version of the LORI instrument that you can make copies of and hand out to your learners (see next page).

MERLOT

Another organisation with a similar instrument is MERLOT (www.merlot.org), which is a repository containing educational resources classified into seven broad subject categories: arts; busines; education; humanities; mathematics and statistics; science and technology; social sciences.

There are three general categories of evaluation standards used within MERLOT – see Table 8.2.

1. Quality of Content
2. Potential effectiveness as a teaching-learning tool
3. Ease of Use

8.2.2 Learner Evaluation of Blended Learning Assets

One of the most useful ways of evaluating the quality of blended activities is to ask the learners. It is often best to initially get informal feedback, by asking the learners either as a group or individually for feedback on the blended activities. In addition to informal approaches, there are a number of structured techniques that can be used to elicit feedback, including the following:

Interviews

Interviews generally start with a little small talk, followed by a brief outline of the aims of the interview. There are generally three forms of interviews:

- *Unstructured Interviews*: The interviewer has a few themes they wish to explore, but there are no fixed questions before the interviews, and the response to one question can lead to a number of follow-ups.

- *Semi-Structured Interviews*: A significant number of the questions are fixed before the interview, and the interviewer has leeway in asking follow-up questions when interesting responses are given.
- *Structured Interviews*: All of the questions are pre-determined before the interview, and are often given to the interviewee to prepare answers. No new questions can be added during the interview.

In the context of blended evaluation, a semi-structured approach can yield interesting outcomes. A careful reading and analysis of the answers of several interviews can identify areas of improvement. Some researchers suggest that it is necessary to do at least five interviews on the same topic to yield a sufficiently wide range of perspectives on the topic under scrutiny.

Surveys

Surveys start with a title, and have a brief statement of its aims. Surveys are usually composed of two types of questions:

- *Closed-ended questions*: There are a limited number of predefined answers and the learner ticks one of the answers. This type of question is easy to administer and responses are easy to analyse. They do however prevent the learner from raising new issues.
- *Open-ended questions*: The questions are asked and the learner can answer what they wish. This type of question is slower to administer and responses are

slower to analyse. They do allow the learner to raise new issues.

Surveys can be given to learners and asked to be done in their own time (this is called “self-administrated”), or the educator can be present and can instruct the learners how to fill out the questions and answer any queries (this is called “interviewer-administrated”).

Focus Groups

Focus Groups involve taking a group of learner and asking them as a group a number of questions about the blended content. Start by thanking everyone for coming, review the goals of the group, explain how everyone will contribute, and set the tone. Repeat what you think the group are saying in different words, and respect everyone’s opinion. Sometimes learners will answer questions more honestly in a group, buoyed by other comments by other learners, than if they were doing one-to-one interviews. The major concern with using focus groups is that they can be difficult to manage and sometimes the group can end up discussing irrelevant topics. Focus groups can also be done online which allows for greater participation and anonymity.

Shadowing

Shadowing works by simply observing the learners use the technology, without asking any questions and without offering any assistance. During the observation

Table 8.2 – MERLOT Quality Evaluation Categories

Rating	Description
Quality of content	<p>There are two general elements to quality of content:</p> <ul style="list-style-type: none"> • Does the software present valid (correct) concepts, models, and skills? • Does the software present educationally significant concepts, models, and skills for the discipline?
Potential effectiveness as a teaching-learning tool	<p>Evaluating the potential effectiveness is asking the peer reviewer to judge, based on their expertise as an educator, whether the learning material is likely to improve teaching and learning given the ways the faculty and learners could use the tool. Questions include:</p> <ul style="list-style-type: none"> • What stage(s) in the learning process/cycle could the materials be used for? • What should learners be able to do after successfully learning with the materials?
3. Ease of use	<p>Determining the ease of use of the content is exploring how easy it is for educators and learners to use the content for the first time. Questions include:</p> <ul style="list-style-type: none"> • Can the user get lost easily in the material? • Are the labels, buttons, menus, text, and general layout of the computer interface consistent and visually distinct?

