Blended Learning in Teachers´ Professional Development –

Developing a Blended Learning Course in Content Area Literacy for Secondary Teachers

Erasmus+

Ble*Teach

Handbook of Success Factors in Blended Learning Offers for Teachers´ In-Service-Training

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Project website: www.blend-ed.eu

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Introduction

Christine Garbe

The BleTeach project was funded from November 2015 to April 2018 as an Erasmus+ Project under KA 2: Cooperation for innovation and the exchange of good practices: “Strategic partnerships in the field of education, training and youth“.

The following partner institutions and experts worked in BleTeach:

Partner 1 - Germany: University of Cologne, Cologne (Coordinator)

Partner 2 - Romania: Asociatia LSDGC Romania, Cluj-Napoca (Reading and Writing for Critical Thinking, Romanian Association)

Partner 3 - Hungary: Kecskemét College (KeCo) changed to Neumann János Egyetem, Kecskemét

Partner 4 - Germany: Pedagogical State Institute Rhineland-Palatinate, Speyer

Partner 5 - Belgium: Université de Liège, Liège

Partner 6 - Belgium: Haute Ecole de la Ville de Liège

Partner 7 – Portugal: University of Minho, Braga

Partner 8 (on a self-financing basis): Russia: Herzen Pedagogical State University, Sankt Petersburg, and Russian Reading Association, Moskow

External Experts: Dr. Liz Chamberlain (United Kingdom); Dorothee Gaile, Dr. Yvonne Hörmann, Angelika Schmitt-Rößer (Germany); Prof. Dr. William G. Brozo (United States); Dr. Sari Sulkunen (Finland).

The project addressed two crucial needs in teachers´ continuous professional development (CPD) in most European countries: (1) A general structural problem: The unsatisfying structures of teachers' CPD in the EU, and (2) a specific, content related problem: the lack of expertise of secondary school teachers, i.e. content area teachers required to address the problem of low literacy skills of children and adolescents in many European countries. The subsequent handbook is part of the project outcomes related to the first aspect, so we will focus on this one here. Please find more information about the BleTeach project and its outcomes on the project website: www.blend-ed.eu.

In many European countries the time for face-to-face learning in teachers´ CPD is limited to a few days per year and thus privileges “one-shot-approaches” which are not effective and sustainable in making a difference, which means in changing the daily classroom practice of teachers who participated in those CPD formats and ultimately in improving learning results of their students. This is what evidence in research has proven. In order to implement more promising middle- or longterm CPD formats the potential of blended learning should be taken into consideration. Therefore, the BleTeach project intended to explore and analyse the most promising formats in blended learning offers in CPD for teachers in order to develop and

implement a blended learning (BL) course for secondary teachers (and teacher trainers) in a specific field (content area literacy = CAL).

The BleTeach project thus pursued two main objectives: (1) Modernizing structures of teacher education by integrating digital learning opportunities into teachers´ professional development, and (2) Developing a model blended learning course (BL-course) in CAL to be included into the regular course programme of numerous European Teacher Training Centres in the 5 partner countries: Belgium, Germany, Hungary, Portugal, and Romania.

Regarding the first objective, the BleTeach project produced two major outcomes: (1) National Reports about "Good Practice Examples and Blended Learning Concepts in Teachers´ CPD" in Belgium, Germany, Hungary, Portugal and Romania, and (2) a "Handbook of Success Factors in Blended Learning Offers for Teachers´ In-Service-Training". The subsequent handbook is thus the second outcome related to this strand of the BleTeach project.

This handbook will start with an overview of international research regarding the development and implementation of blended learning in adult education and professional development in general. This chapter will also summarize the main findings of our own investigation in five countries, which led to the above mentioned National Reports (**Chapter 2**). The main part of our handbook will deal with didactical guidelines on how to develop blended learning offers in teacher education / adult education and professional development of teachers. We could build here on the extensive conceptual work and practical experience of our Belgian colleagues from the IFRES (Institut de Formation et de Recherche en Enseignement Supérieur, Université de Liège) and our partners from University of Liège who hosted the BleTeach Summerschool in 2017 and guided us through those principles. In working through the NEDOMASPPA framework (see **Chapter 3**) which was developed by those colleagues we discussed and revised the drafts of our IDEAL course modules and carried out some practical exercises (e.g. in the video lab of the IFRES). Our Belgian colleagues contributed this main part – the didactical guidelines for developing blended learning courses - to our handbook. In **Chapter 4**, we will give a short overview of the technical tools which our course requires from E-learning platforms. Finally, in the **Appendix,** we will publish the templates and guidelines which we used for producing our own Blended Learning Course (IDEAL – Improving Disciplinary Learning through Literacy). You find more information about the content and methodology of this course on our project website www.blend-ed.eu.

This handbook provided foundational elements for our own course development, but it will be applicable for all kinds of blended learning courses in teachers´ professional development in different subjects and surroundings. We strongly hope that it will become a helpful tool for developers of teachers´ PD courses all over Europe and help to improve the structure and quality of teachers´ in-service training.

Christine Garbe, BleTeach coordinator, University of Cologne, June 2018

Chapter 2: Research Background

2.1. International Research on Blended Learning: An Overview

Eleni Louloudi

1. Introduction

Since the first appearance of technology-based education in the 1960s, the landscape of teaching and training has been steadily changing. Even though today this development is far from over, it is safe to say that its current form, blended learning, is gaining recognition and is being introduced to many forms of education such as schools, universities and teacher training centers (Cheung and Hew 2011: 1319). But, what exactly does Blended Learning stand for?

Long before Blended Learning was an idea, and after the first technology-based teaching was established, there were two types of learning environments, the traditional face-to-face and the distance computer-mediated. These two learning environments remained discrete for a long period of time, because they were using dissimilar educational techniques and media and were usually applied into different situations and learning audiences (Graham 2006: 5-6).

In the late 1990s, Blended Learning was firstly introduced to the research community by a computer skill certification and software training business based in Atlanta and was rapidly popularized (The Free Library 2017). This first reference described Blended Learning as a combination of e-learning and classroom practices, which aimed at overcoming the weaknesses of both these teaching techniques when used separately (cf. Masie 2006: 22). Ever since then, the concept of Blended Learning has been growing, following the demands of the newest trends in education as well as in technology (cf. Alammary et al. 2014: 440; cf. Graham 2006: 3).

More specifically, in the last decade, Blended Learning is not only seen as a new trend, but as a necessity for the world of education, mainly because it gives teachers and trainers the possibility to improve traditional teaching and overcome many obstacles that this may cause (Cheung and Hew 2011: 1319). Blended learning, when applied correctly, can combine the fast-growing technological innovations with traditional instruction in order to best cover the demanding educational needs of the learners (cf. Cheung and Hew 2011: 1319; cf. Graham 2006: 3-7).

Because of its great importance and its wide establishment, Blended Learning has become a popular research topic in many academic disciplines, which have been trying to define it, discuss it and create specific designs and approaches. This extensive research has inevitably led to different opinions and interpretations of the current idea behind Blended Learning, as well as its use, benefits and challenges. The following chapter will give an overview of these research outcomes and existing concepts regarding Blended Learning.

2. Definition

For the past twenty years, Blended Learning has been developing and its definition has been evolving from a vague idea to a concrete concept with specific characteristics and goals to be achieved. In the late 90s, it was an intellectual concept which aimed at combining face-to-face teaching with computer-based technology, whilst today this definition includes a variety of key-concepts such as the combination of media and tools, the mixture of pedagogical approaches and the integration of traditional training into e-learning approaches (qtd. in Alammary 2014: 442).

One of the most discussed and widely used definitions, proposed by Charles Graham in 2006, understands Blended Learning as a mixture of "synchronous face-to-face settings", in which people interact with each other and "asynchronous text-based settings", in which they work individually. Additionally, he also discussed the idea of three basic blends: a) the online and face-to-face blend; b) the instructional methods blend and c) the delivery media blend (qtd. in Graham 2012: 333-4), which was also proposed by Driscoll as "basic concepts of Blended Learning" in 2002. Graham highlights the fact that (b) and (c) cannot be used to describe Blended Learning without (a), because this would make the definition very vague and broad, since most learning instructions use a variety of media or instructional methods for their purposes, without necessarily being Blended Learning (2006: 3) This gives an underlined importance to the online and face-to-face blend, making it a decisive characteristic of a Blended Learning definition (cf. Graham 2006: 3).

In the years that followed, definitions concentrated on explicitly describing the kind of blend that was needed for a successful Blended Learning course and became sharper, showing that it is not enough to "just blend" instructional methods and media; what is needed is a "thoughtful fusion of experiences" (Garisson and Vaughan 2011: 5) and a "thoughtful integration of them" (Alammary et al. 2014: 443). For this reason, Blended Learning needs, in addition to a clear definition, specific basic characteristics, which will make it easily recognizable and widely understandable in its application.

3. Basic characteristics

As Elliott Masie recognizes in his 2006 paper "The Blended Learning Imperative", "all learning is blended learning" (22), explaining that every learning process can include more than one style(s) in the 'content, context delivery or discovery' (22). Consequently, Blended Learning in this form had developed characteristics, before it was given a standard definition. But which characteristics distinguish Blended Learning from any other kind of learning? Following the idea of Massie, "the magic is in the mix" (25); hence, it is not any kind of mixture that describes Blended Learning, but a mixture that aims at recreating and reoutlining the entire learning and teaching procedure (cf. Alammary et al. 2014: 443).

Accordingly, the basic Blended Learning characteristic, the convergence of face-to-face with online instruction, aims at reconstructing the traditional teaching in order to overcome problems that this may have created, such as the inflexible time management and the unsuccessful communication between teachers and students. *Face-to-face* is synonymous to physical and co-present instruction (Stacey and Gerbic 2008: 964), whereas *online* refers to virtual and technologically mediated settings (qtd in Alammary et al. 2014: 442; cf. Friesen 2012: 5). The former is usually used to convey experience-based knowledge, in oral or non-verbal form (Heller 2010: 9), whilst the latter includes written communication which is based on technology-mediated media found outside the classroom environment (cf. Friesen 2012: 6-8).

The second characteristic is the use of a blend of pedagogical approaches such as constructivism, cognitivism and behaviorism. This aims to optimize the final learning outcome and cover multiple educational needs that students usually have (cf. Driscoll 2002: 1). Since every learner is an individual being, a learning environment consists of individuals who have their own learning styles and ways of processing new information and knowledge (cf. Massie 2006: 25). Blended Learning aims at including various styles in order to make the final product more appealing and beneficial to the majority of learners.

Additionally, a combination of learning and practice is also to be found. Blended learning makes it possible to combine learning with practice instead of considering that learning has to take place before practice. In order to facilitate practice, aids can also be provided (Verpoorten et al. 2017: 3).

Furthermore, Blended Learning fosters the use of various media of web-based instructional technology. A convergence of tools, such as audios, texts and videos, will help the participants (both trainers and learners) achieve their personal goals and, at the same time, will promote their motivation. Additionally, modern technology provides many options, such as internet-based instruction, interactive video disks (IVDs) and teleconferencing which can be easily combined with face-to-face training. This combination builds a social environment for the learners and helps them become more active and self-confident (cf. Driscoll 2002: 1; cf. Massie 2006: 23-4; cf. Alammary et al. 2014: 442-3).

Lastly, Blended Learning allows the successful combination of self-paced and collaborative learning. Self-paced learning means that learners can learn at their own pace, at the place and at the moment they choose. However, self-paced learning alone can demotivate and discourage persistence in learning. In order to avoid demotivation and discouragement, self-paced learning can be combined with collaborative learning. Giving learners opportunities to work together enables them to check and to share what they know. Collaboration can also help them to overcome individual difficulties (Verpoorten et al. 2017: 2)

Although a list of basic characteristics can help to identify and describe Blended Learning as a term and concept, its use should always stay individual. Blended Learning courses should fit to the main idea of combining face-to-face with online instruction, but they should always respond to the respective needs of individuals and learning communities (cf. Stacey and Gerbic 2008: 966). In brief, as Star and Griesemer put it, Blended Learning should “maintain a common identity across sides…” (393), but at the same time, it should also be “plastic enough to adapt to local needs and constraints of the several parties…”(1989: 393-4).

4. Use

Taking a look at the use of Blended Learning, it is unquestionable that it has shown a significant growth over the past twenty years. However, this does not imply that all countries or institutions have adopted Blended Learning practices uncritically. On the contrary, there are noticeable discrepancies on the way Blended Learning is being introduced in the USA, for instance, in relation to European practices. In the USA, it stopped being a ‘new trend’ and is slowly becoming a common practice and method which is expanding in the world of education, the corporate world and political and governmental institutions and organizations (Bonk et al. 2006: 1). Although in Europe, Blended Learning is turning into a favorable practice as well, the traditional lecture is still a predominant choice of practice (cf. Monk and Hitchen 2005:219)

More specifically, in the US American educational system, steps have been taken to introduce Blended Learning in most educational levels – from primary education to Continuous Professional Development (hereafter: CPD). Young primary school students might start their first lessons with basic Blended Learning steps, which could help them become more confident with the technology and improve the home-school communication. This way parents could also become more involved in their children´s school reality, which usually proves to be efficient for the child´s education ("Blended Learning in K-12/Blended Learning in Grades 3-6." 1).

In Europe, there have also been some innovative projects, such as the *Blended Learning Project* in Finland, Spain and Greece and *The Venice Mystery Project* in Norway, which integrated synchronous

and asynchronous practices in language lessons for primary and middle school classes (cf. Vlachos 2010:257; cf. Fahlvik 2013: 10-12). However, the majority of European countries have not yet adopted national policies aiming to foster and integrate Blended Learning in education. Some countries such as Germany, the Netherlands and Ireland have established measures to help e-learning practices (included Blended Learning) in higher education (Gaebel et al. 2013:21).

Specifically, in higher education, Blended Learning practices have been adopted by an increasing number of institutions all over the world. Blended Learning seems to have the potential to meet the educational needs and requirements of today's students. University lessons become more flexible and students can combine other responsibilities and activities, such as work and family, with their studies. In the USA, it can be argued that Blended learning is a thriving practice, which has already become, as Dziuban et al. mention, "mainstream" for higher education (2005: 195); for example, at the University of Central Florida, Blended Learning courses experienced a significant enrollment-rate rise, from hundred twenty-five in 1997 to more that thirteen thousand in 2003 (qtd. in Cheung and Hew 2011: 1319). In Europe, the majority of higher education institutions claim to be providing their students with blended learning courses or granting blended learning degrees. However, only one fourth of these institutions are using blended learning across their curriculum, which indicates that the use of Blended learning is far from mainstream and still in average levels with clear potential for improvement (Gaebel et al. 2013:26).

- **Use in Teachers' Continuous Professional Development (CPD)**

This relatively quick response of higher institutions has also reached the educational courses offered for teachers' CPD. Many research studies have shown that teachers' CPD has been benefiting from Blended Learning practices in relation to the correspondence, overall satisfaction and positive feedback of the participants (qtd. in Kocoglu et al. 2011: 1125). For instance, an evaluation of a Blended Learning course offered for in-service teachers in Greece in 2010, showed the important role of Blended Learning in optimizing teachers' CPD (Mouzakis and Bourletidis 2010: 1-2). Particularly, it highlighted that teachers' satisfaction is often connected with the levels of flexibility and adaptability usually offered in Blended Learning courses (Mouzakis and Bourletidis 2010: 17).

Accordingly, another study conducted in Germany by Lutz Hellmig underlined the potential of Blended Learning to enhance teachers' CPD, since the latter can sometimes be dated and ineffective (2008: 1-2). Blended Learning can help in-service teachers become more experienced, while exchanging practices and knowledge with their colleagues (Hellmig 2008: 8). For these reasons, it seems that one third of the European higher institutions intends to specifically target CPD training when they offer a Blended Learning course (Gaebel et al 2013: 28)

Additionally, Blended courses analyses, such as the one Holmes, Polhemus and Jennings conducted in 2005, have showed that Blended Learning can improve teachers' understanding of technology and help them creatively use it in their classrooms (391-4). Teachers become more aware of the materials they can use, as well as more comfortable and self-confident, fact that motivates them to reconstruct their classroom practices and build new ones using Blended Learning (qtd. in Kocoglu et al. 2011: 1125).

