



ONLINE AND OFFLINE LEARNING

How to get the best out of both

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The Project Team

Since every great project starts with great teamwork, let us briefly introduce our team to you.



Charlotte Nöthel

Charlotte is originally from Bonn, Germany, and has a background in educational sciences and experience with the didactic conception of online/offline learning and blended learning formats. She is a very calm yet critical person who brought much-needed depth and relaxation to the team.



Alessandra Leclercq

Alessandra is from Liège, Belgium and prior to joining the master's LDO she studied international business and worked for a Supply Chain company in Belgium. She loves planning and organization and is a star in summarizing and creating presentation or report layouts. Aless's French skills came in very handy throughout this project.



Marco Sander

With a background in psychology, and a successful Youtube channel ([you can find his channel here](#)) & coaching business, Marco is the entrepreneurial psychologist and business coach of the group. He brings all our ideas together and is an unlimited source of psychological models and theories. He is originally from Stuttgart, Germany.



Mareike Zeidler

Our final German group member (from Berlin!), Meiki, has a background in business administration and work experience in the start-up area. She is a true generator and is always able to bring fun, creative, and out-of-the-box ideas to the table. She is also naturally empathetic and an all in all great asset to the team.



Daniela Bocmaru

Daniela is from Moldova, but moved to the Netherlands to pursue her education in Economics and Business Economics, with a specialization in Emerging Markets. She has an entrepreneurial and creative inclination, which she channels in her online business. Besides that, she has worked in the context of emerging markets and speaks fluent Russian, Romanian, and Spanish! Her knowledge and interest in emerging economies helped us a lot in understanding DECPs clients.



Nina Joustra

Nina is Dutch but she has also lived and worked in the Czech Republic. After studying a bachelor's in Food Science and Technology, she joined AIESEC and spent ~4 years developing leadership in young people across the globe. Here she fell in love with Learning & Development and got the chance to design and facilitate a lot of summits, conferences, and online/offline training sessions. She also previously worked in a start-up focused on blended learning where she experienced the shift to fully virtual at the beginning of the pandemic. She also has a blog about her learnings in life and the area of L&D ([find it here](#))

Introduction

With the outbreak of the COVID-19 pandemic, everyday life has changed all over the world. Social distance emerged to stop the spread of the virus, forcing institutions to experience a shift from physical to digital, a transition shaped by technological and organisational challenges [1,2]. Within a few months, the world of meeting, discussing, exchanging ideas, teaching and learning has undergone a digital transformation that has enabled companies, organisations, and governments to virtually 'meet' people on the other side of the globe. Reducing travelling time and costs promises considerable gains in productivity, efficiency, and sustainability [3], offering new opportunities that may be acknowledged, ingrained, and sustained even after the pandemic.

These opportunities were not missed by the foundation Dutch Employers' Cooperation Programme (DECP). DECP offers professional expertise through training, workshops, advisory meetings, and their network to business member organisations in developing countries to improve local business climates (for more extensive information on DECP, see Appendix A). DECP transferred their on-site training and other meetings online to cope with the travel restrictions imposed by COVID-19. While this enforced shift brought many challenges, DECP also recognised the benefits of conducting some of its activities online. Specifically, the organisation believes that incorporating online elements in their service delivery will increase the reach and impact of their activities, allowing them access to a more extensive network of

experts and partner organisations [A1]. In the future, DECP wants to capitalise on the opportunities brought by blended learning.

Currently, DECP is looking for the best approach to implement blended learning in their organisation while learning how to navigate the challenges that such a transition brings. The organisation has extensive experience conducting its activities face-to-face and already gained much practice with online learning. However, blended learning requires more consideration than simply combining online and offline elements. Moreover, DECP's primary goal is to support partner employers' organisations in emerging and developing countries. DECP's partners went through a similar process of shifting their activities online during the pandemic and recognising the potential benefits of blended learning.