Table 8.1 – Learning Object Review Instrument (LORI)

Rating	Description
1. Content Quality	This category looks at how factually accurate the content is. In addition, it considers whether or not there is a balanced presentation of ideas, and it looks to see if there is an appropriate level of detail.
2. Learning Goal Alignment	This category looks at the degree of alignment among learning goals, activities, assessments, and learner characteristics.
3. Feedback and Adaptation	This category looks at adaptive content or feedback driven by differential learner input or learner modelling.
4. Motivation	This category looks at ability to motivate and interest an identified population of learners.
5. Presentation Design	This category looks at design of visual and auditory information for enhanced learning and efficient mental processing.
6. Interaction Usability	This category looks at ease of navigation, predictability of the user interface, and quality of the interface help features.
7. Accessibility	This category looks at design of controls and presentation formats to accommodate disabled and mobile learners.
8. Reusability	This category looks at ability to use in varying learning contexts and with learners from differing backgrounds.
9. Standards Compliance	This category looks at adherence to international standards and specifications

phase the learners will note any questions they have, and note any issues they encountered. After the process is over the learners can ask the educator about all of the questions they need answering. At the same time, during the observation phase the educator notes down any issues they observe with the learners interaction and those issues are discussed after the phase is over. Ideally, the observations should not last longer than 30 minutes. Otherwise they will be of less value and less authenticity. Analysis of the outcomes of a shadowing activity needs to be undertaken carefully. It is a mistake to attempt to generalise the outcomes of a single shadowing activity to a whole learner group.8.2.3

Technology in Learning - A Perspective from the Distance

In this section we will look at two models of technology usage. The first, the Gartner Hype Cycle can help predict when a technology will become obsolete. The second, the UTAUT may help diagnose why learners are having problems with using a specific technology.

The Gartner Hype Cycle

Something to remember when choosing a particular technology to use as part of the blended environment is that technology goes through phases of popularity and later goes out of fashion. Therefore it is a good idea to review the blended activities on a regular basis and check if they are no longer likely to be supported or available. The Gartner Group is a global organisation that looks at trends in a range of business domains, including IT, HR, Finance, and Customer Support. On an annual basis the Group looks at existing and emerging technologies, and maps the lifecycle of that technology onto their Hype Cycle methodology. This consists of five stages:

4. *Technology Trigger*: This is the initial breakthrough of a given technology. At this stage there may be no commercial products available that incorporate the technology, but the media is abuzz with stories about it, and early proof-of-concept prototypes are very promising.
5. *Peak of Inflated Expectations*: The media is saturated with stories about this technology. It is appear-

ing in all the magazines and newspapers. Some stories are explaining the potential benefits of the technology, many are highlighting its weaknesses.

6. *Trough of Disillusionment*: Interest in the technology wanes as the failures are piling up, and investors in the technology are looking for something new. Many of the companies that were set up to exploit this technology have failed, a few are still in operation. Those still in operation are usually the ones who are listening to the problems, and working on solutions.
7. *Slope of Enlightenment*: The benefits of the technology are becoming clear (when properly implemented) and the surviving companies have a clear path to market. Second-generation versions of the technology begin to appear, and there is more investment in the technology.
8. *Plateau of Productivity*: The technology is now well-established, the benefits and shortcomings are well understood, and the applicability of the technology is clear to everyone.

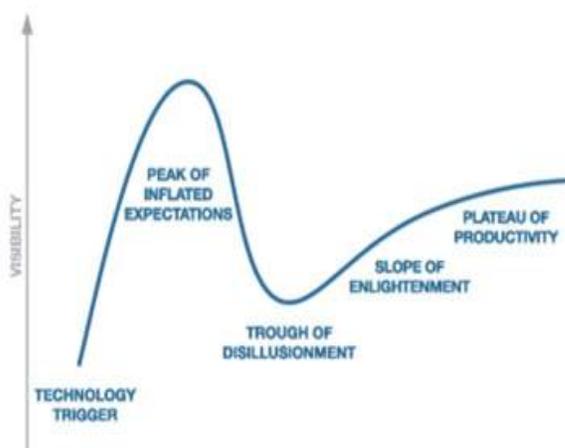


Figure 8.2 – The Gartner Hype Cycle.