What is more, Blended learning in teacher's CPD is usually connected with the establishment of a community. Teachers use Blended Learning to build a community of practitioners, in which they have the possibility to "share a concern, a set of problems, or a passion about a topic" and "deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger et al. 4). These communities, both informal and formal, help teachers develop professionally in a much more effective

way than trying individually (cf. Stacey and Gerbic 2008: 965). Being a member of school and online communities, namely "boundary spanning" (qtd. in Stacey and Mackey 2009: 2), helps teachers take under consideration a variety of perspectives and supports them in creating their own new concepts and ideas and in reflecting on their professional learning (Stacey and Mackey 2009: 1-2). Such communities have been given numerous names and identifications; Garrison and Vaughan proposed the idea of a "Community of Inquiry", which converges face-to-face workshops with online discussion and reflection sessions (2011: 13-6).

To be more specific, not all communities are communities of practice and not all learning networks are communities. Following the Wenger definition (2002: 23-47), in order for a community of practice to be created but also to make sense, there are three characteristics that have to be fulfilled: a) a certain *domain*; b) a *community*; and c) a *practice-based environment*. The first characteristic refers to the idea of having a *common interest* or idea, to which the group is dedicated. Whether this is a group of pupils or doctors or teachers, they should be interested in developing a community of practice. Of course, it is necessary for them to be a community, ergo, people who *interact* in many possible ways with each other. Working in the same field is not enough for a group to build a community of practice; they should be interested in *participating in a learning intercommunication*. Finally, prospects for *actual training* should exist; practitioners can exchange opinions, experiences, problems and tools in order to improve their own practice. If all these three aspects are combined, then a community of practice can be established (Wenger 2002: 23-47).

Usually communities of practice play many roles in the evolution and further development of each member. According to Wenger, there is a variety of activities they engage in, such as problem solving, experience dialogues, knowledge transmission, gaps identification, local visits and collaboration (2002: 23-47).

5. Patterns of instructional design[1]

Desk studies have brought about numerous definitions, models and patterns likely to guide the reflection on online courses and their instructional design. According to Allen and Seaman (2013), blended learning can be defined as a combination of face-to-face and online (or remote) sessions with a proportion of online delivery ranging from 30 to 79%. As a consequence, face-to-face meetings are reduced in number, online discussion boards can compensate for the reduction of face-to-face interaction.

[1] As taken from Verpoorten, D., Parlascino, E., André, M., Schillings, P., Devyver, J., Borsu, O., Van de Poël, J.F., Jerome, F. (2017). Blended learning - Pedagogical success factors and development methodology. University of Liège, Belgium: IFRES (orbi: http://hdl.handle.net/2268/209645), pp. 3-4

Proportion of Content Delivered Online	Type of Course	Typical Description
0%	Traditional	Course where no online technology used — content is delivered in writing or orally.
1 to 29%	Web Facilitated	Course that uses web-based technology to facilitate what is essentially a face-to-face course. May use a course management system (CMS) or web pages to post the syllabus and assignments.
30 to 79%	Blended/Hybrid	Course that blends online and face-to-face delivery. Substantial proportion of the content is delivered online, typically uses online discussions, and typically has a reduced number of face-to-face meetings.
80+%	Online	A course where most or all of the content is delivered online. Typically have no face-to-face meetings.

Fig. 1. Type of courses according to proportion of content delivered online (Allen & Seaman, 2013)

Educnet (2008) proposes four patterns of instructional design combining online training and face-to-face meetings. Both patterns at the centre of the figure below correspond to patterns of blended learning. One of them is called "Lightened face-to-face". It implies that the bulk of training takes place in the presence of all attendants (teacher and learners) whereas a few hours are dedicated to self-study or to activities to be carried out online (with or without tutoring). The other pattern of blended learning is called "Reduced face-to-face" and implies that approximately half of the training takes place online. Blending online and face-to-face elements for the purpose of instruction does not only mean organizational flexibility, it also influences the quality of learning (Means and collaborators, 2009): "Instruction combining online and face-to-face elements had a larger advantage relative to purely face-to-face instruction than did purely online instruction. The mean effect size in studies comparing blended with face-to-face instruction was +0.35, $p < .001$. This effect size is larger than that for studies comparing purely online and purely face-to-face conditions, which had an average effect size of +0.14, $p < .05$. An important issue to keep in mind in reviewing these findings is that many studies did not attempt to equate (a) all the curriculum materials, (b) aspects of pedagogy and (c) learning time in the treatment and control conditions. Indeed, some authors asserted that it would be impossible to have done so. Hence, the observed advantage for online learning in general, and blended learning conditions in particular, is not necessarily rooted in the media used per se and may reflect differences in content, pedagogy and learning time."

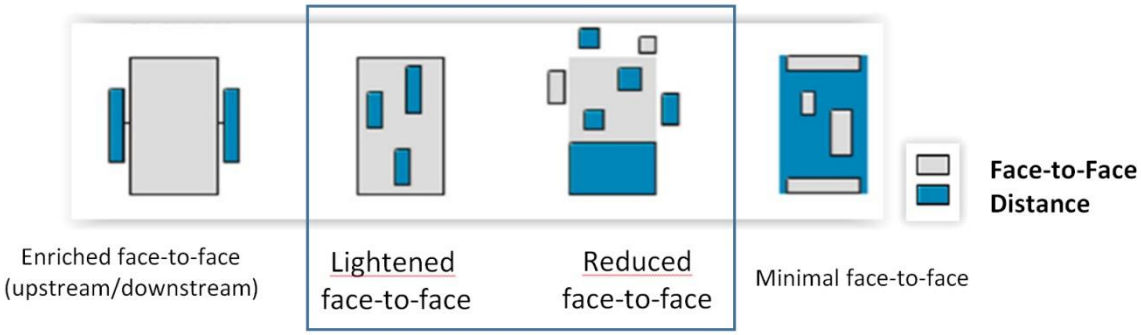

Fig. 2. Instructional design patterns blending face-to-face and distance training (Educnet, 2008)

6. Five Dimensions of Blended Learning [2]

Peraya and his colleagues (2012) designed a conceptual framework making it possible to identify various types of blended learning. The framework is based on five dimensions that have to be combined together to characterize learning activities.

1. Combination of learning sessions dedicated to face-to-face and to distance learning

Three aspects have to be taken into consideration: 1) the time allowed for each learning session, 2) the succession of face-to-face and distance learning sessions and 3) the kind of activity or assignment attributed to each session (e.g. information-gathering for learning purposes or to carry out some specific task). The status given to learning contents and the kind of engagement required of learners determine the alternation of face-to-face and distance learning.

2. Features of the learning environment regarding the use of media (techno-pedagogical environment)

To facilitate online and/or distance learning, the course designer has to provide for a techno-pedagogical environment which makes it possible for learners to perform the assigned tasks under good conditions. The designer has to select the most suitable tools with regard to the learning objectives to be attained and with regard to the tasks to be performed.

3. Expected and observed effects in terms of reflexive and relational mediations

Techno-pedagogical environments modify the relation of learners to subject matter, to learning activities and to other learners. The ways to appropriate and to use knowledge are also influenced by the characteristics of the learning environment.

4. Human support available in order to develop methodological and metacognitive skills

Distance learning can cause a feeling of isolation, especially if it is only used for transmitting knowledge. In an environment of blended learning the teacher is more than an expert who transmits information. Blended learning implies that the teacher should help the learner to understand and to integrate new information into the knowledge he/she already possesses.

4. Openness of the learning environment

The openness of the learning environment depends on the liberty learners are allowed to take in order to attain the learning goals or even to decide on them. It also depends on the opportunities learners have to resort to external resources (human and material). The more the course is open, the more learners will engage in the learning process.

[2] As taken from Verpoorten, D., Parlascino, E., André, M., Schillings, P., Devyver, J., Borsu, O., Van de Poël, J.F., Jerome, F. (2017). Blended learning - Pedagogical success factors and development methodology. University of Liège, Belgium: IFRES (orbi: http://hdl.handle.net/2268/209645), pp. 4-5

As Koper (2005) rightly points out: "Although it is not hard to incorporate technology in teaching and learning, this does not necessarily lead to more efficient practices." Clark (2003) also is cautious about the possible benefits of blended instruction: "the simple 'pick-and-mix' definition of the concept is insufficient".

7. Benefits

Blended Learning practices have been beneficial for learners all over the world. As Charles Graham mentioned in his "Benefits and Challenges of Blended Learning Environments", Blended Learning has proven itself to be more effective than both e-learning and traditional face-to-face practices, because it "improves upon prevalent pedagogical practices" (2005: 254). There are many benefits a Blended Learning course can offer; their categorization could consist of three sub-groups, one referring to its efficient pedagogy, second to its suitability for the trainer and the learner, and third to its low-cost nature.

With regard to the applied pedagogy, Blended Learning courses have adopted practices that are student-oriented and go beyond the traditional teacher-centered lessons. Firstly, these practices understand the mode of instruction as a way to take under consideration and acknowledge the students' individual needs, interests, inquiries and previous knowledge. Students easily become active and equally treated members of the course.

Secondly, Blended Learning focuses on complementing independent learning with the needed human interaction. While students may be overwhelmed with the amount of information the Internet provides and unable to use them without further instruction, Blended Learning mixes and balances their individual work with teamwork and intercommunication. To support this interaction, peer-learning and -mentoring are often organized, which help students socialize and interact with fellow colleagues. They create online discussion groups and exchange feedback on their practices and solutions to their problems in the practice. This type of collaborative learning is usually satisfactory and motivating for the learner, specifically in a distance-learning environment (cf. Jasinska and Podgorska 2009: 2)

Thirdly, Blended Learning practices have oriented themselves to the skills one needs to acquire in the twenty-first century. While traditional learning seems to have failed to equip learners with the contemporary skills[3] they require to become competitive, Blended Learning is twenty-first century-driven, following both the new technological trends and the new knowledge expectations of the students. (Graham 2005: 255; cf. Stacey and Gerbic 2008: 966).

With regard to the suitability , one of the major benefits of Blended Learning courses is the convenience they provide to the participants, both trainers and learners. There is a high degree of time- and place-flexibility, which is achieved without easing human contact nor reducing the quality of

[3] In 2010, UNESCO published a paper on *ICT Transforming Education*, in which it was thoroughly explained that the need for 21-century-driven education is higher than ever. The same paper made a clear reference on which skills are needed by modern students, quoting a study by Partnership for 21st Century (P21). These skills are classified in four different categories: 1) Core subjects (global awareness, financial, economic, business and entrepreneurial literacy, civil literacy and health literacy); 2) Learning and innovation skills (creativity, critical thinking and problem solving, communication and collaboration); 3)Digital Literacies (Information, Media and ICT); and 4) Life and career skills (flexibility, adaptability, iniative and self-direction, social and cross-cultural skills, productivity, accountability, leadership and responsibility) (Anderson 2010: 32)

pedagogy. In addition, because of the flexible time management and the efficient pedagogical practices used, students become more confident and improve their performance. This confidence leads to an enhanced communication between the instructor and the learner and to a more "fun and easy to learn" environment (Kocoglu et al. 2011: 1130; Graham 2005: 255; cf. Stacey and Gerbic 2008: 966)

Finally, the third sub-category refers to one of the most important issues of the modern world: the cost effectiveness of education. Higher education institutions, schools and businesses look for low-cost solutions, which will reach a big audience in a limited period of time. Blended Learning courses offer a wide range of training opportunities, which save time and travel costs from the participants (qtd. in Graham 2005: 256). However, while a noticeable number of conducted studies have pointed out that by using Blended Learning courses, institutions, organizations etc. can reduce the learning costs, this is highly connected to the type of general education provided by each country.

Whereas in the USA, higher education can be high-priced, most European higher institutions are for free. Consequently, European students see Blended Learning courses as costly, because of all the costs correlated with materials, printing and fees for the course (Benfield et al. 2006: 56). Additionally, Blended Learning courses require a high level of preparation which is associated with extra costs for the institutions, such as the trainers' engagement and the dissemination of the course (cf. Mouzakis and Bourletis 2010: 17). Even though these seem to be disadvantages, nearly one in two European institutions believe that a Blended Learning course is worth the expenditure (Gaebel 2013: 44).

8. Challenges

As any other approach, in addition to its benefits, Blended Learning has its challenges. More specifically, there are particular elements connected with Blended Learning which are demanding and often problematic. One of the most challenging issues is the increased time required for its preparation and production. Even though the course itself is flexible on how the participants use their time, the actual time needed for teachers and students to prepare themselves is more than in regular face-to-face or e-learning courses. Moreover, many European teachers face difficulties in developing their digital materials or platforms, spending time on learning specific tools, whilst in the USA help is provided by graphic professionals (Norberg and Jahnke 2014: 262). This demanding workload of teachers and students may lead them to feel unsatisfied or even drop the course (cf. Graham 2005: 256-7).

The students' motivation is also part of what makes Blended Learning challenging. Depending on how well the course is developed, there can be very demanding parts, usually in the online phase, when the learner is expected to be very productive, and other parts, usually in the face-to-face phase, when the learner is not being enough included in the learning process, which causes demotivation (cf. Scholl et al. 2008: 3). This can also be caused by too long distance learning phases or failed collaboration between the participants (cf. Hellmig 2008: 9; cf. Jasinska and Podgorska 2009: 2). Consequently, even though students get easily motivated to attend a Blended Learning course, they lose their interest while the course is progressing, which leads to a high rate of dropouts.

In addition, one of the highest challenges pertains to the technology used for the completion of the course. Firstly, both teachers and students need a certain degree of previous technological knowledge in order to be able to participate in the course. If this knowledge is missing, then those participants are unable to follow and complete the Blended Learning. Sometimes, even if all participants are highly media- (and ICT-) literate, technical issues, such as connection failures or skype problems, come about

and interrupt the flow of the lesson causing disturbance and inconvenience (cf. Alammary 2014: 444-7; cf. Kocoglu et al. 2011: 1129-30)

Lastly, the greatest challenge in both building and instructing a Blended Learning course is “finding the right blend” (Graham 2005: 256). Mixing face-to-face with online practices can often be very ambiguous and flawed if the mixture of these two is not the correct and most effective one. As mentioned before, the blend should meet the educational need of individuals and, at the same time, stay cost-effective for institutions (cf. Graham 2005: 256-7).

The following chapters will address the challenge of finding the right blend in your Blended Learning course and will also give specific guidelines on how to achieve the greatest results from it.

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2.2. National Research: Common Results of the BleTeach National Reports

Eleni Louloudi and Andreas Seidler

This chapter offers an overview of collective results taken from our national research on the development of blended learning in teachers' CPD. A detailed analysis of the national state of blended learning research can be found in the national reports about "Good Practice Examples and Blended Learning Concepts in Teachers´ CPD", conducted by the participating countries (Belgium, Germany, Hungary, Portugal and Romania) which are published on the BleTeach website: www.blend-ed.eu.

The aim of our research was to identify the perceptions of CPD providers about what counts as good practice in blended learning and to make recommendations about the essential features of effective blended learning in CPD that will be transferred to the results of the BleTeach project. Our research was guided by the following key questions:

1. What are some highly effective combinations of face-to-face and e-learning components within a CPD for learners´ (i.e. teachers´) motivation, interaction and learning outcomes?

2. What are the instructional design patterns (learning/teaching scenarios) are used in blended learning courses?

3. What are the major success factors in implementing blended learning within CPD?

4. What are the major obstacles/ threats and ways of overcoming them in implementing blended learning within CPD?

5. In courses that are considered good practice (in terms of blended learning CPD) what kind of evaluation was used?

Following these key questions, each of the participating countries did desktop research and conducted interviews with blended learning experts, which helped determine the perceptions of teachers using blended learning, compare and contrast elements of good practice as well as make recommendations about best practices in blended learning designs.

By examining the final results of this research, some common conclusions can be drawn, which show specific tendencies both in the challenges and the success factors in blended learning designs.

2.2.1. Challenges in implementing Blended Learning in teachers' CPD

Expenditure of time

First of all, challenges in implementing blended learning usually address the question of time. The development of adequate course materials is elaborate and time-consuming. In the process of developing a blended learning course as an effective tool in teachers' CPD, there is a variety of materials (worksheets, videos, tutorials etc.) that must be prepared. Therefore, this process can be long and very time-consuming for the developing team. At the same time, the participants might also find it laborious, since it may coincide with their own duties as teachers in school - if there is no release from these duties for taking part in the course. Largely due to the physical barriers, trainees have to meticulously manage their working time and keep themselves always motivated and engaged.