Therefore, **this project aims** to uncover all the factors that contribute to the success of a blended learning programme. In doing so, the results of this project will inform DECP on how to best implement blended learning in their organisation and how to support their partners in implementing their blended learning programs. Thus, the project explores how to implement and optimise blended learning from a general perspective, to serve DECP, their partners, and the general, interested public. The findings are meant to be helpful and easily applicable regardless of the organisation's context or the blended learning format.

The project

In the context of a consultancy project at Maastricht University, we aim to assist DECP and their partners in optimizing their online and offline training to grow the support DECP offers its partners. To advise DECP on blended learning formats and thus, implement such arrangements as smoothly as possible, we proceed in several steps while aiming for three main objectives. More precisely, this project will deliver a **COMPREHENSIVE REPORT** grounded in theoretical research on blended learning, and enriched by practical, expert advice. Moreover, we will add value to DECP's service offering by providing actionable steps for setting up a blended learning system utilizing a **PRACTICAL TOOLBOX**. The toolbox is compiled for each of the four main parts, allowing it to be used immediately for practical application. Therefore, the toolbox is actionable and implementable advice for practitioners, whereas the report itself, along with the interviews and surveys

conducted provide the background. Specifically, the guidelines contained in the toolbox can support the implementation of a blended learning programme to enhance the learning experience for both instructors and learners. In addition, the toolbox offers advice for handling challenges as they emerge. The detailed scientific report backs up all these recommendations for action and can be consulted at any time to provide evidence-based support for the suggestions made in the toolbox. To this extent, the toolbox can be seen as a research and experience backed roadmap for blended learning. Practitioners can tailor the findings to their specific needs by diving directly into the actionable advice inside the toolbox and/or reading more elaborate findings and guidance in the overall report. Figure 1 provides an overview of the toolbox.

Figure 1: Toolbox Overview



Finally, we summarise our findings in an **APPEALING ARTICLE**, available both in English and French. All material (report, toolbox, article) is based on the latest research in blended learning and complemented by practical advice gathered through interviews and surveys with experts. The extensive research results in **7 ACTION STEPS** we recommend DECP to consider. Ultimately, DECP experts and Country

Managers will be able to apply our findings immediately and design the best blended learning experience for their partner organisations. Furthermore, the findings are equally applicable for DECP's partners and other (L&D) professionals who will receive the results. Figure 2 displays an overview of the project's key objectives and outcomes.