Unified Theory of Acceptance and Use of Technology (UTAUT)

If the learners are not engaging with the blended activities, it may be that the learners' expectations of what the blended activities will do for them are not being met. It may also be a reluctance to use technology in a learn-

ing context. To help determine potential pitfalls around learner expectations we can use a model developed by Venkatesh, et al. (2003).¹ They developed a model called the *Unified Theory of Acceptance and Use of Technology* (UTAUT) model. The UTAUT considers both the user's intentions before they interact with the technology and the user's behaviour when they are interacting with the technology. The UTAUT states that there are four factors that determine how a user (or a learner) will engage with technology:

- Performance Expectancy (PE) – The degree to which an individual believes that using the system will help them to attain gains in job performance.
- Effort Expectancy (EE) – The degree of ease associated with the use of the system.
- Social Influence (SI) – The degree to which an individual perceives the importance that others place upon use of the new system.
- Facilitating Conditions (FC) – The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system.

The first three factors (PE, EE, and SI) determine the user's intention before they interact with the technology. This is called their Behavioural Intention, BI. The final factor, Facilitating Conditions (FC), combined with BI, determines how the user will behave with the technology (Usage Behaviour, UB).

The UTAUT also considers four key components: Gender, Age, Experience, and Voluntariness of Use which also contribute to Behavioural Intention (BI) and Usage Behaviour (UB). It is highly successful at predicting whether people will use a new technology. There is a standard questionnaire based on the model that can be used to assess the potential usage behaviour of technology, which has been validated numerous times since its creation in 2003.²

- 1 Venkatesh, V., Morris, M.G., Davis, G.B., Davis, F. D. (2003): *User Acceptance of Information Technology: Toward a Unified View*. MIS Quarterly, pp.425-478,.
- 2 Sun Chen, W., A. Yong Tat Yao (2016): *An Empirical Evaluation of Critical Factors Influencing Learner Satisfaction in Blended Learning: A Pilot Study*. Universal Journal of Educational Research, 4(7),.

8.2.4 Evaluation of Blended Learning Programmes

There are a broad number of ways to evaluate a blended programme. Here we present two techniques, using a SWOT analysis, and a brief description of an academic quality assurance process.

SWOT Analysis

SWOT Analysis was developed as a strategic planning tool for organisations to help determine both the internal and external factors that might be advantageous and detrimental to their businesses. Although the origins of SWOT are elusive, generally it is credited to Albert S. Humphrey working at the Stanford Research Institute in the 1960s and 1970s. SWOT stands for:

Strengths: What is going well in this organisation?

Weaknesses: What is not going well in this organisation?

Opportunities: What external elements are present to improve success?

Threats: What external elements are present that might be an impediment?

The Strengths and Weaknesses tend to look at the present whereas the Opportunities and Threats focus on the future. SWOT can be used for any decision making scenario where a clear end goal has been established.

Tabl 8.3 shows a sample SWOT analysis, looking at the Strengths, Weaknesses, Opportunities, and Threats for an academic institute.

You find a DOCX file with this template in the supplementary documents to this book, and a template for photocopy on the next page (Fig. 8.4).

Table 8.3 – S.W.O.T. Analysis of an Academic Institute

	Helpful	Harmful
Internal	<p>Strengths:</p> <ul style="list-style-type: none"> ● Industry-orientation ● Good quality assurance ● Small class sizes ● Good location 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ● Staff salaries ● Limited programmes ● Technology issues ● Population challenges
External	<p>Opportunities:</p> <ul style="list-style-type: none"> ● Professional accreditation ● Learner research ● Community links ● Brand recognition 	<p>Threats:</p> <ul style="list-style-type: none"> ● Raising costs ● Online programmes ● Recent cuts ● Higher entry points