Insufficient technical equipment

Additionally, a great challenge can be the functionality of technical equipment. It is common that computer systems have technical problems or internet connections work slowly or fail to load.

Insufficient functionality of many e-learning platforms

A major challenge for the tutors is the level of functionality the e-learning platforms appear to have. There are, for instance, e-learning platforms which are not user-friendly or practical (e.g. old versions of Moodle). Those are sometimes confusing and not easy to understand in their functionalities. That is why many obstacles are related to the platform and its accessability.

Negative bias towards Blended Learning

Because of the problems of e-learning and blended learning mentioned above, many teachers show a clear preference towards face-to-face courses. They estimate their own ICT skills as too low to deal with modern e-learning tools. Therefore, a major challenge in implementing blended learning is undoubtedly to overcome learners' resistance to work with online tools.

2.2.2. Success factors in implementing Blended Learning in teachers' CPD

Organization and chronological arrangement

Our surveys showed that a group of learners supervised by one tutor should not consist of more than 20 participants.

The chronological arrangement of the course is one of the main organizational concerns. Distant learning phases should not be longer than 4 to 6 weeks. There has to be a precise time schedule which will be announced at the beginning of a course.

On the one hand, there should be firm deadlines for the fulfilment of tasks. On the other hand, there has to be enough flexibility for the trainees to accommodate the course work to their working times.

Most experts and participants of blended learning courses stress that a course should necessarily start with a face-to-face session. It is important to build familiarity with online tools and technologies and to make sure that the participants can use it during online phases. Furthermore, the trainees can meet their trainers in person and concepts and content of the course can be explained.

The percentage of face-to-face phases in blended learning courses is in some cases up to 50%. Based on our survey, we recommend at least one fourth of a course. Face-to-face sessions can be used to introduce new and hard-to-grasp concepts which need further explications.

Technology

Experts in blended learning training for teachers highlight the importance of functional technics and the functionality of e.g. the learning platform and its applications, internet connection, passwords on hand etc. The e-learning platform must have a user-friendly interface which allows easy orientation; and support for using the platform should be offered. The participants need an internet access which allows them to load video files etc. which are part of the course materials (see Chapter 4 for more information).

Communication

First of all, it is important to communicate the expectations of assumed previous knowledge to potential participants before the beginning of the course to avoid excessive demands and frustration.

During the course, constant support and feedback on working results have to be ensured. The feedback should be individualized and constructive to maintain learners' motivation and show them their standard of performance.

Forums and chatrooms should be used to encourage communication between trainers and trainees as well as between peers. In the beginning, trainers should explain to trainees how to comment on one another's questions and working results, if they are not used to do so.

Of particular importance is a prompt technical support and feedback to questions concerning the functionality of the e-learning platform (see Chapter 4).

Content

The training program must meet the expectations and needs of the teachers who are taking part because otherwise they may end up with a high level of demotivation. The important thing is to start with these needs to lead learners to other questions and interest to the subject of training. To maintain motivation, it is advisable to work on concrete and authentic cases from the target group´s professional life practice.

An important factor of success, with regard to the content, is that tasks and assignments are in harmony with the actual practice of teachers. Teachers are often obliged to take part in in-service training, therefore they seek to learn innovative information that is applicable to their practice.

The assignment of tasks should be comprehensible and corresponding to participants' previous knowledge as well as to their authentic work context. Several learning styles should be considered. Varied media resources can be used which are appealing and motivating.

Participants

Participants should express their interest in the course and the particular issue. They should have basic ICT skills and be open to the use of new media. In the case of CPD, teacher participants should be flexible with regard to their school duties, so that they can sufficiently participate in the course. Additionally, it is advised that they also be equipped with working devices in order to be able to successfully participate in a blended learning course.

Trainers

Trainers in blended learning courses in teachers' CPD must have the technical skills to use and explain the functionality of an e-learning platform. They need to be familiar with working conditions in schools and to have content area expertise.

During the course, they have to be continuously responsive. Generally, they need the ability to give constructive and motivating feedback to their trainees and feel responsible for them.

Evaluation

For the evaluation of a course an anonymized questionnaire should be used. A final face-to-face session can be used for observation of learning outcomes and trainees' assessment.

Chapter 3: Development Methodology

Blended Learning - Pedagogical Success Factors and Development Methodology

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Pedagogical factors leading to successful blended learning are numerous. The most determining factor certainly is, for designers of blended courses, the possibility to rely on a safe development methodology. This handbook aims at guiding teachers through the steps to be taken in order to achieve blended courses of high quality.

Designing blended learning

Any teacher who intends to design a blended course has to reflect on various aspects of teaching and learning in order to come up with something meaningful and coherent. However, the aspects to be considered are manifold. This is why it is highly recommended to plan carefully the design of the course and to proceed methodically, especially in the case of distance learning: "Using media requires the teacher to reconsider his/her teaching practice. He or she must plan and prepare in advance the course scenario, teaching aids, assignments and communication tools, instructions to guide learning, counselling and follow-up, assessment methods, etc. [...]

In short, the instructor has to make decisions and to take steps in order to develop resources and to offer an environment suitable for effective and meaningful learning. This whole process is called pedagogical engineering." (Henri, 2002; our translation).

The conceptual frameworks we have chosen to guide pedagogical engineering are the BECOMERIR framework (Leclercq, 2007) and the Diamond framework (Leclercq, 2000).

"Fail to plan is plan to fail" (favourite mantra of efficient project managers)

Pedagogical frameworks

The initial name of the BECOMERIR framework corresponds to the anagram made up of the French initials of 9 components of pedagogical design. The translation of the French anagram into English (with minor adjustments and one major addition) has become NEDOMASPPA. Here are the components in French with their corresponding designation in English[4]:

Besoins	**N**eeds
Existant	**E**xisting resource
Conception	**D**esign
Objectifs	**O**bjectives
Méthodes	**M**ethods
Évaluation	**A**ssessment
	Support
Réalisation	**P**roduction
Implémentation	**P**ilot scheme
Course attendance	
Régulation	**A**djustment

The components or categories listed above can be used as a reminder of the types of questions to be asked in relation to the design of a blended learning environment. The framework is not necessarily linear: the answers to questions belonging to one category may lead to reconsider any of the other categories. It is of course not possible to answer all the questions related to each category at the same time. However, information belonging to one category is often enough linked with that of other

[4] Up to now, the sources documenting the NEDOMASSPA eLearning development methodology have been released mainly in French-speaking "grey" literature. The oldest version seems to go back to "Leclercq (1998)", mentioned in a report (Balancier et al., 2006, p. 39). The acronym was then BECOMECRIR (Besoins-Existant-Contraintes-Objectifs-Méthodes-Évaluation-Conception-Réalisation-Impact-Régulation). In 2003, it evolves into BECOMERER (Besoins-Existant-Conception-Objectifs-Méthodes-Evaluation-Réalisation-Expérimentation-Rétroaction). Here, Experimentation replaces "Impact". "Contraintes" is deleted and replaced with "Conception", which is used in the study material of the specialized master in higher education pedagogy Formasup and in a lexicon for the European project iClass. In 2005, in a slideshow, the acronym transforms into BECOMERIR ("Intervention" instead of "Experimentation") which is also used in Poumay (2006), with a slight difference (the C abbreviates "Conception" instead of "Consistency") and by Verpoorten et al. (2005) in a web-based general introduction to the Formasup degree (also with "C" for "Conception"). An ultimate version, BECOMERIOR, appears, later on, in two course manuals (Leclercq, 2007 ; Denis, 2014). This time, the acronym takes on Poumay (2006) and adds the "O" of "Observation". Since Poumay (2006) remains the only occurrence of the development methodology in a published article and since the acronym BECOMERIR takes over the elements of the previous versions, this handbook opts for this acronym (complemented with the "S" of "Support" in NEDOMASPPA). The BleTeach project provided thus a first opportunity to fully work out this conceptual tool in English.

categories. The categories thus influence each other. Adjustment and regulation can be practised at any time on the basis of feedback related to one or the other category.

The framework can be used to design any kind of teaching and learning environment, it is not restricted to the design of virtual environments resorting to technology. Regarding the design of blended learning environments, a tenth category has been added to the framework, we call that additional category 'support'c[5] .

Consequently, the English anagram is **NEDOMASPPA.**

The NEDOMASPPA framework can be segmented into three subgroups of categories. The three segments correspond to the three major phases of the process of course design and implementation:

NED – analysis: It consists in reflecting on the type of course to be designed by taking into consideration the needs of the target public and the existing resources.

OMAS – design and development: Once the outlines of the course have been decided on, all its features have to be specified, tools and resources have to be produced or adapted.

PPA – implementation, experimentation and regulation: This is the phase in which the course comes into existence, is being experimented a first time by teacher(s) and learners and adapted on the basis of that first experience.

In order to assure solid methodological guidelines, the NEDOMASPPA framework will be completed by the Diamond framework. In 2000, Leclercq proposed a framework for pedagogical design which puts 16 questions relevant to teaching and learning in relation to one another. The visual representation of the framework has got the shape of a diamond. The questions to be addressed in relation to pedagogical design make the Diamond framework easy to appropriate. Each category of the NEDOMASPPA methodology will systematically be related to questions raised by the Diamond model.

[5] The "support" category is borrowed from the guidelines issued by a team of the Pädagogisches Landesinstitut Rheinland-Pfalz (see appendix 1).

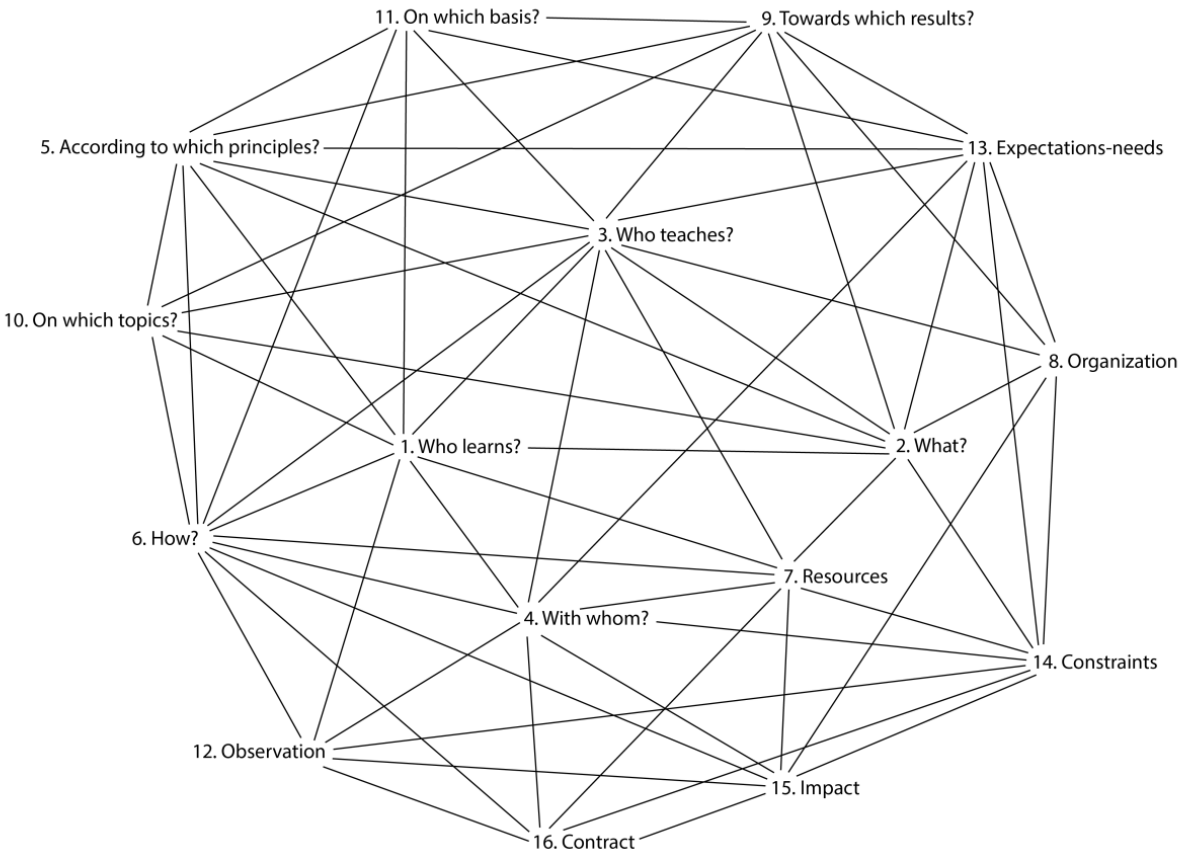


Fig. 3. Diamond framework (Leclercq, 2000)

3.1. Lay the Foundation

Key components of pedagogical engineering according to the NEDOMASPPA framework

Needs

The first step to take in order to start designing a teaching and learning environment consists in examining the needs to be supplied by means of such an environment. The questions to be aske relation to needs are for instance: What is the problem to be solved? What is the purpose of th teaching and learning environment?

Such questions are especially important when it comes to blended learning: **Why is it appropriate to consider hybrid pedagogy? Why should some learning activities take place online?**

Another question to be asked in relation to needs is directed at the target group: Whom is the course supposed to address? Concerning targeting learners, the Diamond framework proposes the following questions:

- Who are the learners whom the hybrid environment will address? (1)[6]
  - How old are they? The answer to this question may give clues as to their autonomy and experience as learners.
  - What is their educational background? The motivation to engage in learning may be positively or negatively influenced by past schooling or training.
  - How many learners will be involved? The number of participants influences teaching and learning. Individualized qualitative feedback can for instance only be practiced with a relatively small group of learners. Debates have to be organized differently depending on the number of contributors. Etc.
- What do they already know about the topic or the subject matter to be dealt with? (11)

The level of instruction to be aimed at can be either defined in terms of curricular requirements or it can be determined by personal ambitions or interests. In case of institutional teaching and learning it is best to refer to programmes or to consult colleagues. However, it can also be interesting to assess the knowledge learners already have about the subject to be taught. That kind of information can then be taken into account in order to adjust the right level of instruction.

- What are learners' characteristics and special interests? (1)

Teaching methods and learning activities will vary according to learners' profiles and interests. Arts and science students for instance will have to be taught differently. Learning styles can also be taken into account. In case of cross-curricular or multidisciplinary teaching it is recommended to vary illustrations and examples so as to involve all learners. Collaboration or group work may also be considered if it fits with learners' characteristics.

- What are learners' expectations in relation to the course? What do they think is expected from them? (13)

This kind of information is worth taking into consideration because it is inevitable that learners should have expectations regarding the course and those expectations could be inadequate. Learners are also usually interested to know what is expected from them so that they can decide on the best strategy to adopt in order to come up to the expectations.

- Who is responsible for the request to learn? (16)

The course designer should know about learners' motivation for attending the course. Motivation to learn can be influenced by the status of the course (obligatory or optional), by topic or subject matter or by performance-related requirements. The latter may determine learners' engagement in the learning activities.

Raising questions about needs will help to determine the outlines and the main characteristics of the teaching and learning environment to be designed and implemented. However, in case of blended learning, additional information should be taken into account. It touches on learners' representations in relation to digital learning.

The research conducted by Sun and colleagues (2008) points out three aspects of digital learning likely to influence learners' satisfaction. These aspects of digital learning are:

- Learners' anxious perception of computers: "This research ascertains that learner anxiety toward computers is one of the vital factors in perceived e-Learner satisfaction" (Sun, 2008, p. 1194). The

[6] The numbers in brackets refer to the 16 questions which compose the Diamond framework.

anxiety toward computers lowers the effectiveness of digital learning as well as learners' satisfaction with it. Therefore it is important to select tools which are adapted to the learners' level of familiarity with digital environments.

- Learners' perception of the usefulness of e-Learning environments: Perception of usefulness depends on the learning progress the environment has made possible.
- Learners' perception of the ease to adapt to and to use digital environments: The easier, the better!