KEY PROJECT OBJECTIVES AND OUTCOMES

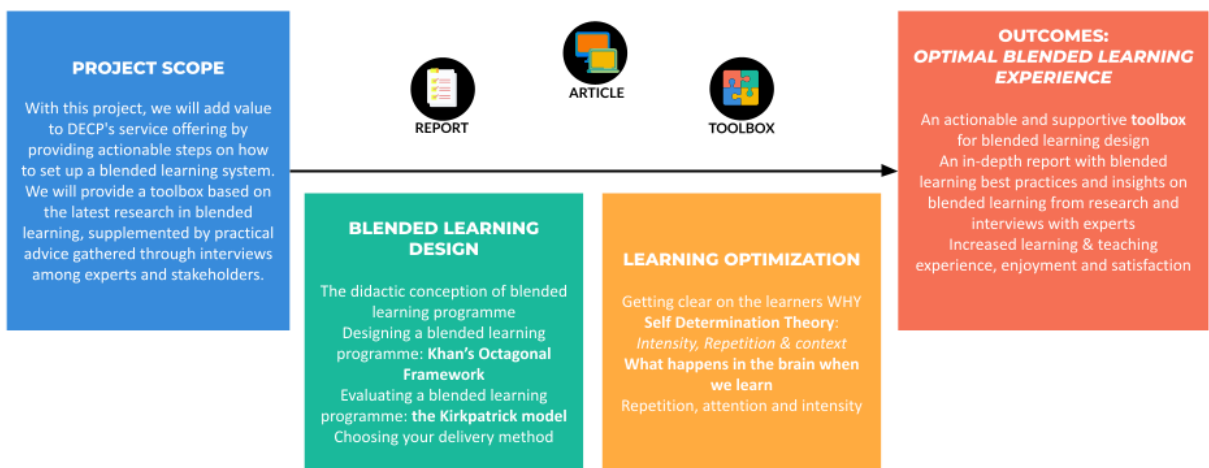


Figure 2: Key project objectives and outcomes

How to use this report

To provide practical advice on how to make blended learning successful, it is important to dive into various aspects of (blended) learning. Thus, the report consists of four main parts, namely **(a) optimising learning**, **(b) defining blended learning**, **(c) didactical conception of blended learning** and **(d) challenges and benefits of blended learning**. The main parts were developed in consultation with DECP, with the purpose of providing a holistic approach to blended learning. More precisely, the report starts with a foundational question in mind: How to optimise learning? Answering this

question is crucial for the design of any learning arrangement. Thus, the first part of this report draws on insights from psychology and neuroscience, exploring concepts like motivation and the biological process of learning. Subsequently, we take a deeper dive into blended learning, our variable of interest, by defining the concept first. Following our understanding of how learning can be optimised and defined, we move on to design and implementation. Here we focus on the weighting of the components within a blended learning programme and how they should best

be structured in a complementary way to maximise the teaching and learning experience. Afterwards, we reflect on the benefits and challenges of blended learning. Being aware of obstacles is necessary to ensure they are taken into account when designing a blended learning experience.

Moreover, we provide recommendations on how to cope with these potential challenges. A

Our approach

All advice found in this report is based on either scientific findings from academic literature or gathered through interviews with different experts in learning and development. After our initial literature research into the central parts mentioned above (optimizing learning, defining learning, didactic conception of blended learning, benefits and challenges of blended learning), we developed an informed interview guideline and a questionnaire to gain specific insights from our experts. The experts comprised a diverse range of industries and backgrounds and were recruited through DECP's network and our networks to capture a broad range of experience and insights. An overview and further information on all the companies and experts consulted can be found in the appendix (see Appendix B). As not all experts were available to participate in an interview, we asked some of DECP's partners to provide their input by answering a short questionnaire. We contacted and invited all experts to participate by email or phone (see Appendix C), and participation in the study was voluntary. We offered all interview participants the option to remain anonymous. In addition, we offered

literature review is provided for each of the four main parts, validating the whole report scientifically. Moreover, valuable results derived from interviews and surveys are added to the literature. Finally, based on the scientific literature and the results of the interviews and surveys, **7 action steps** are presented in the end.

access to the final project results at the end of each interview.

We conducted semi-structured interviews to ensure that the most important questions were asked while allowing room for additional information. A total of **23 interviews** were conducted, lasting approximately 45 minutes to 60 minutes. All interviews took place online via Zoom. Most interviews were conducted in English, with a few exceptions to accommodate the experts' native language (specifically German and French). Each interview was either audio recorded (with consent) or with a note-taker present to allow for optimal analysis of the results. The interview guideline was based on conversations with our client and our initial literature research and consisted of four main parts. In the beginning, we communicated the purpose of the study and gathered general information. The interviewees were informed about the procedure of the interview. In the next step, questions were addressed about the first part of the report, i.e. optimizing learning. We asked questions such as *"How do you motivate the trainees to learn?"* and *"What are the techniques you use to make your trainees learn the most?"*. In the following part, we introduced blended learning by asking the experts how they define blended learning.

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4

Interviews
Surveys

Further, we asked questions such as *“What would you say is an optimal balance between online and offline elements?”*. The third part of the interview dealt with questions about the challenges and benefits. For example, we asked the experts, *“What are/were the challenges the instructors faced?”* as well as how they cope with potential challenges. In closing, we asked the experts for one final piece of advice concerning blended learning. The extensive interview guideline is available in the Appendix (see appendix C). After conducting the interviews, all notes were gathered in one document and reviewed by the interview team. Further adjustments were made based on the audio recordings. All insights were grouped and classified into specific categories to ease the process of analysis.