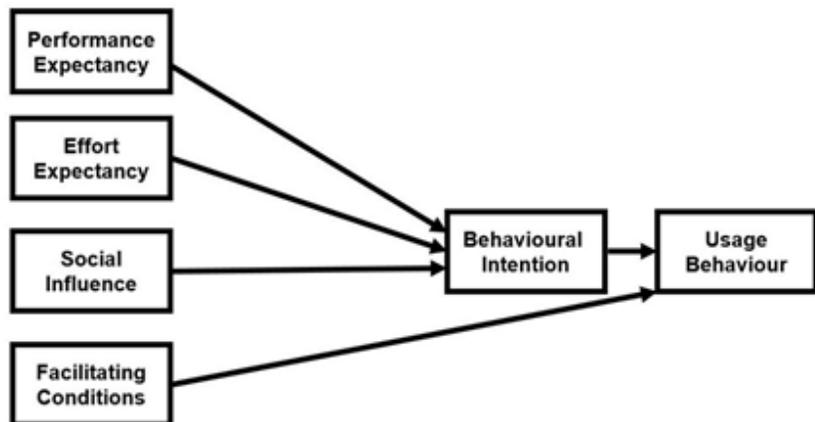


Figure 8.3 – The Simplified UTAUT.

S.W.O.T. Analysis		
Topic:		
	Helpful	Harmful
Internal	Strengths:	Weaknesses:
External	Opportunities:	Threats:

Fig. 8.4 – SWOT form. You find this as a .docx file in the supplements to this book, www.blenditwell.eu/handbook/templates/BL_Sup03_SWAT.docx

8.3 Financial Evaluation

To ensure that the case for the use of blended learning in your organisation is comprehensive, it is important that you are in a position to discuss some of the financial challenges and benefits associated with blended

learning. Therefore this section will provide a brief overview of some of the key financial issues, explain some key terminology, and look at the long-term financial perspective.

8.3.1 General Overview of Financial Issues

To help understand some of the key arguments for and against introducing blended learning into your organisation, in Table 8.4. we present some of the key financial considerations:¹

Above is a sample of some of the potential financial considerations when developing a blended learning programme, there will also be items that are specific to your organisation.

It is useful to explore which of these *Costs* and *Benefits* are once-off and which are on-going:

- The first item (“Cost of creating content”) might seem like a once-off cost, but content will have to be refreshed and updated on a regular basis. The costs of items 2-6 will be less regular, and the final item (“Cost of employing staff”) is a regular cost.
- In terms of the *Benefits: Saving*, items 1-2 are on-going benefits, whereas item 3 goes from being on on-going cost to an ongoing saving. In terms of the *Benefits: New Revenue*, items 1-3 are all on-going benefits.

8.3.2 Key Financial Metrics

This section explains three key financial metrics that it is important to be familiar with when discussing financial considerations. They are Cost-Benefit Analysis, Return on Investment, and Balanced Scorecard.

Cost-Benefit Analysis

Cost-Benefit Analysis should really be called Benefit-Cost Analysis, as it describes the ratio between Benefits and Costs.

$$\text{Cost-benefit ratio} = \frac{\text{Benefits}}{\text{Cost}}$$

Return on Investment

Return on Investment is calculated by first determining the Net Profit (with is Benefits minus Costs), dividing that by the costs, and multiplying the result by 100.

$$\text{RoI} = \frac{(\text{Benefits} - \text{Costs}) \cdot 100}{\text{Cost}}$$

Balanced Scorecard

A balanced scorecard is a way of looking at a programme or an organisation that takes into account more than the explicit financial perspective. It also considers other factors thafinancial implications, including the customers (in our case the learners), the learning (within the organisation, including staff sharing best practice), and the internal processes (including the quality assurance processes). A sample is provided in Table 8.5.

¹ Marengo, A., V. Marengo (2005): *Measuring the Economic Benefits of e-Learning: A Proposal for a New Index for Academic Environments*. Journal of Information Technology Education: Research, 4, 329-346.

8.3.3 Long Term Financial Evaluation

It is important to recognise that when initially developing a blended learning programme there will be a high cost, but over the long-term the programme will start to pay for itself. It is useful to look at the costs from three perspectives; Short-term (the first 6 months), Medium-term (6-18 months), and Long-term (18-50 months).