It follows that perceptions of usefulness and easiness of use are important success factors as they have a positive influence on satisfaction toward digital environments whereas anxiety has a negative influence on it. Such relationships between perceptions and satisfaction should not be ignored. Digital tools should be selected and implemented accordingly.

Anxiety toward computers can be assessed by means of the following statements (Barbeite & Weiss, 2004). Each statement has to be rated with a Likert scale:

- Working with a computer would make me very nervous
- I get a sinking feeling when I think of trying to use a computer
- Computers make me feel uncomfortable
- Computers make me feel uneasy and confused

According to the assessed level of anxiety, aids can be proposed to learners to help them overcome it.

Existing resources

Before starting to create learning resources, course designers should look for existing material (contents, references, illustrations, assignments, learning tools…) and see if it makes sense to use it. "If you are taking on someone else's course or redesigning your own course, you need to think carefully about the current course practices. Take time to review the course and undertake a content inventory – what resources are you using? And in what format do they exist (print, online, audio, video, etc.)? Have students had any issues accessing a resource? Could this access be improved?" (Bath, 2010, p.10). Such advice is also helpful if you have to create a brand-new course. Do not forget that you are living in the age of moocs and open educational resources. It means that there are out there scores of courses, resources, material already developed and available. See whether you can incorporate some of it in your course and, in doing so, concentrate your time and energy on what does not exist yet and/or on what you alone can provide (sometimes your contribution can consist in being the smart glue that fixes up existing resources!). There is no point reinventing the wheel!

> Be alert and look around you for existing resources that could be used in an environment of blended learning. 'Pokémon Go' motto (adapted to NEDOMASPPA)

In other words, it is often not necessary to create the entire course material from scratch. As explained above (see the various forms of blended learning according to Singh, 2003) a combination of off-the-shelf and customized course contents can serve the purpose of instruction and save time and energy dedicated to course design. If you borrow material though, be careful to mention clearly where it comes from. Looking for available teaching and learning material will enable you to tackle the "resources" (7) and "constraints" (14) dimensions of the Diamond framework. It is indeed important to consider limits or restrictions regarding the resources you would like to use or the context in which your course will

take place. Reflecting in anticipation on such constraints will prevent you from having later to solve intricate problems. For instance, if you plan learning activities to be carried out online, check the availability of computers and Internet connections.

If you intend to use a platform or other digital tools, take some time to investigate what is available. Knowing the possibilities of tools and their features you can make sure that your course can be updated easily. By investigating technological resources you may also discover possibilities you had not thought of. Select the functionalities that suit best your teaching and learning goals. Here is the URL of a website called "Educational Technology and Mobile Learning. A resource of educational web tools and mobile apps for teachers and educators" where you will find a lot of information and tips about using technologies for teaching and learning purposes: http://www.educatorstechnology.com/

Accessibility of a computer room facilitates digital learning. Another facilitating factor consists in organizing a helpdesk that learners can appeal to if they encounter some technical trouble. Learners are not always skilled in the use of technology. Therefore, it could be advisable to give them some help and time to adapt to the digital environment. Familiarity with digital tools and environments also varies among teachers. The figure below relates teachers' experience of technology to quality levels of blended learning.

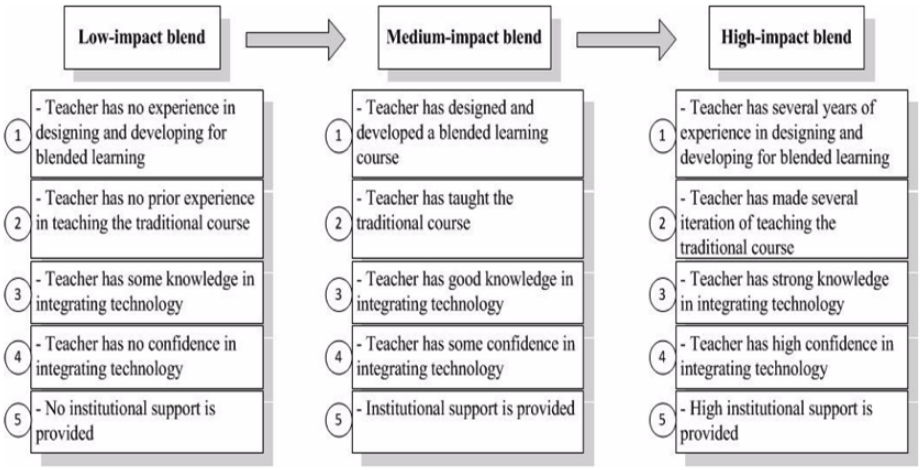


Fig. 4. Factors that influence the selection of blended learning approaches (Alammary & Carbone, 2014, p. 448)

The technological profile of teachers also influences the design of blended environments as shown below:

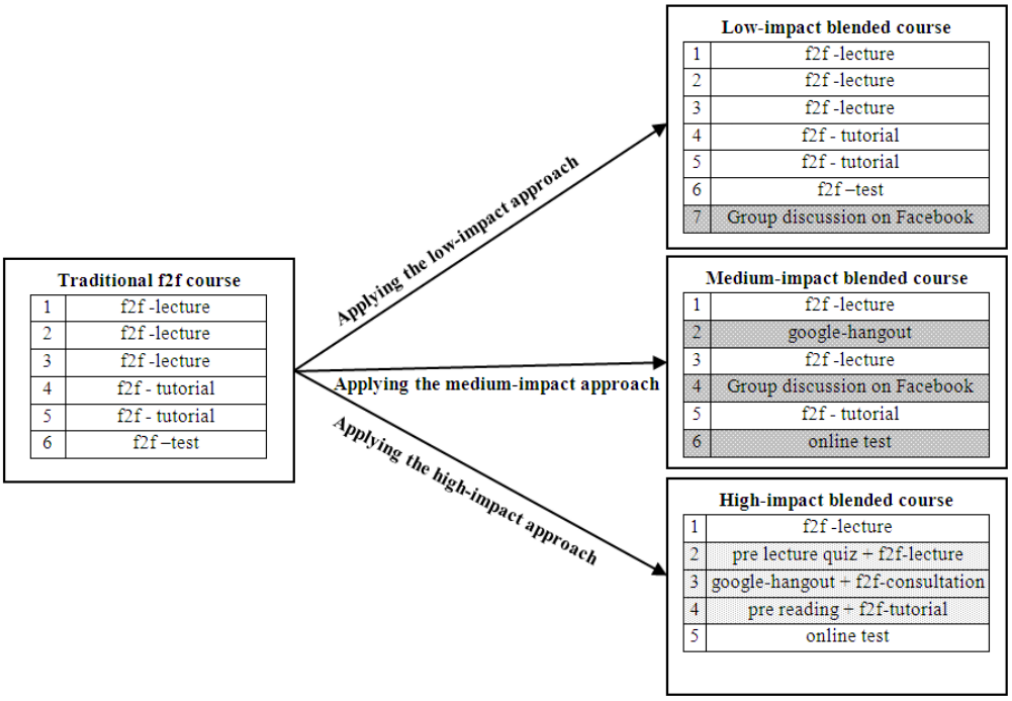


Fig. 5. Applying the three different approaches to a traditional face-to-face course (Alammary & Carbone, 2014, p. 448)

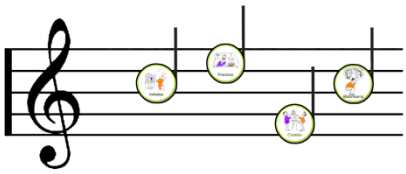
Design

Teaching is not a science, it's a DESIGN science (Laurillard, 2012)

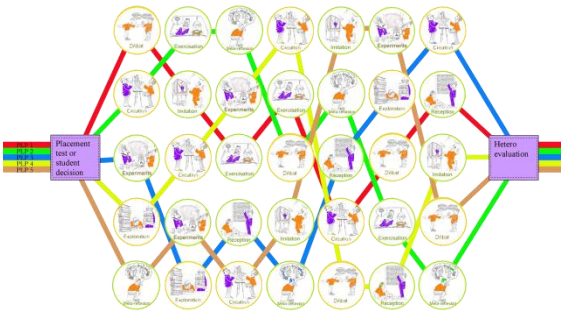
Design consists in determining how the environment of blended learning will be used by learners. Being informed on their needs and on the availability of teaching and learning aids, it is now time to decide on the tasks and assignments that will compose the course. "It is important to ask yourself *'What do I want my students to learn by undertaking this course?'"* (Bath & Bourke, 2010, p. 9). To this question the following can be added: "*How do I want to use the online learning environment?"* (Bath & Bourke, 2010, p. 10)

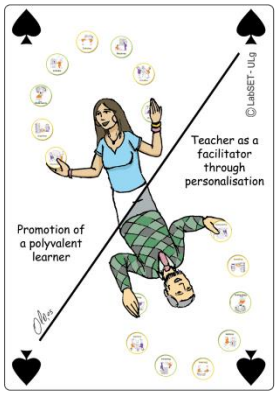
Many scripts can be considered when it comes to designing a course and its learning activities:

- Activities can follow one another in a harmonious way:



• Alternatives can be proposed to learners, comparable with forks on a map:





In other words, teachers will have to juggle with the various components of their course in order to find an assembling pattern which will fit best their goals. More information about learning activities can be found in the section dedicated to methods.

Several components of the Diamond framework can help to structure the reflection on course design. Here are the relevant components translated into questions to be asked:

• What is the course about? What is to be learned? (2)
The level of learning has also to be specified: Is it an introductory or an advanced course? Which are the specific aspects of the target subject matter to be addressed?
• According to which principles should the course be taught? (5)
The five dimensions of blended learning defined by Peraya (2012) can help to determine the specific structure of the course: Which learning activities should be carried out online? Which aspects of the course will be dealt with face-to-face? Will learners have to resort to external resources? And so on.
• Who will be in charge of teaching / tutoring? (3)
The issue concerning the person(s) involved in the teaching / tutoring of the course should also be raised. In a traditional face-to-face environment, the roles of the teacher are relatively well-defined. But in a digital environment, teaching and guiding roles have to be redefined. Besides course organization and the transmission of contents, support should be provided in order to prevent digital learners from feeling isolated and discouraged. In relation to digital learning, organizational, motivational and/or educational support can turn out to be necessary.
• Should learners collaborate with each other? (4)
In a digital environment, collaborative activities have to be carefully planned and implemented. Learners should know exactly when, how and for which purposes they have to work in teams.
• Which are the prerequisites for learning effectively? (10)
On the occasion of considering learners' needs, the issue of foreknowledge in relation to the subject matter of the course may already have been raised. However, it is worth determining exactly the prerequisites for attending the course and to inform learners about them. For those learners who do not master prerequisites, refresher activities could be considered in order to bring them up to standard.
• What about course organization and duration? (8)
How many hours are available for the course? What length of time is to be dedicated to face-to-face and to online learning? In which order of succession? How flexible should learning be? The flexibility aspect usually influences learners' satisfaction: "e-Learning course flexibility played an important role in perceived e-Learners' satisfaction. In contrast to traditional classroom learning, e-Learning is not constrained by space, time and location; therefore, students have a high degree of flexibility and many

self-paced learning opportunities. From an operational viewpoint, especially to students in continuing education, the opportunity to effectively balance their jobs, family, and work-related activities with e-Learning is the first priority when considering such an education." (Sun, 2008, p. 1195)
Blended learning inevitably raises the sensitive issue of workload. Therefore, reflecting on the approximate duration of each learning activity (face-to-face and online) is important. The time estimation related to online activities should be part of the total amount of time dedicated to the course.

Another component of eLearning which influences positively learners' satisfaction is course quality: "It includes overall course design, teaching materials, interactive discussion arrangements, etc. For higher satisfaction, the course scheduling, discussion arrangement and types, and course materials must be properly prepared, and the e-Learning instructional expertise and technical assistance must be also in place. A well-designed delivery process, with appropriate assistance to students for solving their curriculum and technical difficulties, can decrease e-Learners' uncertainty and frustration with e-Learning, further leading to better learning experiences. Hence, e-Learning course quality influences perceived e-Learner satisfaction very significantly." (Sun, 2008, p. 1195)

Some pitfalls likely to harm the quality of eLearning can easily be avoided. Here is a list of ten of them described in relation to flipped classrooms[7] (Carter and colleagues, 2016). Insofar as flipped classrooms can be considered as a specific form of blended learning, the pieces of advice listed below also apply to blended courses.

1. The opinion of others: Innovators are not always welcome. Teachers who decide to experiment with innovative environments will probably have to explain their decision to colleagues.
2. Learners' rejection of innovative environments: Learning environments integrating eLearning require learners to change their learning habits. Change means efforts to adapt. Some learners may therefore be reluctant to change. It will be necessary to convince them.
3. Contents and function of videos: The production of videos is time-consuming. It is therefore important to reflect carefully on the contents and on the function of such digital learning resources within the course.
4. What are face-to-face sessions for? When learners are given the opportunity to learn online, time dedicated to face-to-face instruction should be filled usefully and in a way that best complements eLearning.
5. A feeling of permanent dissatisfaction: Innovating in terms of teaching and learning practices does not necessarily mean that everything is going to be perfect at the first try. Innovation takes time and often needs adjustment. Therefore, do not try to modify your whole course at one go. Innovate progressively instead, bit by bit.
6. Technological challenge: Resorting to technology for teaching and learning purposes can be challenging for both teachers and learners. Digital tools are not always easy to access or to use. Do not hesitate to ask technology experts for help. Integrate technology progressively into your course and do not rely on tools or applications you do not master. Take time to introduce learners to the digital environment of the course.
7. Classroom environment: Change of teaching methods may imply new ways of occupying classroom space. If learners are to collaborate, the classroom should be fitted up accordingly.

[7] Flipped classroom is an instructional strategy and a type of blended learning that reverses the traditional learning environment by delivering instructional content, often online, outside of the classroom. It moves activities, including those that may have traditionally been considered homework, into the classroom. In a flipped classroom, students watch online lectures, collaborate in online discussions, or carry out research at home and engage in concepts in the classroom with the guidance of a mentor. (Wikipedia)

8. Teaching and learning rhythm out of control: If learners are to become more autonomous as to their learning, progress will also vary from one individual to the other. Teachers may find it difficult to adapt simultaneously to various paces of learning. Release progressively your hold of learners' close supervision and do not try to keep everything under control.
9. Too much time spent preparing the course: Teachers who make learners work online often complain that they spend too much time preparing digital learning resources and monitoring distance learning. Even if it is true, this should not be regarded as a deterrent. Strategies of eLearning often prove to be effective.
10. Self-assessment: Teachers often have doubts as to the fact that learners actually engage in online learning. Giving learners the opportunity to self-assess their progress in learning and their attainment of learning goals may contribute to enhance engagement in learning.

Designing a course of high quality also means to pay special attention to its educational aspects. One basic rule to be observed in relation to educational quality is checking constructive alignment. Leclercq (1995) called that rule "triple consistency of learning objectives, teaching methods and assessment or evaluation strategies" and represented it in the shape of a triangle. Leclercq's triple consistency triangle is a conceptual tool aiming at securing the pedagogical validity of teaching and learning environments.

Resorting to robust conceptual tools such as the NEDOMASPPA framework, the Diamond framework and the triple consistency triangle makes it possible to take instructionally reflected decisions about the course to be designed. To take appropriate decisions in terms of instructional design is considered to be a key success factor, especially in relation to the development of virtual learning environments (Koper & Olivier, 2004; Martinez, 2002; Wiley, 2000). Should the use of conceptual tools for course design be neglected or omitted, there is a risk of unfocussed and inappropriate decision-making.

Let us come back to Leclercq's triple consistency triangle. As already mentioned, the triangular shape symbolizes the interconnectedness of three key components of instructional planning: learning objectives (O), teaching methods (M) and evaluation strategies (E). According to Tyler (1949), those three course components should be aligned on each other so as to form a coherent or consistent whole. The bidirectional arrows linking O-M, O-E and M-E as shown in the figure below indicate that each link contributes to the overall coherence. Moreover, coherence turns out to be transitive. For instance, if O-M is consistent with M-E, then O and E are de facto consistent.