Additionally, we sent 4 surveys by email to the partners indicated by DECP. The email contained the link to the questionnaire, a description of the project and an introduction to our team. The questionnaire consisted of 10 questions covering topics similar to those in the interview guideline (optimizing learning, the didactic conception of blended learning, benefits and challenges of blended learning). The first two

questions were closed to introduce the participants to the topic by firstly asking what kind of training was conducted before the COVID-19 crisis (on-the-job training, online training or both). Secondly, we asked if they had encountered difficulties in conducting training due to the COVID-19 crisis, which participants could answer with yes or no. In the following part, the survey contained open questions such as *“What possibilities do you see in a blended learning programme?”* or *“What are the required competencies (on the part of the teacher or the learner) to optimize blended learning?”*. At the end of the survey, we asked if participants wished to remain anonymous and if we could contact them via ZOOM or teams to pose further questions and elaborate on their responses in detail.

We received 4 completed surveys back. Three questionnaires were sent in French to partners in Africa and translated by one of the French-speaking team members, and one in English to a partner in the Philippines. The complete survey is attached in the Appendix (see appendix D).

Optimizing Learning

What motivates people to learn? What is the biological foundation of learning? This section tackles these questions in a non-exhaustive review of concepts from psychology and neuroscience, supplemented by advice from practitioners. Therefore, before diving into the concept of blended learning, this section aims to provide a better understanding of how to create effective learning environments that stimulate motivation and optimise learning outcomes.

Answer the Why first

Learning can be considered to be an indispensable meta-skill for every organisation to grow. Since change is inevitable, it is crucial to adapt to new situations [4]. Optimal adaptation can only happen if the agents of organisations think with foresight and acquire the necessary skills. In other words: they need to learn. Therefore, the following fundamental question arises: How can instructors support people within an organisation with their learning process and, as a result, increase their learning outcome?

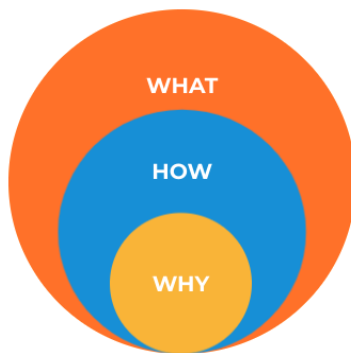


Figure 3: The golden circle (Sinek, 2009)

Optimizing learning behaviour by others, first of all, requires a certain willingness to do so by the people themselves [5]. The old saying “You can only drag a horse to the pond; it has to drink on its own” applies in this context. Even the best instructor with the most ingenious setup system cannot make trainees learn efficiently if they are simply hesitant or even unwilling to learn. It

becomes evident that the first step to optimizing learning is to ensure a motivated learner.

Therefore, before we can dive deeper into the **how** and the **what** of learning, we need to answer the **why**. If the trainees truly know why they learn and why it is essential to pay attention, be curious and implement the learned knowledge, then the foundation is set up. Through the interviews, we found out that an expert from TNO-ESI always communicates the why first before he starts explaining the what and the how [R].

Simon Sinek [53] displayed the rationale above with a simple model called the **golden circle**. The main motto of this model is to **start with why**. The why describes the deeper motivation of the trainee. If the why is strong enough, the how and the what is easy. For instance, a trainee could be aware that his or her organisation needs to change and learn to persevere and continue to support their customers with their values.

The how is about the means to reach a particular goal. That could be about which learning strategies the trainee uses to remember the knowledge that he learns and actually uses it and how he implements them back at work.

The what is about the specific goal that needs to be tackled. Usually, the what becomes clear very fast. This aspect is about the raw content of what needs to get done and can be easily transferred within training.