Table 8.6. shows some potential considerations.

A key consideration will be the technology costs, the cost of hardware and software can reduce over time, so it might be worth waiting to see if the costs of specific product reduce. It is also worth pointing out that for software, there is a wide range of open source software that is free that provides the functional of commercial products.

Maloney et al. have shown that savings from blended learning will far outweigh costs within three years . They also discuss the deployment of video content, and they highlight the fact that there are a number of free hosting services, such as YouTube, that provide content

management They also state that adding multi-media and animations to video appears to have little impact on learner achievement.

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Table 8.4 – Key financial considerations

Costs	Benefits
<ol style="list-style-type: none"> 1. Cost of creating content 2. Cost of licencing software 3. Cost of Content Management System 4. Cost of hosting content 5. Maintenance costs 6. Cost of equipment <ol style="list-style-type: none"> a. Video camera b. Microphones c. Lights d. Green screen 7. Cost of employing staff 8. Cost of training staff 	<p>Savings</p> <ol style="list-style-type: none"> 1. Reduced costs of lighting and heating of buildings 2. Potentially reduced travelling costs 3. Blended learning will be cost neutral in the long-term (within three years) <p>New Revenue</p> <ol style="list-style-type: none"> 1. Increased learner reach 2. Increased collaboration opportunities 3. Write eBooks

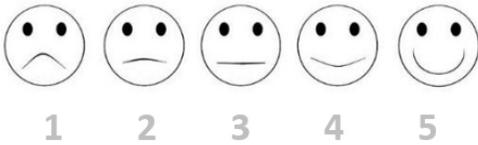
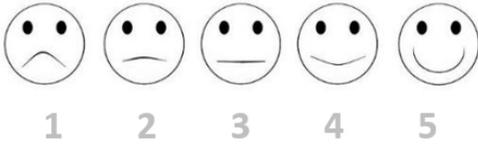
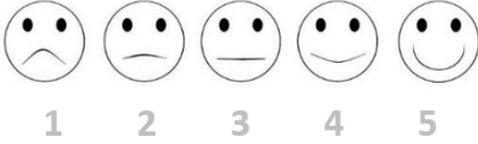
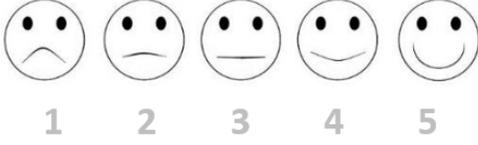
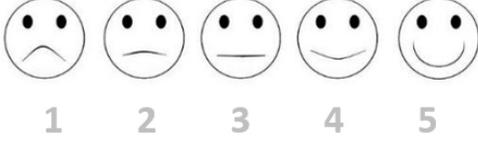
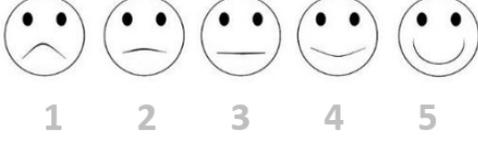
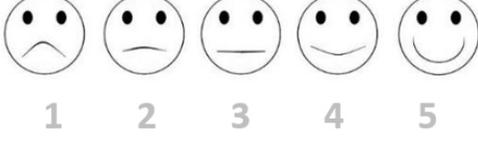
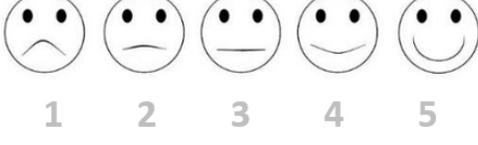
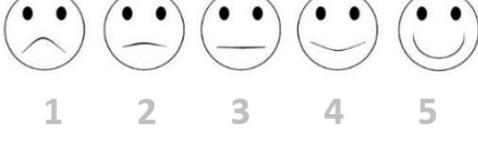
¹ Maloney, S., P. Nicklen, G. Rivers, J. Foo, Y. Y. Ooi, S. Reeves, K. Walsh, D. Ilic (2015): *A Cost-Effectiveness Analysis of Blended Versus Face-to-Face Delivery of Evidence-Based Medicine to Medical students*. Journal of Medical Internet Research, 17 (7).