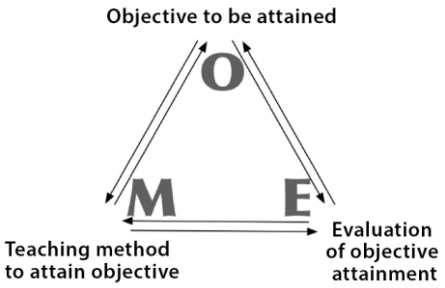


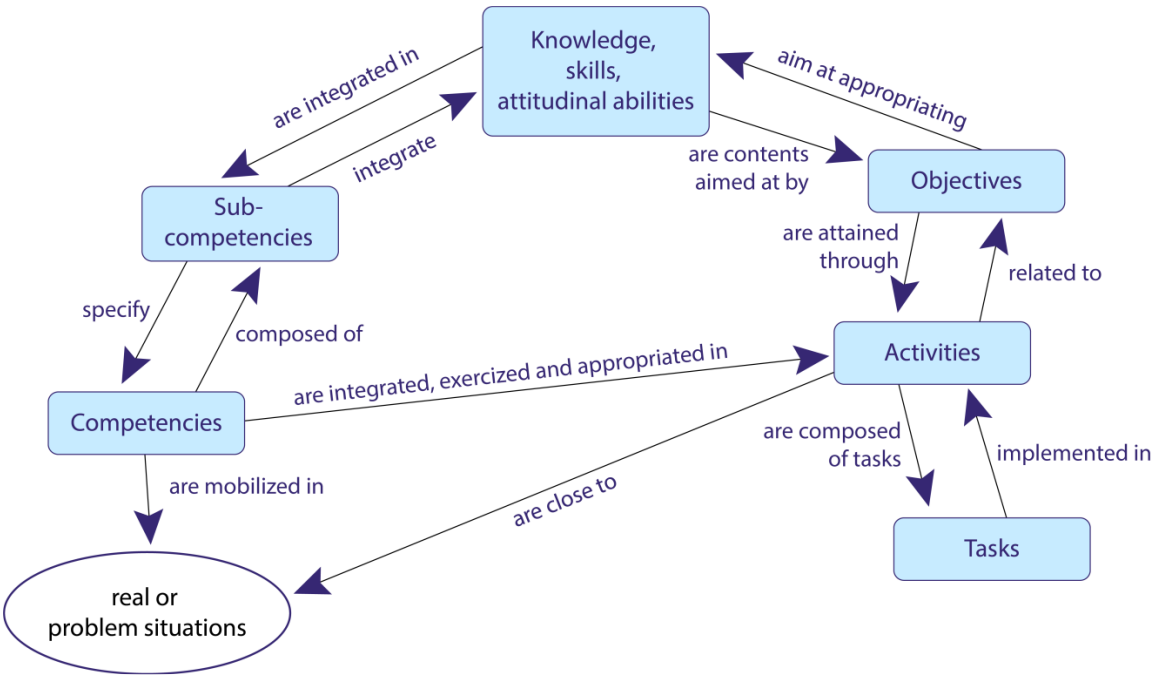
Fig. 6. Leclercq's triple consistency triangle (1995), illustration by Castaigne (2001)

3.2. Build the Walls

Objectives

In order to determine the learning objectives of the course to be designed, it is necessary to clarify what should be learned in relation to the course. Learning goals can be of various kinds: they can correspond to knowledge, know-how, skills, attitudinal abilities, competencies, etc. Determining learning goals corresponds to the "what is to be learned?" question (2) of the Diamond framework. Once the learning objectives are specified, teaching and assessment methods can be considered.

Competencies to be developed and learning objectives to be attained at the end of a course can be seen as complementary. While competencies encompass and integrate a whole set of rather specific abilities and thus represent a systemic approach to learning, objectives or goals are more task-related. Knowledge, skills and attitudinal abilities can thus be appropriated separately by means of specific learning activities before they can be related to one another in order to tackle more complex situations.



In order to define more precisely the term "competency", we refer to Beckers, Leclercq and Poumay (2007) who are themselves strongly influenced by Tardif (2006). The authors call competency "the ability to act effectively by mobilizing spontaneously, correctly and in an organized fashion (fluidly, economically or methodically) internal (knowledge, skills and attitudinal abilities) and external resources (experience of colleagues, literature...) in order to face a complex situation never encountered as such before and belonging to a family of similar open-ended situations ('open-ended' means that problem-situations can be solved by adopting various strategies), such situations being deemed critical and relevant for social life (civil or professional)." (Our translation)

To support the development of competencies within a course, the instructor has to focus primarily on two aspects: the appropriation of the relevant internal resources (knowledge, skills and attitudinal

abilities) and their mobilization in complex situations. The variety of internal resources can be represented in the shape of a pyramid indicating the relative importance and the mutual dependencies of each type of resources (called somewhat confusingly "competencies" in the figure below).

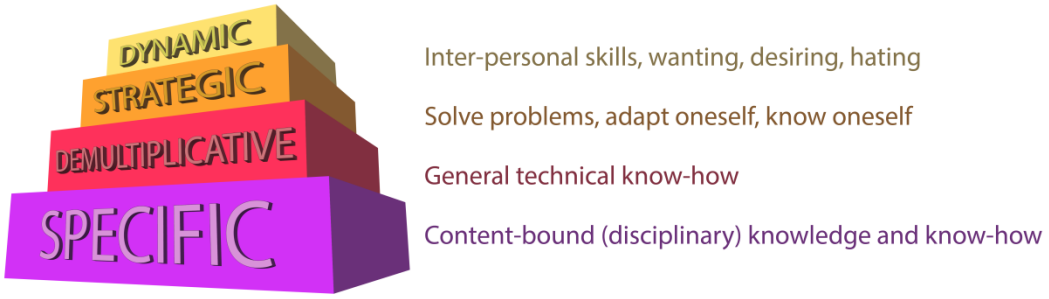


Fig. 8. Pyramid of competencies (Leclercq, 1987, 1998)

According to the pyramidal representation, specific or disciplinary resources can be seen as the closest to the instructional focus of the course, whereas instrumental, strategic and motivational resources are more likely to be transferable to other domains of expertise than the one targeted by the course.

If we try to describe each pyramid level, we can say that specific resources include knowledge, know-how and skills which are directly relevant for the target domain of instruction. Instrumental resources refer to more generic and technical abilities likely to enable learners to progress in the mastery of the target domain (e.g. the ability to use Excel to encode data, the ability to search for information on the Web…). Strategic resources correspond to self-knowledge in relation to favourite learning styles and strategies. They enable learners to become more effective when it comes to appropriating new knowledge and skills. Motivational or dynamic resources are related to learning commitment and perseverance. Being able to distinguish between those four categories of internal resources makes it possible to consider appropriate ways to help learners to acquire or to improve them.

Internal resources can be acquired or trained by means of learning activities conceived for that particular purpose. Again, we come back to the necessity to formulate clear learning objectives in order to combine the internal resources to be acquired with meaningful learning activities. Moreover, the attainment of clearly defined learning goals is easier to assess than that of ill-defined ones.

Three types of learning objectives can be distinguished: general objectives, behavioral objectives and operational goals.

General objectives correspond to the principal intentions and aims of the educational intervention. They are not formulated in terms of observable actions and behaviours and cannot be directly associated to evaluation procedures. Such objectives as "demonstrate autonomy or critical thinking" or "sum up the main ideas of a text" belong to the category of general objectives. General objectives have to be specified by more precise objectives in order to be translated into more tangible actions and behaviours.

Behavioural objectives correspond to attitudinal abilities to be appropriated by learners. Behavioural objectives are formulated in terms of observable behaviours or attitudes but they do not necessarily

specify the criteria by means of which the target behaviours or attitudes are to be assessed. “Smoke less” or “make fewer spelling mistakes” are examples of behavioural objectives.

Operational objectives are the most precisely formulated objectives. They are learner-centered and they contain action verbs expressing observable behaviours. Operational objectives should be verifiable and directly related to assessment criteria according to which learners are clearly informed about what is expected of them in relation to learning activities. De Landsheere (1975) proposed five questions to be asked in order to check accuracy regarding the formulation of operational objectives:

- Who will produce / adopt the target behaviour?
- Which observable behaviour indicates that the corresponding learning objective has been attained?
- What will be the result / product of the target behaviour (performance)?
- Under which circumstances will the target behaviour take place?
- Which criteria will be used to determine if the produced behaviour / performance is convincing enough?

Operationalizing learning objectives makes it easier to consider appropriate teaching methods and leaning activities as well as assessment strategies likely to verify reliably if performance requirements have been met.

Learning objectives should also be transferable to contexts of professional practice. In other words, the vocational usefulness of the learning goals to be attained in an educational context should be convincingly explained to learners and should be explicitly related to their learning needs.

Methods

Teaching methods and learning activities make up the core of any educational environment. In the figure below, Bath and Bourke (2010) categorize the assets of face-to-face and virtual learning and teaching environments. They situate blended learning at the intersection and thus indicate that blended learning can profit by the potential of both environments.

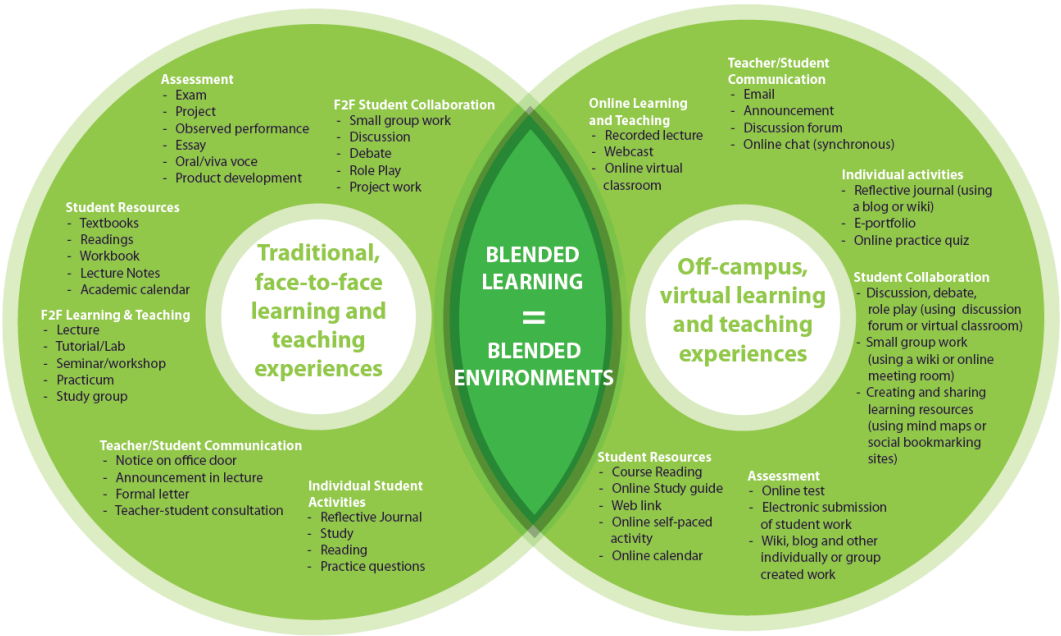


Fig. 9. Blended environments (Bath and Bourke, 2010)

As illustrated above, any instructor who ponders over the best way to (re-)design a course is confronted with a very wide range of possibilities (see the 'how' question (6) of the Diamond framework). In order to limit the scope of the available options, we propose a conceptual framework which places reflection on teaching methods and learning activities at a more practical level. We refer to the 8 Learning Events Model (Leclercq & Poumay, 2005).

The model is composed of 8 paradigmatic "events". Each "event" combines a teaching method with the corresponding learning activity. Methods and activities are expressed by complementary action verbs. The model is context-independent and flexible. It can therefore be used in relation to any educational situation or environment.

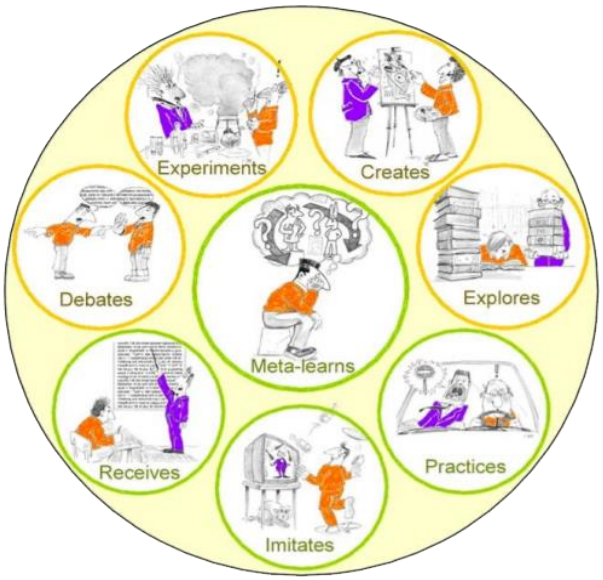


Fig. 10. Eight Learning Events Model (Leclercq & Poumay, 2005)

Here follows a detailed description of each teaching-learning event:

Imitation / Modelling

Humans learn a lot from observation, impregnation (and, afterwards, imitation), either voluntarily or without really trying, outside any system of instruction, simply by absorption, as a result of being immersed in the problem, by living in a context, and sometimes without even realising it – making this a form of latent learning. The process of observation can happen without the use of any communication code, so before language. The teacher's or trainer's role is to provide the model(s), which has not to be the teacher himself. We can be impregnated by (and imitate) movements, emission of noises, words and melodies, accents, vocabulary, postures, etc. Imitation and modelling can happen everywhere: in the street, in public areas, at home, via television, even from still pictures on posters or cartoons. Cinemas, theatres, stages, exhibition halls, museums, show rooms are places designed to facilitate observation.

Reception / Transmission

Humans learn a lot from intentional communication, from the reception of messages (via the press, radio, books, television, lectures, etc.) intended to give us information. This communication is encoded in a language (English, French, etc.) that the recipient must share with the transmitter, contrarily to imitation by observation, where no code is needed.

The teacher's or trainer's role is to provide the message (or the data) to be transmitted, either by selecting documents or by writing them himself or by oral communication, direct or recorded. Books and newspapers are read at home, in libraries, in trains and airplanes. Radio, television, telephone, e-mails, Internet make messages accessible almost from anywhere.

A large number of domains can be learned by reception of verbal messages, with noticeable exceptions such as the mastery of skills (that have to be practiced), the adoption of values and appetencies (that have to be adopted), the memory of sensorimotor, relational or emotional feelings (that have to be experienced).

Exercising / Guidance

In fields where it is important to "proceduralise", to automate, to create routines, humans learn by acting, practicing.Essays and errors are necessary not only to discover the sequences of actions but also to interpret feedback (stimuli) produced by these actions, that help correct it if needed.

A good coach is someone who pushes the learner to act, helps him interpret the consequences of these actions, maintains motivation, and in short guides and corrects, during interactions which have been scheduled ... basically by the coach himself. The difference between this "event of learning" and imitation or reception is that in those ones, action is not necessary. Sensory motor skills such as walking, writing, drawing, dancing, biking, swimming, driving a car, playing a music instrument, eating with forks or using any tool request practicing, exercising. Sport halls or fields, dancing ballrooms, workshops, swimming pools, etc. are conceived to favour learning by practice.

Exploration / Documenting

In fields where a large degree of freedom of choice is beneficial, humans learn by exploration, i.e. by a personal search among data, either randomly, or to answer their questions. The difference with the imitation or reception or the exercising ways or learning is the personal character of exploration and the pre-existing will or expectation to find something or an answer to a personal query. In a free exploration, a consultation, it is the learner who has the initiative, who asks the questions, but without changing the object of his exploration (without writing in library books, without modifying the content of the videocassette), without creating knowledge which pre-existed its discovery during exploration.

The role of the teacher or trainer is to make sure that the student will encounter data, so indicate him good sources, or constituting those sources himself, in brief documenting, providing access. Domains of learning are history or geography or arts or culture in general or personal relations. For instance, a personal visit to a city has its charms and advantages, which are not the same as those of a guided tour). Interviewing a person is not the same as hearing a speech from the same person.

Libraries, museums, web sites, TV channels (amongst which the explorer may "zap") are special places for this way of learning, provided the learner has the initiative. For instance, a museum can be "told and shown" by a guide, and this is transmission and modelling instead of exploration, that implies that the visitor decides which piece of art he watches, how much time, at which degree of details, from which angle of vision, etc.