Now, people usually have two types of why's. In other words, people have two kinds of motivation: **extrinsic motivation** and **intrinsic motivation** [6]. Extrinsic motivation can be defined as factors that are outside of the self. So, the locus of causality for why the behaviour is essential lies outside of oneself. For instance, one is motivated to learn because of a potential promotion that could be achieved or afraid to face negative consequences if the training is not being attended to and applied. On the other hand, if somebody is intrinsically motivated, one is enjoying the process itself. Learning is a pleasant journey and is done not because of the potential consequences, which might be positive or negative. In other words, one is passionate about the topic itself.

Intrinsic motivation is the preferable driving force in most situations [6]. Intrinsic motivation leads to higher well-being compared to extrinsic motivation. Furthermore, intrinsic motivation provides people with a higher persistence since they do not tie their motivation to the extrinsic outcome [7]. Therefore, the motivation is much more consistent because their passion and love for the work are more stable. Additionally, being intrinsically motivated also means being mastery-oriented instead of overly focusing on the outcome to receive the desired reward [8].

One is characterized to be more playful and explorative because the journey itself is a fest. Those characteristics are the key factors of learning. Learning is about discovering and about playing around. Moreover, learning is about making mistakes but continuing to figure out the solution, and therefore, intrinsic motivation leads to more effective and more enjoyable learning.

As a result, the question that arises is how we can specifically foster intrinsic motivation within the learner. The **self-determination theory** by Decy and Ryan [9] provides a simple but powerful framework to do so. The following assumption serves as the foundation of the theory: Intrinsic motivation cannot be injected from the outside. Instead, an environment needs to be created in which people can motivate themselves. To establish such an environment, three psychological needs need to be met. Those needs are the nutrients of intrinsic motivation. Just like a plant needs soil, sun and water to grow, we humans also need specific psychological needs to be motivated and grow as a person. Those fundamental psychological needs are; **autonomy**, **competence** and **relatedness**. If those are all met, a person can be considered to be intrinsically motivated. While an expert [J] shared in our interview that the best way to tangibly motivate trainees is very context-dependent, a shared psychological foundation is nevertheless culturally independent.

Autonomy

Perceiving autonomy within one's actions and being provided with a set of choices is causally connected to being intrinsically motivated [10]. Learners need to feel that they decided to learn. Instead of feeling like the instructor forces trainees to learn certain subject matters without even asking whether it is needed. That tangibly means that the instructor always needs to ensure transparent communication and double-check whether the current content and approach are helpful and appreciated. Furthermore, a sense of autonomy is already mainly accomplished by our previous point regarding answering the why question. If trainees know why they do something, they feel like they want to do it and feel autonomous.

Competence

Feeling like one can tackle the challenges or exercises that are being faced increases the level of intrinsic motivation. Nevertheless, more can be less. If the trainee feels like the current task is too easy, intrinsic motivation will decrease [11]. If the trainee feels like the current task is too hard, one feels confused and overwhelmed and, therefore, also loses motivation. The optimal breeding ground for intrinsic motivation concerning competence is the so-called "zone of proximal development" [12]. This zone consists of a set of tasks that embody the optimal balance of feeling challenged. In this zone, the trainee feels like he or she needs to stretch, sweat and develop to reach the desired outcome but simultaneously, there is a shared feeling of trust that one can achieve the goal if the effort is being implemented [13]. To provide every trainee with their zone of proximal development, individualized training is needed that meets

On top of that, some of our interviews suggest that the instructor needs to ensure that every trainee has clear self-study objectives [G, E]. Therefore, when the trainees set goals themselves, they feel much more engaged and autonomous. Because when they are involved in choosing the goal, there is no imposed goal that may oppress learners. It is also advisable to maintain a constant dialogue with the trainees and even give them the power to shape the training themselves. This can be done by simply asking trainees what they think would be most meaningful to talk about. Alternatively, by giving them a choice between two options, trainees can decide how they want the training to proceed.

people where they are at. The DECP underlines this advice by stating that one of the critical characteristics of optimal training is individualization. Therefore, the instructor needs to create the training with the learners or heavily keep the learners' needs [A]. An individualized training picks up the trainees directly at the point where they are at so they do not feel overwhelmed but instead engaged and motivated to tackle the challenge with the right degree of difficulty.