Table 8.5 – A simple Balanced Scorecard

Financial Perspective	Learning Perspective
<ul style="list-style-type: none"> ● Broaden Revenue opportunities ● Improve operating efficiency ● Etc. 	<ul style="list-style-type: none"> ● Cross-departmental training ● Share tacit knowledge ● Etc.
Customer Perspective	Internal Process Perspective
<ul style="list-style-type: none"> ● Provide excellent service ● Partner with other quality organisations ● Etc. 	<ul style="list-style-type: none"> ● Develop new services and products ● Understand customer demographics ● Etc.

Table 8.6 – Short, Middle and Long Term Perspective

Timespan	Costs/Benefits
Short-6 months	<ul style="list-style-type: none"> ● Purchasing of software and hardware ● Intensive content development ● Promotion of programme
Medium-term: 6-18 months	<ul style="list-style-type: none"> ● First delivery of content ● Modification of content ● Maintenance costs
Long-term 18-50 months	<ul style="list-style-type: none"> ● Significant revision of content ● Ongoing maintenance ● Increased learner reach

Learning Object Review Instrument (LORI)		
Content:	Reviewer:	Date:
1. Content Quality	 1 2 3 4 5	
2. Learning Goal Alignment	 1 2 3 4 5	
3. Feedback and Adaptation	 1 2 3 4 5	
4. Motivation	 1 2 3 4 5	
5. Presentation Design	 1 2 3 4 5	
6. Interaction Usability	 1 2 3 4 5	
7. Accessibility	 1 2 3 4 5	
8. Reusability	 1 2 3 4 5	
9. Standards Compliance	 1 2 3 4 5	

Appendix: A Case Study of Blended Learning



*Grey, dear friend, is all theory,
and green the golden tree of life.*

Johann Wolfgang von Goethe – Faust I



A Korea-Ireland Collaboration in Blended Learning

Summary

Flipped learning courses generally follow a basic concept: web-based technologies outside of the classroom and instructor-learner interaction during class time, but the detailed design of the class builds on the instructor's personal experience, knowledge, teaching philosophy and goals of the course. The flipped learning concept reached the Republic of Korea (RoK) recently as a result of challenges East Asian universities are facing: enhancing the quality of education, keeping up with international trends and making education as cost-effective as possible. This case study is the first flipped learning course examined in a given Korean setting, but not the last one, similar courses are to follow in the near future. Therefore, the finding of the present study can help in designing and implementing courses in the future. Based on our final finding it seems certain that flipped learning methodology has a future in Korean higher education, as long as the course is designed for the specific setting: for example, emphasis should be put on learner/educator discourse in order to train naturally shy learners throughout the course to take an effective part in the interaction.

Details

This case study refers to a course taught at Kyungpook National University (KNU) in June 2017, during its summer school program. The module was delivered using a flipped classroom blended learning approach in a compressed format of two weeks. The course was an intensive course (3 contact hours from Monday to Friday), taught in English focusing on Computer Engineering (Cloud Computing). The instructor was an invited professor from Ireland who facilitates an identical full semester course at his home university. Multiple deliveries of this module had already been delivered and developed in Ireland for a 3rd year Honours Degree Programme in Computer Science in the Dublin Institute of Technology, though the delivery schedule in Ireland was over 12 weeks.

The delivery was compressed into ten daily sessions over a two week period, with three hour laboratory

sessions followed by daily pre-prepared video sessions. The compressed nature of the Korean delivery was a function of the funding model available using a Summer School environment for the course delivery. The compressed delivery also helped evaluate one of the delivery options available in a remotely supported delivery.

Initial limitations set were that the maximum class size would be constrained by the capacity of a single computer laboratory to ensure that the lecturer delivering the course would be present at all times. The expectation was that approximately twenty learners could be accommodated, however only ten learners registered. Of these learners eight attended the first class and one of them dropped out after the first day. Despite the recruitment process explaining the contents and delivery method of the course, the learners attending did not have equivalent coding experience to those taking the same course in Ireland, through English. There were six male learners and one female learner in final attendance. Of these learners six were from a Computer Science major with basic programming experience, and one learner had no prior programming experience with a background in Material Science.