Experimentation / Reactivity

In some domains, learning is mostly efficient if the learner can manipulate the environment – and, when necessary, can modify it. Experimentation processes mostly by exhausting and combining the possibilities the experimenter regards as meaningful, in order to test a personal hypotheses (otherwise it is simply drill by applying the other's ideas).

The role of the teacher or trainer is to provide an "experimentable" environment, i.e. a reactive one. When the question to answer, the problem to solve, is excessively hard for the learner (or the group of learners), the teacher can help, provide hints, clues that will decrease the difficulty of the task. Domains of learning by experimentation are science, computer sciences, social relations, the use of engines or instruments, etc. Learning places are science labs, workshop, computer simulations, exercise fields, almost the same as for exercising. Limits are becoming more flexible since some museums combine the possibility to explore (without touching the pieces of art or technique) and the possibility to manipulate, to "try" with.

Creation / Confortation

Humans learn by creating something new (new to them, no to humanity), by constructing, by changing their environment, by producing concrete works (texts, musical compositions, objects, buildings, shows, films, etc.) ...often starting from a personal idea or an individual or collective project. Of course, the creation reincorporates already known elements. Thus, Beethoven whose creativity is beyond dispute, drew inspiration from Haydn.

Since engaging into creation is hard, the teacher acts as a facilitator, a moral and material scaffold, as patrons and sponsors have done for centuries with artists (Jules II for Michelangelo). Writing essays, conceiving iconic illustrations are some of the domains of learning which would be concerned by this learning event.

Self-reflexion / Co-reflexion

Judgements, analysis and regulations operated by a person on his/her own cognitive processes or products in PRE, PER or POST performing situation, the performance being a test or a learning activity. This learning event can help to develop strategic competencies.

The teacher's or trainer's role is to help the learner, either in providing advices or data (such as metacognitive measures such as Confidence, Prudence and Nuance) or in helping the learner to interpret the situation, its causes and to conceive regulative actions. This learning event occurs each time a person has to estimate his/her chances of success of a course of action, before choosing it, or during performing it or after having done it and being told by an expert how good it was. It can be in the intellectual, relational or sensorimotor domains.

What are the most suitable learning places? Anywhere, but the interruption of action helps the process, due to the limited capacity of our working memory: it is difficult to perform a task AND to have a metacognitive reflection on it in the same time, except when it is done in details (for instance for each question of a test); in this last case, the metacognitive process must happen directly, without delay. Metacognitive issues happen anywhere, anytime: "What are my chances of success if I engage this leaning activity? What is the quality of my production? Are my learning processes satisfactory? What should I change?

Debate / Animation

Learning takes place during social interactions between pairs or between trainees and trainers provided there are conflicts of views (called socio-cognitive conflicts), challenging discussions forcing the opponents to justify their position…or to modify it.

The teacher's or trainer's role consists in "animating" the discussion, this expression covering a wide range of functions, from the less invasive (observation during the debate and debriefing after the debate) to the most invasive ones (such as selecting inputs, i.e. moderating, in a forum), passing by a series of intermediate roles (reframing, reorienting, regulating the debate, participating to it). Representations of complex concepts, relationships or areas of contents are often a mixture between spontaneous and official representation, with a high likelihood of misconceptions, and a low probability to have them detected by the learner himself in a short period of time. Discussions accelerate the awareness of contradictions and lacks in one's own mental representations and increase the efforts to reduce them. Real or virtual classes or subgroups are the natural partners for those exchanges, who can interact via asynchronous (forum) or synchronous (chat) techniques. In order to use teaching and learning events appropriately, the following principles should be observed:

1. The degree of the learner's initiative is an important characteristic of the LEs. The events "reception", "imitation" and "drilling" (practice) are often (though not necessarily) based on "allo-initiative" or "allo-control" (of the process, content, activities, timing,etc.), from "allo", meaning others (here the teacher) as opposed to "auto". The other events fall more within the category of "auto-initiatives", in the sense that the learner chooses the content he wants to explore, formulates the hypotheses he wants to verify, designs and carries out a project, decides on his interventions in the debate, and inspects his own learning modes.

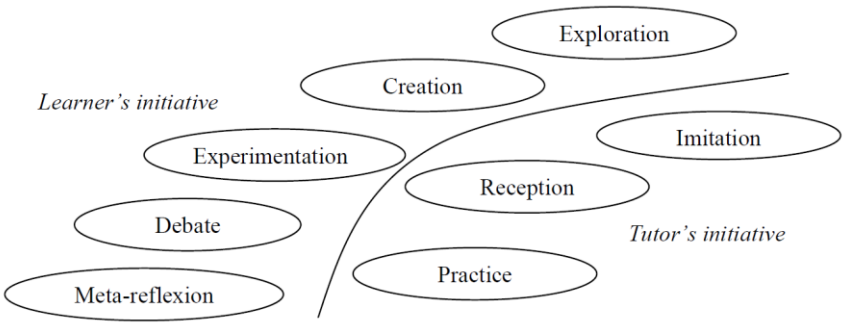


Fig. 11. Tutor's and learner's initiatives according to the 8 Learning Events Model (Leclercq & Poumay, 2005)

2. The diversity of experiences is an important issue of the model, as well as the variety of the communication channels, on the basis of research results in the domain of educational psychology (Paivio, Miller, Gardner, etc.), showing that the deployment of multiple channels reinforces learning. The model underlines the value of ensuring a sound equilibrium between learning modes in order to maximise the quality of the RESULTS of learning. In her definition of a quality course, Poumay (2003, p234) also insists on this necessary range of methods.

3. Mathetic polyvalence is an important issue of the model. In an information/ knowledge/ learning society, it is in the interests of the learner to become familiar with a whole range of learning approaches. This experience of diversity prepares him to take advantage of any learning opportunity this society may offer. Thus it becomes a cross-disciplinary concern of education, regardless of subject, to ensure that learners are confronted with a variety of methods, resources and constraints, including some that are completely new to him or have rarely been practised by him. The model underlines the value of ensuring a sound equilibrium between Learning Events to empower the learners with the PROCESSES of learning.

4. The ethical dimension of the Learning Events Model is represented in its relationship with autonomy and responsibility. This concern to ensure diversity of learning experiences also extends to 'learning styles'. When one is aware of the heterogeneity of modes of access to knowledge, one is more likely to get through to and motivate a wide spectrum of learners.

As was made clear in reference to Leclercq & Poumay (2005), there is a great variety of learning activities that can be integrated into environments of blended learning. Moreover, the very variety of activities is likely to enhance the pedagogical quality of courses.

There is another determining factor when it comes to designing and implementing learning activities: the motivation of learners to engage in learning. Viau (1997) defines motivation as “a phenomenon which originates in the perceptions a learner has of his/her environment and of his/her abilities and which prompts him/her to adhere to an activity, to engage in it and to persevere in its accomplishment towards the attainment of some specific learning goal.” (p. 145; our translation)

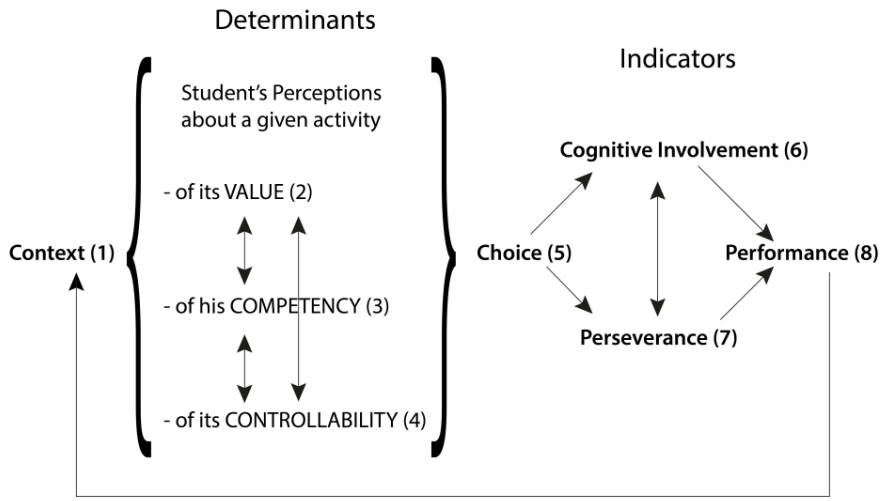


Fig. 12. Viau’s model of motivational dynamics (1992)

Viau's conception of motivation is dynamic inasmuch as its components are meant to influence each other. The dynamic character of motivation is represented in the above diagram by the arrows relating the key components of Viau's model. There is also a cyclical aspect to be considered: the arrow linking "performance" with "context" indicates that a cycle of motivational dynamics is followed by another cycle as soon as the learning context changes.

Here are the main components of Viau's model of motivational dynamics:

(1) Context: It refers to "a diversified set of stimuli influencing the perceptions a learner has of himself/herself" (p. 33). Context-dependent stimuli may sometimes have hardly anything to do with the teaching and learning activities in which learners should participate.

Perceptions which determine a learner'sdecision to engage in an activity are of three types:

(2) his/her perceptions in relation to the value or the meaning / usefulness of the task to be performed = perceptions of VALUE

(3) his/her perceptions of his/her capacity to succeed in performing the task = perceptions of COMPETENCY

(4) his/her belief that chances of success in relation to task performance will depend on his/her efforts rather than on factors out of his/her control = perceptions of CONTROLLABILITY

According to Viau, learners' perceptions act as the "derminants" of motivation, i.e. perceptions determine the learners' decision to engage in learning activities. The three types of perceptions do not necessarily come into play in the order indicated by the numbers 2 to 4 of the diagram above. Moreover, the arrows relating the three types of perceptions together indicate mutual influences between the three "determinants" of motivation.

(5) Choice: Viau (1992, p. 75) explains that some learners resort to avoidance strategies in order to avoid to engage or to differ their engagement in the task to be performed. In order to engage in a task, learners have first to choose to do so. Some learners also sometimes choose not to engage in a task although they pretend to do so. Pretence can for instance consist in asking distracting questions or in busying oneself with something else.

(6) Cognitive involvement: It refers to the learning strategies (e.g. memorizing, summarizing, drawing diagrams…) and strategies of self-regulation (e.g. estimating one's chances of successful accomplishment, determining new learning objectives, planning one's actions…) used by learners in order to accomplish the task.

(7) Perseverance: "Unfortunately, many learners wrongly believe that learning is a rapid process that can be dealt with in a few hours' time. Those learners are often surprised when they realize that it takes a long time to master specific concepts and procedures." (Viau, 1992, p. 77)

(8) Performance: It refers to the third indicator of motivation and consists in achieving the task.

We have seen that learners' decision to engage in an activity is partly determined by the value they attribute to that activity. Therefore, instructors or course designers should reflect on the characteristics

of the learning activities they intend to propose. In this respect, Viau (2006) formulates 10 conditions to be met for learning activities to be motivating.

To be motivating, learning activities should:

- Be meaningful, i.e. connected with learners' interests, personal projects and concerns;
- Be diversified and related to other activities (diversity means that several

tasks can be accomplished within an activity and that some variety of tasks and activities should be considered; tasks and activities should also be organized in logical sequences inasmuch as learners engage easier in them when they are related to one another);

- Represent a challenge for learners (in this respect, activities should be perceived by learners as neither too difficult nor too easy; learners do not value success that has been achieved too easily neither do they profit by failure due to the inability to succeed);
- Be authentic (as far as possible learning activities should have some likeness to those to be encountered in everyday or professional life; activities which interest only the instructor or whose sole purpose it is to assess learning should be avoided);
- Require cognitive commitment of learners (an activity will be experienced as challenging if learners have to mobilize all their competencies and abilities in order to carry it out; for instance, such actions as resorting to cognitive strategies and to previously acquired knowledge, making assumptions, organizing information and integrating it into a conceptual network can be combined together for the purpose of achieving some specific task);
- Enable learners to make choices and to take decisions (learners can for instance feel free to choose the theme of an essay, the composition of groups, the means of presenting some work, the time to dedicate to a specific task…);
- Give learners the opportunity to interact with each other and to collaborate (collaborative learning enhances motivation inasmuch as learners feel more responsible for their learning and feel they can rely on each other);
- Have an interdisciplinary character (activities which combine several disciplines are likely to influence positively learners' perceptions of learning: learning is not restricted anymore to a specific course but it turns out to be useful for personal or professional development as a whole);
- Be accompanied by clear instructions (if learners understand clearly what is expected from them, they will engage more readily in learning activities);
- Take place within a reasonable time (the time allotted to carry out a learning activity should be identical to the time needed to accomplish a similar task in real life; learners should also be given enough time to form a positive judgment on their abilities to achieve what is required of them).

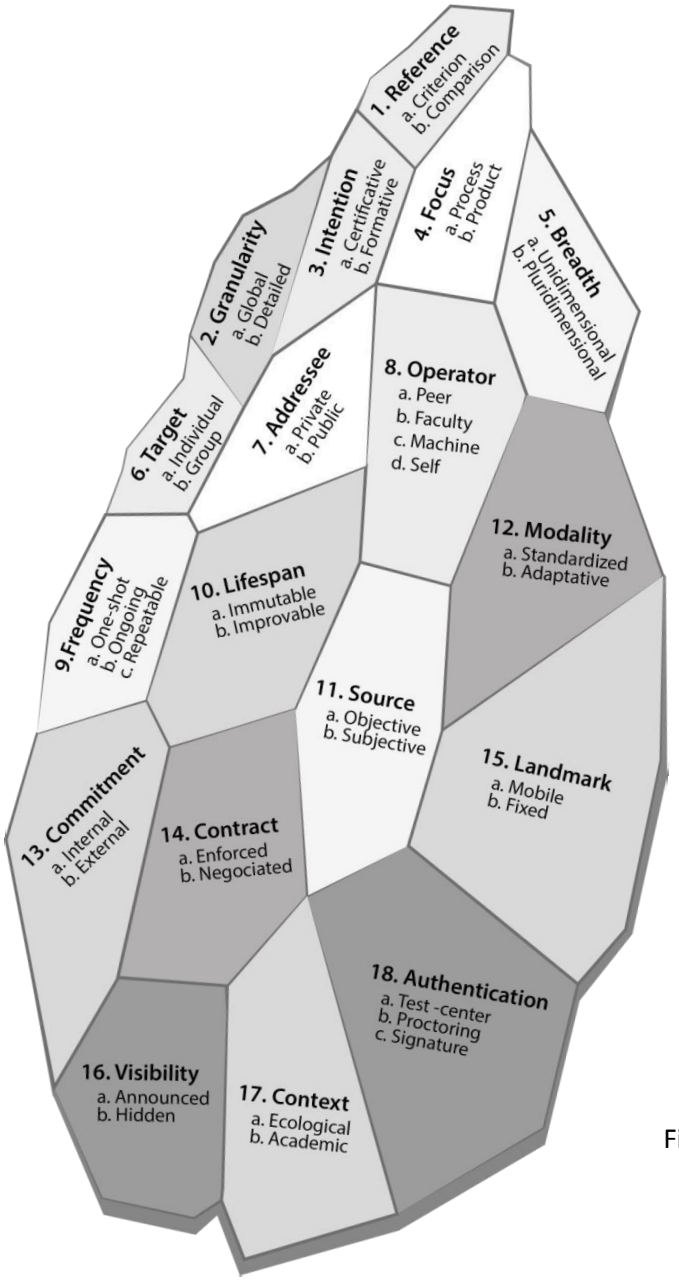


Fig. 13. Assessment prism (Leclercq, 2006)

Assessment

Assessment of learning is a complex process (see questions 9 and 15 of the Diamond framework). Metaphorically speaking, we can assume that the "prism" through which we evaluate performance will determine the "snapshots" (quantitative or qualitative) we get of it (Leclercq, 2006, p. 1). The conceptual framework we propose in order to reflect on assessment strategies is called "assessment prism" and is composed of 18 facets. Each facet has to be examined independently. Each facet is also characterized by two opposite 'values' corresponding to both ends of a continuum. Consequently, each facet-dependent aspect of evaluation can be 'tuned' to a position in-between those opposites depending on the demands of the context in which evaluation is to take place.

Here is a brief description of each facet:

1. Reference: Is individual performance to be evaluated by means of criteria or are individual performances to be compared to each other in order to be classified?