Furthermore, TalentMiles suggests to ensure competence, the instructor needs to ensure that the exercises are as realistic as possible and connected to their daily work [J]. Creating tasks that involve tangible interactions with the organization increases the transferability of the skills being learned. In that way, the trainees have an easy time implementing the knowledge and, as a result, feel competent.

Relatedness

Finally, people have an innate desire to feel connected to others [6]. This feeling provides people with a purpose and, therefore, intrinsic motivation. The instructor is responsible for creating such a shared atmosphere within the learning space. Connections can be built on a deep level, such as showing deep care and appreciation for others interests, well-being and knowledge. Asking genuine questions and profoundly trying to understand the position of others is the way to achieve a meaningful

relationship. Also, light-hearted activities and simply having fun can glue for relations within the group and between trainees and the instructor. Furthermore, according to our experts, implementing group work into the learning process helps trainees build meaningful connections to fellow learners [G]. It is the instructors' responsibility to create a space in which trainees frequently talk to each other, which also keeps up the room's energy [J].

The “How” of Learning and Motivation

The self-determination theory presented in the previous section highlights a crucial aspect of adult learning: the importance of creating a supportive environment for learning that increases intrinsic motivation [9]. This theory has important implications for how an effective instructor can optimize learning. However, an often-held perspective about teaching and training is that learning is a top-down process where an educator or instructor passes on knowledge to the learner. From this perspective, it is easy to forget that the actual learning takes place in the mind and body of the learner, not the instructor. Fundamentally, learning is a biological function. Our brains change through experience every day as we process new information, learn facts, form memories and associations [14]. Through training, that process of change can be guided in a way that is relevant to individuals. What follows is that a better understanding of the **process of learning** and the **conditions** that allow it can bring a new perspective to practitioners wanting to optimize learning [15].

What happens in the brain when we learn?

From a neuroscientific perspective, everything that the brain learns is represented as a memory- any idea, thought, or skill we have ever had [16]. In simple terms, memories begin with an experience- sensory input from the environment [17]. Specialized sensory systems, like those for vision or hearing, constantly transmit information filtered through attentional and emotional filters [16]. This information is picked up by neurons, billions of

brain cells that communicate with each other through structures called synapses [18]. A stimulus from the environment, like smelling an orange, causes nerve impulses to travel to a neuron's synapse, releasing chemicals called neurotransmitters [18]. These chemicals then cross the synapse of the neighbouring neuron, sparking a reaction that causes this neighbouring neuron to “fire”-generate its signal. This reaction continues, forming a

pattern of neuronal connections firing together, the brain's representation of an "orange" [19].

Moreover, if the same two neurons fire together often, the connections between them become more robust, leading to an easier memory recall [19]. A simple illustration is the ability to tie our shoes. We have practised tying our shoes so often that we do not have to exert any conscious effort when doing it; we can easily recall how to do it. Therefore, practice and repetition strengthen the connections between neurons, reflecting a famous axiom among neuroscientists: "*Neurons that fire together wire together*" [16].

For new learning to be effective and lead to an appropriate behavioural response, memories must be stored and retrieved when necessary [19]. There is much to be discovered about how the brain stores memories, but the current understanding among neuroscientists is that

memories are stored in networks of neurons that formed strong connections through repeated activation [16]. An interesting finding is that the neuronal networks that form a memory may include neurons located in different parts of the brain that are nonetheless connected through their synapses [16]. Finally, retrieving a memory requires activating the group of neurons that were altered when the memory was first created [16].