The module title was "Cloud Computing Technologies" and was developed as a stand-alone DIT Continuing Professional Development module validated by the DIT prior to the delivery of the course to KNU. Learners must complete enough work to be awarded 5 European Credit Transfer System (ECTS) credits which is equivalent to 3 Korean credits. The DIT awarded the credits, which are international credits transferable to the KNU learners.

The following is a summary of the learning outcomes of the module.

- Build a basic Cloud System
- Demonstrate an understanding of the evolution of Cloud Computing Technologies
- Demonstrate a practical understanding of Cloud Computing Technologies in the lab
- Configure basic infrastructure components used with the cloud

- Critically analyse different methods for implementing cloud solutions
- The module content was published online and provided the following teaching assets in a structured manner.
- Course summary of topics covered and details of each day's activities in advance
- Structure of each day; including links to the following materials:
 - Video lectures for the daily lesson, to be watched in advance of the lesson. Each lecture was no more than twenty minutes in length and covered distinct individual topics grouped into coherent themes.
 - Online slides associated with each of the lectures
 - Links to online tutorials and reference material to assist with laboratory work
 - Access to source code used as a starting point or solution to each assignment
 - Detailed laboratory sheets with clearly marked assessment requirements
 - Online assessment reports for learners to complete relating to the online video lectures watched.
- Access to a pre-provisioned online virtual machine constructed specifically for this module
- Links to a source code repository for learners reference
- A learner survey for the course to be completed at the end of the course

All material was available online including links to other support technologies such as Google Slides, Google Forms, BitBucket Source code management, Videos hosted by HEANET in Ireland, and VMware virtual systems which were also hosted in Ireland. Online interactive tutorials could be repeated by learners and videos replayed to ensure that they understood the material. The approach taken was that learners would consume the online material and answer the online questionnaire and essay question on each topic each day. Queries were dealt with in the laboratory, and feedback would be given individually or collectively as required. The laboratory sheets were a core component of the delivery as this is where the primary interaction with the lecturer occurred. Two types of assessment were used, formative and summative. There were three assessment points in the course.

1. Online lab reports completed daily and submitted each evening by the learner. Each learner was required to view a series of online videos on the subject matter and answer questions using an es-



Fig. 9.2 – Instructor recording a lesson for blended delivery.



say style response. These essays were graded, with generalised feedback given to the entire class on the overall submissions standard. Reports were submitted using Google Forms.

2. In-lab worksheets were provided for in-class assessment, which were completed throughout the lab. Learners were able to discuss issues and get feedback as they progressed through the lab sheet. Lab instructions were detailed and clearly showed the marking scheme for the work performed. Worksheets contributed to the overall assessment mark of the course. Each new worksheet would provide for increasingly more difficult challenges for the learners, allowing them to build up confidence in easier sections early in the class, but challenging them near the end of the lab. As each day passed, learners had access to solutions for previous labs, helping them review any areas they did not score well in. Assessment was performed beside the learners where they would demonstrate their work in person. Submissions were formally made to a source code repository.
3. A capstone project was the final summative assessment component of the course. Learners were given a project to complete, within a two day period, which required them to use all of the skills learned in the course. Sample solutions of work completed were provided to ensure learners had access

to good relevant reference material in the form of lecturer provided sample solutions. Learners were assessed through a demonstration of their work to the lecturer during the final lab. Learners could continue to fix issues found during the final assessment, once they were completed, before the end of the lab.

Learners were graded in teams of no more than two. The assessment breakdown for the course was as follows: 30% for written reports, 40% for lab sheets, and 30% for the capstone project.

Conclusions

A pre-course survey found that learners were mainly not motivated to take this course because of its flipped nature, but because it was taught in English by a native English speaker. Since learners considered the course as an opportunity to improve their language skills, they did not consider the special nature of the course important, therefore were not familiar with the flipped learning methodology, even though all class materials were provided long before the class.