2. Granularity: Do learners receive an overall score without any detail on strengths and weaknesses observed in relation to performance or do they get feedback informing them on the quality of their performance (for instance in terms of accuracy of knowledge, relevance of mental processing…)?

3. Intention: Is assessment intended to serve learning or to lead to either selective (for the purpose of restricting admission to the course) or summative (for the purpose of deciding on success or failure) sanction?

4. Focus: Is assessment to be centered on the product of learning (accuracy of results for instance) or on the learning process itself?

5. Breadth (or scope): How many dimensions of performance are to be taken into account by assessment? Examples of performance dimensions are: the accuracy of answers to questions, the time needed to accomplish a task, the logic of reasoning, originality…

6. Target: Is individual or group performance to be assessed?

7. Addressee: Are assessment data only meant for the instructor or are they to be made public?

8. Operator: Who is in charge of evaluation? Are learners to assess their own performance or is performance assessment to be carried out by someone else (teacher / instructor, trainer, tutor, expert…)?

9. Frequency: Is learning to be assessed on the basis of a single performance and on one and only occasion (for instance an end-of-course examination) or on the basis of various assignments and on several occasions?

10. Lifespan: Have learners the opportunity to improve their performance score by submitting several times to assessment procedures?

11. Source: Have several experts agreed on assessment methodology and criteria? If that is the case, the assessment procedure can be regarded as objective. If this is not the case, the assessment procedure should be regarded as subjective. Subjective evaluation can often be noticed when it comes to assess complex productions such as reports or portfolios.

12. Modality: Are the conditions under which learners are to be examined the same for all (same time slot, same place, same questions, etc.) or are they adapted to each learner?
Several kinds of adaptation are possible:
- Adaptation of contents: In case of oral examination, the evaluator will choose the questions depending on the answers given by the learner.
- Adaptation of requirements: The same test can be proposed several times whereas the expected number of correct answers increases by each time the test can be taken.
- The learner decides when he / she would like to take the test or the examination.

13. Commitment: Is learning to be assessed by the teacher who was in charge of the learners or by someone who was not involved in teaching the learners?

14. Contract: Can performance scores be negotiated? Are learners allowed to give their opinion on the quality of their performance and thus influence the score?

15. Landmark: Are assessment criteria decided on regardless of learners or are they adapted to them? Criteria are regarded as mobile when they are adapted to the learners' level of competency; they are regarded as fixed when competency levels are not taken into account.

16. Visibility: Are assessment criteria announced and specified from the outset or are they kept secret?

17. Context: Is the assessment situation close to relevant real-life or professional situations or is it mainly 'academic', i.e. abstract and devoid of any relation to real life or professional practice?

18. Authentication: How does the evaluator ascertain the identity of the person who submits to evaluation? Does identity control take place in an authorized evaluation centre? Etc.

Evaluation design is very important, especially in relation to e-Learning. Taking the trouble to vary assessment methods can turn out to be beneficial in many respects. Sun et al. (2008) points out that "diversity in assessment has a significant impact on perceived e-Learner satisfaction. As illustrated by Thurmond et al. (2002), when diversified evaluation methods exist to assess effectiveness of e-Learning, students' activities and processes might be corrected or improved through multiple feedbacks to achieve better performance. A variety of assessment methods enable instructors to canvass learning effects from different aspects so that instruction may be more effective. As for students, diversified assessment methods motivate them to exhibit their best efforts in different evaluation schemes so as to proceed with e-Learning activities seriously and effectively. Hence, higher learning satisfaction occurred." (p. 1196)

The JISC guide to technology-enhanced assessment and feedback underlines the benefits of computer-assisted assessment as follows: "If designed appropriately, computer-assisted assessment (such as, but not exclusively involving, multiple-choice tests) offers a number of benefits that can enhance learning and reduce the workload of administrators and practitioners: online assessments can be accessed at a greater range of locations than is possible with paper examinations, enabling learners to measure their understanding at times of their own choosing; immediate expert feedback delivered online in response to answers selected by learners can rapidly correct misconceptions; and the time saved in marking can be used in more productive ways, for example in supporting learners experiencing difficulties. Outcomes of assessments can also be more easily collated and evaluated for quality assurance and curriculum review processes." (JISC, 2010, p. 8).

Moreover, "technology-enhanced assessment and feedback refers to practices that provide some, or all, of the following benefits:

- Greater variety and authenticity in the design of assessments;
- Improved learner engagement, for example through interactive formative assessments with adaptive feedback;
- Choice in the timing and location of assessments;
- Capture of wider skills and attributes not easily assessed by other means, for example through simulations, e-portfolios and interactive games;
- Efficient submission, marking, moderation and data storage processes;
- Consistent, accurate results with opportunities to combine human and computer marking;
- Immediate feedback ;
- Increased opportunities for learners to act on feedback, for example by reflection in e-portfolios;
- Innovative approaches based around use of creative media and online peer and self-assessment;
- Accurate, timely and accessible evidence on the effectiveness of curriculum design and delivery."

(JISC, 2010, p. 9)

The use of technologies to implement assessment may facilitate an effective organization of feedback. However, quality of feedback also depends on the way it is formulated. Here are 12 principles to be observed when it comes to formulate feedback (JISC, 2010, p. 15):

1 **Help to clarify what good performance is (goals, criteria, standards)**
To what extent do learners on your course have opportunities to engage actively with goals, criteria and standards before, during and after an assessment task?

2 **Encourage 'time and effort' on challenging learning tasks**
To what extent do your assessment tasks encourage regular study in and out of class and deep rather than surface learning?

3 **Deliver high-quality feedback information that helps learners to self-correct**
What kind of teacher feedback do you provide, and in what ways does it help learners to self-assess and self-correct?

4 **Provide opportunities to act on feedback (to close any gap between current and desired performance)**
To what extent is feedback attended to and acted upon by learners on your course and, if so, in what ways?

5 **Ensure that summative assessment has a positive impact on learning**
To what extent are your summative and formative assessments aligned and supportive of the development of valued qualities, skills and understanding?

6 **Encourage interaction and dialogue around learning (peer–peer and teacher–learner)**
What opportunities are there for feedback dialogue (peer–peer and/or tutor–learner) around assessment tasks on your course?

7 **Facilitate the development of self-assessment and reflection in learning**
To what extent are there formal opportunities for reflection, self-assessment or peer assessment in your course?

8 **Give choice in the topic, method, criteria, weighting or timing of assessments**
To what extent do learners have choices in the topics, methods, criteria, weighting and/or timing of learning and assessment tasks on your course?

9 **Involve learners in decision making about assessment policy and practice**
To what extent are learners on your course kept informed or engaged in consultations regarding assessment policy decisions?

10 **Support the development of learning groups and learning communities**
To what extent do your assessment and feedback processes help to encourage social bonding and the development of learning communities?

11 **Encourage positive motivational beliefs and self-esteem**
To what extent do your assessment and feedback processes enhance your learners' motivation to learn and be successful?

12 **Provide information to teachers that can be used to help shape their teaching**
To what extent do your assessment and feedback processes inform and shape your teaching?

3.3. Cover the Roof

Support-Supervision

Deschênes and Lebel (1994, p. 11; quoted by Gounon & al., 2004, p. 15) define support or supervision of learners as follows: "Learning support includes all types of intervention aiming at guiding learners throughout their learning, in order to help them to attain the learning goals and to develop autonomy." (Our translation) The support category (see question 3 of the Diamond framework) aims at framing reflection on the most effective ways to guide learning.

Tutoring:

One type of support which is often practiced in relation to distance learning is tutoring. "Among the various forms of support to learners, quality tutoring available to learners is a crucial variable of the effectiveness of a system of distance education and the rate of persistence." (Decamps, Depover & De Lièvre, 2009, p. 2). Especially in environments of virtual or blended learning it is important that learners should not be left to their own devices and thus feel isolated.

In order to decide on the best ways to support or to tutor learners within an environment of virtual or blended learning, three aspects should be reflected on (see the descriptive model of tutoring intervention proposed by Gounon et al., 2004):

- Who is (are) the tutor(s)?
- Who is (are) the beneficiary (beneficiaries) of tutoring?
- Which are the characteristics of the tutoring intervention? How is tutoring going to be organized?

The third question includes 3 categories of tutoring components: the object, the modalities and the timing of tutoring.

Here follows a more detailed description of the model of tutoring intervention (Gounon et al., 2004). However, we decided to replace the four components related to the object of tutoring by the four functions of online tutoring defined by Berge (1995).

Who is the tutor? The tutoring activity can be assumed either by a person or by a computer-controlled device. The latter can facilitate the use of learning resources and give some guidelines on how to accomplish best a learning activity. If the tutor is a person, two possibilities can be considered: tutoring can be taken on by one or several instructors or by other learners (see peer tutoring).

Who are the beneficiaries of tutoring? Tutoring can be meant for one single learner. It can also address all course participants or a subgroup of them.

What are the characteristics of tutoring? In order to decide on the type of tutoring intervention best adapted to a particular learning environment, three issues should be raised and subjected to decision-making:

What kind of information are learners supposed to get? According to Berge (1995), there are four main types of tutoring. Each type corresponds to one particular set of information to which learners are entitled. Several types of tutoring can be combined with one another depending on the characteristics of the environment in which tutoring is to take place:

○Pedagogical tutoring: It encompasses all matters of learning (knowledge or skills to be acquired, tasks to be performed, instructions, teaching methods, and so on). The tutor can help learners to accomplish the learning activities and also discuss with them the results of learning.

○Social and motivational tutoring: It aims at ensuring a positive learning atmosphere and a sense of solidarity between learners. It also consists in encouraging learners and in helping them to sustain their efforts.

○Managerial tutoring: It consists in managing the administrative aspects of distance learning, for instance by informing learners of deadlines and rules.

Technical tutoring: It deals with the technical aspects of distance learning. It aims at helping learners to become acquainted with the virtual environment and with its technicalities.

• Which are the modalities of tutoring? Two tutoring strategies are possible: reactive or proactive tutoring. Reactive tutoring means that the tutor waits for learners to appeal to him/her and responds to the appeal for help. Proactive tutoring consists is getting in touch with learners without any solicitation from them. There are two main patterns of proactive tutoring: 1) planned tutoring (tutoring interventions are planned in advance and integrated in the learning scenario); 2) contextual tutoring (the tutor decides to intervene when he/she feels that learners need support).
• What about timing? Tutoring interventions can either take place simultaneously with learners' interventions (synchronous interaction between tutor and learner(s)) or they can be temporally dissociated from learners' interventions (asynchronous interaction between tutor and learner(s)). Examples of synchronous communication are chats and video conferencing. Examples of asynchronous communication are e-mailing and forums.

Moreover, tutoring interventions may be short-lived (non perennial) or long-lasting (perennial). Short-lived interventions mean that support provided by the tutor is only of value for a short period of time and that it loses quickly its relevance (for instance reminder of short-term deadlines). Long-lasting interventions mean that tutoring support stays relevant for a longer period of time (for instance general advice about learning or reminder of rules to be observed for the duration of the course). Quality tutoring implies settling all the aspects of tutoring described above.

Interaction between instructor and learner:

In environments of virtual or blended learning, interaction between instructor and learner(s) is more difficult to maintain than during face-to-face teaching and learning sessions. In order to facilitate online interaction, communication tools can be used. The best-known tools devised for the purpose of online communication are discussion boards or forums. However, instructors notice that learners do not readily and frequently resort to forums. Learners prefer instead to use social networks (such as Facebook or Twitter) available outside the teaching and learning environment. The preference for social networks can be explained by the fact that most learners are familiar with them because they use them regularly in everyday life, whereas connecting to an e-learning platform is viewed as more constraining. The only drawback to using social networks in order to interact about learning is that instructors usually do not have access to those discussions. Ideally, interaction about learning should include the instructor who is in a good position to give advice and act as a guide.

It happens that teachers encourage learning initiatives involving the use of social networks. A teacher of pedagogy in an institution of higher education in Liège (Public Service of Wallonia, 2016) asked her students to create educational resources that could be used in relation to a flipped classroom. For that purpose, a private group was created on Facebook and made accessible only to the students and their teacher. The resources created by students were exchanged via Facebook and consulted as requested.

At the University of Liège, a professor was confronted with students' reluctance to use the discussion boards of the course. Students sent e-mails to their teacher instead of posting messages in the forums. In order to force the students to use the forums, the teacher imposed the following rule: he would ignore e-mails and would only respond to the messages to be found in the forums. Furthermore, he made the condition that each message posted by a student had to be answered by another student first before the teacher would intervene. The teacher checked the forums once a week.

As shown by the above, interaction modalities should be specified from the outset. Two kinds of specification can be made: 1) Specification of time limits within which learners can expect to get an answer to their questions (for instance within two days except weekends); 2) Specification of an ethical code of communication of the type 'netiquette' (rules of etiquette that apply when communicating over computer networks, especially the Internet). Such rules can be discussed with learners at the beginning of the course before being agreed on by all parties concerned. Netiquette's golden rule is: Don't use the Internet as a shield to do something you wouldn't do during a real face-to-face conversation with your correspondent.

Production

Now that you have reflected on the learning objectives, the teaching methods and learning activities as well as on the assessment strategies that will make up your course, you are in a good position to start implementing it and creating the resources (7) you need.

The conceptual tools appended to the handbook aim at helping you to structure the learning activities of your course. The first tool (appendix 2) is designed to aid you to split an activity into smaller sequences easier to be handled by learners. The second tool (appendix 3) proposes a canvas that will enable you to describe your learning activity by referring to the learning events that compose it (see the 8 Learning Events Model). If you intend to create your own audiovisual resources, we advise you to use the storyboard canvas (appendix 4).

As explained above (p. 15), blended courses and flipped classrooms have many similarities. Here are 9 recommendations aiming at facilitating learning in relation to flipped classrooms (Kim and collaborators, 2014). The recommendations also apply to blended environments:

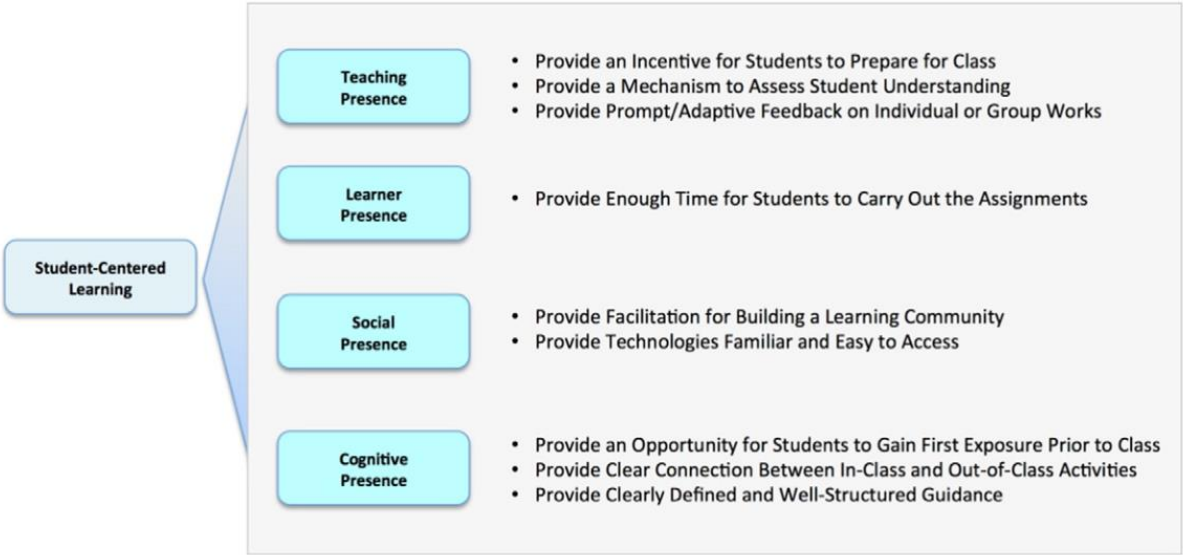


Fig. 14. Recommendations aiming at facilitating student-centered learning in relation to flipped classrooms (Kim and collaborators. 2014)

Pilot scheme

Once your course is ready for use, it can be tested a first time for practicability with a group of learners. However, before letting learners explore their new learning environment, a few checks should be made:

- Have the online components of the blended learning environment been checked on several computers for correct functioning?
- The technological aspects of the environment may put some learners off. Have precautionary measures been taken in order to facilitate learners' acquaintance with the technological aspects of the environment?
- Has technological support (getting started guide, tutorials…) been made available to learners?