Learners reported general satisfaction with the quality and detail of the online material presented, but the compressed nature of the delivery, made it difficult for them to spend sufficient time on each section. The lecturer was required each day to adjust the pace

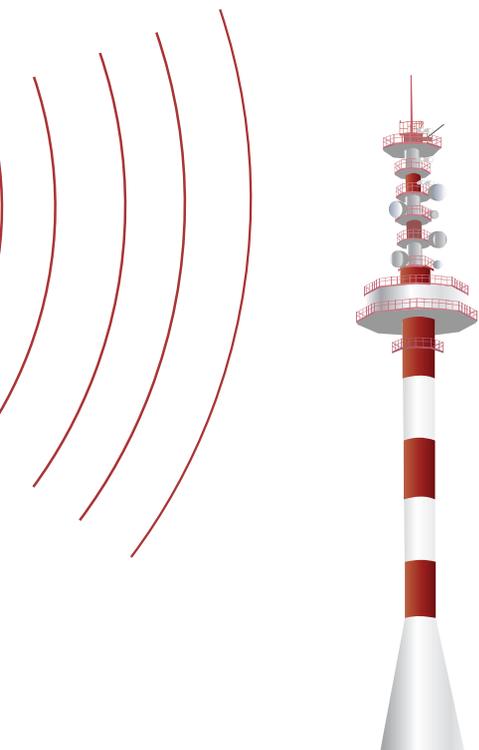


Fig. 9.1 – Instructor based in Ireland teaching a class in South Korea.

of the course to maintain sufficient progress through the module. This was possible only due to the extensive preparation performed by providing solutions to learners and working through examples when learners struggled with the material. Learners found some parts of the course difficult and more focus was placed on these areas during the delivery. This was only possible due to the constant daily feedback from the learners. Interestingly, the learner satisfaction at the end of the course on the video material was in fact higher than the recorded data during the course delivery.

The ability to alter pace and having all material extensively prepared was a key factor in addressing the learner cohorts' differing backgrounds. The nature of the flipped delivery and feedback allowed the learners to engage and perform well despite expressing difficulty with some of the worksheets. A strength of the flipped learning model was evidenced by the highly engaging nature of the contact time. Because the lecturer was not presenting new material in the class, but rather addressing issues and problems raised by learners in their feedback, it ensured that the actual teaching was targeted and relevant. Learners overwhelmingly identified the assessment and feedback as being a critical component to the success of the module. The lecturer also used the feedback to modulate the delivery pace and assessment to allow maximum learner engagement.

Other observations and lessons learned were:

- For quicker adjustment to the structure, requirements, and methodology of the course, it is desirable that learners have a clear understanding of the flipped learning concept before the beginning of the course.
- The compressed nature of the delivery did not add in a positive way to the module experience for either the learners or the lecturer. While the module ultimately resulted in a positive outcome for the

learners, a larger cohort may have had a difference experience. Time is required between each delivery to allow learners to absorb the material.

- Learners reacted well to the video material and found it engaging and challenging, however, further worked examples in the online format may have helped enhance the learners understanding. Future implementations should focus equally on theory and practical online videos.
- The Korean learners engaged extensively during the delivery. While initially quite reluctant to engage, the learners quickly started to ask many questions and interacted with the lecturer in the same way as seen in Ireland, for example.
- The feedback methods within the classroom ensured that the lecturer was aware of what learners were struggling with and allowed the lecturer control over the pace of the course. Learners expressed some considerable satisfaction with the feedback and engagement elements of the module, identifying it as a highlight of the module.

Flipped learning provides a benefit to learners when it combines a flexible pace with delivery of modules. This flexibility is only made possible through responding to feedback from learners on an ongoing basis. This response could take the form of altering assessments, adding additional explanations to the material, providing additional sources of reference or working through the problem with the learners as a group in an interactive way. To accomplish this, the lecturer in the room should be a subject matter expert and highly experienced in the course material. Moreover, to successfully implement a flipped learning course in Korea, the specific Korean setting should be considered during designing and delivering the course.



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