Bath and Bourke (2010, p. 56) give some useful advice on how to introduce the new environment to learners: "When students are required to study online, even for part of a course, creating an opportunity for students and staff to come together as a group is an important first step in building a successful learning and teaching experience. So consider designing a formal course orientation program component (e.g., during the first face-to-face or online session) that includes the following:

- Purpose: Begin building a common sense of purpose for the blended learning components of the course.

○Make your rationale for blended learning clear to students – "sell" the course design to the students. Make clear the integration between the blended learning aspects and the rest of the course and how they work together to support students' achievement of the course learning objectives.
○Give them an idea of why they should engage (e.g., share the relevance it has to their learning in the course, and the broader program of study or future workplace/career, the 'value-adding' it will have for their learning).

- Expectations: Set clear expectations for students right from the beginning. Use consistent and transparent communication regarding these expectations to help students understand the blended learning process. For example:

○"Announcements": […] Advise students when you will generally post notices so they know when to check (e.g., every Monday morning);
○Set up and suggest a self-help strategy regarding queries (e.g., please check the Frequently Asked Questions page, or the Course Profile, or post a question on the appropriate discussion board), and after these methods have been exhausted, only then send a direct email to the teacher. Don't forget to give students a set expectation about when you will respond (e.g., at least 2 working days for a response);
○Decide before the start of the course how you are going to monitor students' engagement in the online components of the course and explain this to students;

- Guidelines: Provide guidelines and tips on how to use the particular tools that you are integrating into the course well in advance and include reference to appropriate online language and behaviour in relation to your blended learning tools – Netiquette".

Adjustment

At that stage of project development, the course designer wants to know about the efficiency of the new environment of blended learning that has been put to the test a first time. In this regard, the central questions to be answered are: Have learners attained the learning objectives set initially? Did the course enable them to learn what was intended? (see question 12 of the Diamond framework).

However, it is not necessary to wait until the course is finished to answer those questions. Occasions of reflecting on the quality of learning can be provided for during the course. Gathering information on the way learning progresses makes it possible to address problems rapidly should they occur.

Here are a few tips from Bath and Bourke (2010, pp. 62-66) regarding course assessment and adjustment:

"There are four key avenues by which you can collect and evaluate data – yourself, your peers (e.g., other tutors), your students' experiences, and your students' learning. This approach is known as the 4Q Model of Evaluation (Smith, 2008a), and is represented in the figure below […].

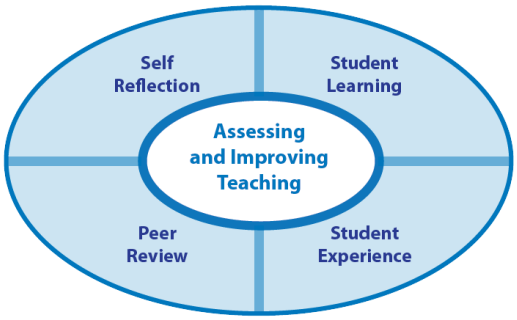


Fig. 15. 4Q Model of Evaluation (Smith, 2008)

Self-evaluation: Reflecting on what we do, and why we do it, is an important part of any professional practice, and such "reflective practice" allows us to gain an understanding of our strengths and weaknesses, what is going well, and in which areas we can improve. […].

Peer evaluation: If you have developed some materials and resources (either print, web, other media) for use by your students, you can ask a colleague to comment on these materials in relation to certain aspects as requested by you (for example, whether they are they interesting, well-constructed, clear, etc.). [Colleagues can also comment on the clarity of announcements, instructions, feedback…].

Student learning:

• ***Student's self-reported knowledge*** – Sometimes it can be very helpful to get feedback from students about their learning as a way of getting feedback about your teaching. For example, if you have spent a session on a particular concept and you want to know whether your approach was effective in helping students to understand that concept, try using one of the following "Classroom Assessment Techniques" developed by Angelo and Cross (1993) – for example:

○"The Muddiest Point" – At the end of a class/task/activity, ask students to respond to this question – "What was the 'muddiest' point in this class. In other words, what was least clear to you?" From students' responses you can then gauge how effective the session was in facilitating student learning, and perhaps identify where any major problems occurred (e.g., if the majority of students comment on the same aspect as being the muddiest point). You then have the opportunity to address this the next time you meet with your students;

○"The Main Points" – Sometimes students have difficulties discerning what the main points are in a lecture or reading. Ask them to "Write down the main idea of this lecture in one or two sentences" or "Write down the top 5 points from this lecture". You can then easily check what messages student received, and have the opportunity to clarify these at the next lecture, on the discussion board etc.

○Some possible methods of implementing the above techniques are:

▪ On a piece of paper (for face-to-face sessions);

▪ Using a course blog (set to anonymous);

▪ Via online survey.

• ***Student work*** – Similarly, you can get an idea of your students learning from their performance on assessment, in-class, out-of-class, or online activities. This information can also help you to pinpoint where you may need to think about your course design and how effective it is in facilitating student learning. For example, if your students complete an in-class or online quiz and most get the questions about facts correct, but many fail the questions that require application of knowledge to solve a

problem, then you may need to think about how you approached this aspect of the learning material with students.

Student experiences: Students are a very important and reliable source of information about how well a course is designed, delivered, and experienced. They are often the best source of information about classroom or online processes and activities, assessment tasks, as well as the interpersonal aspects such as having a sense of community, collaboration, motivation, enthusiasm etc. There is a range of methods in which you can obtain information from students about your teaching, both formally and informally, such as a short poll, discussion forum or chat, or a more comprehensive survey. You aren't limited to using only one method, and at only one point in time. Below are some of the common methods used to obtain student feedback:

• ***Informal feedback*** – As the formal student evaluation questionnaire is best conducted towards the end of a course, there are other more informal methods that can be used very quickly and easily at any time during a course. For example:
○**The Minute Paper** (Angelo & Cross, 1993) – At the end of a class/activity, ask students to respond very briefly (in one minute!) to two questions: "What did you find most useful about the session today?" and "In what way could the session be improved?" This is a very efficient and effective way of obtaining instant and manageable data to which you can respond. You can quickly sort through responses to get an idea of the key themes that are common in the student group, and then feed this back to the group. Remember it is very important to "close the loop", and to respond to the students, noting any actions or changes that you are going to make as a result of the feedback.
This technique can be implemented using a piece of paper, course blog (set to anonymous) or online survey (see 'Student's self-reported knowledge' above for more info).

○Alternatively, consider using a "**Suggestion Box**" for getting feedback either on how a particular session went, or about how the course (or particular aspect/s of the course) is going in general.
Again, this could be implemented using a course blog or online survey.

• ***Student Evaluation of Teaching/Course Questionnaire*** – [There are two types of questionnaires: standard questionnaires proposed by the institution or customized ones. Customized surveys are more appropriate if you wish to get feedback about specific aspects of your course.]
Nowadays, many surveys are conducted online even in a traditional face-to-face course, but online methods are obviously ideal in a blended learning environment.
○Carefully consider what you want to evaluate, or obtain feedback about.
○Construct questions that are clear and simple.
○Do not ask about more than one aspect in the same question (e.g., "The assessment was relevant *and* fair" – the answer could be quite different for both aspects, that is, the assessment may have been relevant but it may not have been fair). If both aspects are important, break the question into 2 questions.

One framework for constructing student evaluation questions is called "Design-focused evaluation" (Smith, 2008). This method utilises students' experiences of learning and teaching designs and activities, and focuses questions on students' awareness of the effectiveness of those strategies for facilitating the intended learning outcomes. A focus on design and activity makes this method particularly useful for blended learning environments." Bath and Bourke (2010, pp. 62-66)

When teachers decide to experiment with innovative teaching and learning environments (here with blended environments), they should question the efficiency of their innovation. In order to do so, they should gather reliable information about their course and about its effects on learners. To assure reliability of information, data to be collected should be of three types: participation (Did learners use all the resources at their disposal? Did they take part in the activities?), perception (What do learners think about the course?) and performance (How well did learners perform in regard to the objectives to be attained?). 'Participation' data can be obtained via tracking devices of platforms or other online applications. Questionnaires or interviews are a relatively easy way to collect 'perception' data. Test and/or examination scores are usually used as 'performance' data. According to the information about course efficiency yielded by collected data, adjustments can be considered.

When evaluating the course and its effects on learners, several aspects should be taken into account. According to Viau (2009, p. 184), "institutions of higher education can nowadays hardly restrict their role to helping students to become competent professionals. They should also help them to become competent learners." (Our translation)

Consequently, Viau (2009) advises to include the following aspects in the evaluation of courses:

- Learning strategies acquired and/or resorted to during the course:
  - Do learners select appropriate learning strategies? Do the strategies they choose correspond to those initially planned?
  - Do learners regularly use the recommended learning strategies?
  - Do they use them intentionally? Do they try to gauge their effectiveness?

- Learner's motivation:
  - How does the course influence the three determinants of motivation (i.e. perceptions of value, of competency and of controllability)?
  - Do the learning activities meet the 10 conditions to be met in order to be perceived by learners as motivating?
  - Does the course encourage learners to persevere at learning?

- Learners' opinions on their learning / training:

The quality of the course will be judged by learners also from the viewpoint of their own preferences, interests, ambitions… Their personal approach to learning will also influence their appreciation of the learning activities of the course.

3.4. Literature

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Chapter 4: Tool Requirements Table regarding E-learning Platforms

In order to...

Your learning platform should allow you to...	Transfer information	Assess learning	Communicate & Interact
Upload a file (pdf, PowerPoint)	✓ Yes. Easy and necessary for trainers to upload materials.	Maybe. Better use Assessment or Forum to collect trainees' files.	✗ No. No interaction possible through this tool. Better use the Forum.
Link to a web page (content-related)	✓ Yes. Easy and necessary for you to share information with the trainees.	✗ Not through the platform. You could link to external website (blogs etc.)	Maybe. You could link to external tools, e.g. Google Calendar, wikis or blogs.
Link to videos (Youtube)	✓ Yes. Easy and necessary for you to share information with the trainees.	✗ No. The video could be part of an assignment but not the assessment directly.	✗ No. No interaction possible through this tool. Better use the Forum.

Upload videos	Yes. Easy and necessary for you to share information with the trainees.	Maybe through and interactive video. Better use Assessment or Forum.	No. No interaction possible through this tool. Better use the Forum.
Have a Discussion Forum	Maybe, if you want to share links or file. If there is a high volume of data, there is a high risk of losing some.	Maybe. You could develop a formative assessment activity.	Yes. Easy and necessary for trainees and trainers to interact and communicate.
Have a News Forum	Yes. Post here your course updates, reminders, encouragements, etc.	No. The News Forum does not allow trainees to make new posts	Maybe. Start new topics and let the trainees respond. Keep your course updated.
Have an Assignment Tool	It depends on the assignment tool – if the assignment is to create Interactive Content or a Lesson (this type of assignment is available on the Moodle platform), transfer of information might happen.	It depends on the assignment tool – if the assignment is for example Workshop = a powerful peer assessment activity on Moodle	No. Very limited interaction possible through this tool. Better use the Forum.

Works perfectly

Could work with some learning design

It usually does not work; use a different tool

5. Appendix

Short List with Guidelines for Producing the Blended Learning Course IDEAL

By Stefan Sigges, Andrea Büergin, Marcus Lauer and Martin Zimnol (from Pädagogisches Landesinstitut Rheinland-Pfalz)

- The ratio of E-learning and face-to-face learning should vary between 50:50 and 70:30.
- Make sure that at least one third of the course will be taught in presence phases. (Example Belgium: 60 h online, 30 h face to face)
- Distant learning phases should not be longer than 4 to 6 weeks
- Start the course with the face-to-face phase in order to build the learner's familiarity with the platform and the online tools and give time to ask questions. Furthermore, a face-to-face meeting at the beginning creates the opportunity that participants get to know each other (and the trainers) personally and start to build a learning community.
- Plan a very precise time schedule for both the face-to-face and the online phase (time management)
- Plan to have a maximum of 20 participants per group (in order to provide continuous support and feedback by a trainer)
- Theories should be taught during the online part of the course, whereas face-to-face should include practicing, exchanging and reflecting about the implementation of innovations in the daily practice, reflection and direct guidance.
- Explain all assignments comprehensively
- Connect materials to the real life practice (professional practice) of the learners
- A variety of delivery media should be included: audios, texts, videos, interactive and collaborative learning materials, etc.
- In planning the time schedule, always take under consideration the needed flexibility for both the trainers and the learners
- Be precise about the availability of the trainer
- Always provide constructive feedback to learners´ questions, inputs and assignments
- Ensure the trainer's reliability and expertise
- Encourage interaction between the learners (peer-support) and establish constructive feedback rules among learners
- Organize continuous progress tests and assignments to maintain the learning process

Appendix 2: PLANIFICATION CHART

N° of module	TITLE:					
	Objective(s)	***Audiovisual contents***	***Other contents***	***Activities***	***Hybridization level***	***Tools to be used***
	Objectives refer to what learners should master at the end of the module	*List the topics to be dealt with by means of the audiovisual resources to be either recycled or created*	*Those can be Web links, pdf files, etc.*	*Which are the tasks to be performed by learners in relation to each sequence and with the help of the audiovisual resources (e.g. quiz, debate, autocorrected exercises, essay…)?*	*How are online and face-to-face learning to be combined with each other? Which is the target level of hybridization?*	*Considering the technological possibilities offered by the online environment (or eLearning-platform), which are the tools to be used (quiz maker, discussion board, peer-review device, submission device of homework…)?*
Sequence 1: *(Title)*						
Sequence 2: *(Title)*						
Sequence 3: *(Title)*						
Sequence 4: *(Title)*						
Sequence 5: *(Title)*						

Description of organization:

Who?	*Does what?*	*How?*		*When?*
		Material	*Tool(s)*	*(schedule and duration)*
Example: Each learner individually				
Example: The learners divided up into small groups				
Example: The whole class				
Etc.				

End-of-activity production or expected results:

Explain in a few words to which production/result(s) the activity should lead. This will enable you to check the 'internal' consistency of your activity (i.e. the alignment of learning objectives, teaching methods and strategies of formative or summative assessment).

Appendix 3b: Activity sheet: how to use it

Here is a list of the headings to be found on the activity sheet. Each heading is followed by some words of explanation of its relevance to the pedagogical design of the learning activity.

Title of the activity:
The title should give a clear indication of the meaning and/or the contents of the learning activity. Indicate also the type of activity you are considering (integrative activity, case study, problem-based learning activity, project work...) in order to make clear what the activity is about.

Location of the activity within the course:
In order to underline the relevance of the activity to the course, it is important to locate it precisely within the course.

Meaning and learning goals:
A few words about the meaning of the activity (which purpose will it serve?) are necessary to appreciate its usefulness. The learning goals specifically associated to the activity should also be mentioned. Thus, it is possible to check that the choice of activity is actually appropriate in regard to the goals to be attained.

Description of how the activity is going to take place (see organization):
In order to understand the scenario of the activity, it is important to describe quite precisely how it is going to take place. The following chart will help you to structure the information in relation to the organization of the activity.

Remark:
If you intend to describe a complex activity which is to be subdivided into a series of smaller tasks, we recommend you to fill in a separate chart for each sub-task and to give each sub-task a specific name so as to identify it clearly within the scenario of the whole activity.
If you intend to do some classroom research, the description of each sub-task will enable you to determine when and in relation to which part of the activity you are going to collect data.

Who?	Does what?	How?		When? (schedule and duration)
		Material	Tool(s)	
Example: Each learner individually				
Example: The learners divided up into small groups				
Example: The whole class				
Etc.				

Material and tools:

Material refers to the learning aids which are offered to learners whereas tools refer to the technological means (platform, discussion board, quiz, peer-review device…) necessary to carry out the activity.

End-of-activity production or expected results:

Explain in a few words to which production/result(s) the activity should lead. This will enable you to check the 'internal' consistency of your activity (i.e. the alignment of learning objectives, teaching methods and strategies of formative or summative assessment).