In summary, the brain learns by adjusting connections between specific neurons, storing that knowledge in neuronal networks, and retrieving it by activating the same group of neurons. Understanding how learning happens in the brain has several implications for optimizing learning. Some of these insights are detailed below, complemented by best practices gathered through interviews with experts

Repetition

The first implication for training is that memory and recall are strengthened by repetition. Repetition helps reinforce the neuronal network that stores specific knowledge, thus helping to consolidate memories [20]. However, not all types of repetition are efficient. Passive exposure to knowledge, such as rereading a previously read passage, is not as effective at creating memories as retrieving or reconstructing them [20,21]. Moreover, research in many expert domains shows that

the deliberate practise of skills fosters learning [22]. However, to be effective, deliberate practice must be a highly structured activity, based on performance goals and supported by feedback [22]. All in all, repetition of new information in a spaced manner plays a role in building long-term memory. Training programs could benefit by spacing out learning and encouraging learners to review the content in an engaging way.

Attention

Activating neurons and creating neuronal networks requires paying attention [23]. The hippocampus is a brain region that plays a significant role in memory recall [16]. When attention is divided between tasks, the hippocampus is not fully engaged, decreasing the quality of learning [23]. Focusing on multiple streams of information in the learning environment, including multitasking, can also result in neurons decreasing their firing. The limits of attention pose additional challenges in an online environment, where computer-based distractions can make learners lose focus quickly. If attention is key to learning, how can it be maximized during training? Research points

Context

As was previously mentioned, memory is stored in separate physical locations in the brain. For example, representations of the smell, colour, texture and taste of an “orange” are probably stored in different groups of neurons in the brain. The neuronal activity representing the “orange” is associated with other groups of neurons, depending on previous experience, for example, “fruit”, “citrus”, or “juice”, that encompass one’s holistic knowledge of an orange. Retrieving the memory of an “orange” implies activating the whole network associated with the concept. Thus, a memory with many connections to other memories or stored in multiple sensory modalities is easier to consolidate and retrieve [17]. Explicitly connecting a new piece of knowledge to previous experience and delivering information through multiple sensory modalities enables learners to encode the data better [16].

These findings are shared by many of the experts we interviewed. TalentMiles and VIVES

towards dopamine, a neurochemical involved with feelings of reward and novelty. To increase dopamine levels while learning, the learner needs to see the potential reward or value of focusing attention [23]. One way of achieving this is by engaging learners with relevant information that has practical implications. Additionally, varying learning techniques provide novelty, such as incorporating group discussions or role-plays.

One of the techniques an expert from DECP uses to ensure the learners pay attention is providing information in small, “digestible chunks” [A].

mentioned that it is helpful to use real-life cases and scenarios to allow the learners to connect new information to what they already know, facilitating learning [J, L]. Furthermore, experts from the UM, Solar Training and ITC-ILO suggested using real-life cases and examples so that learners can contribute to the learning process actively and integrate and interpret the content they are presented with [D, E2, Q]. Furthermore, an expert in designing and delivering training from TNO-ESI recommended ensuring that real-life cases are appropriately challenging [R]. He argued that when learners are presented with a complex topic, they can experience discomfort, which challenges them to find answers to reduce their uncertainty [R]. In addition to real-life cases, many experts use different learning methods like videos, workshops, quizzes, and coaching to optimize the learning process [Anonymous], [D, E3, F, J, L].

Emotions

Research in neuroscience, as well as intrinsic motivation points to the crucial role of emotions in the formation of memories [24]. Emotions largely determine where we focus our attention, but also lead to the activation of the amygdala [23]. The amygdala is a small part of our inner brain that can send signals to the hippocampus regarding the importance of a particular event [23]. The brain does not have the capacity to process the myriad of sensory information available in the environment, filtering information based on importance [19]. If the amygdala is activated during the process of encoding a new memory, that memory is more likely to be retrieved. If the learning content contains emotional cues, that is likely to create richer neural pathways than content based on facts alone [23]. However, research presents confounding effects of emotions on learning. One study found that positive emotions contribute to students'

academic achievement, facilitating learning. A different study found that confusion, a negative learning-centered state improves learning, as students might do additional cognitive work to reduce the state of confusion [25]. Moreover, stress was found to both improve and decrease learning, depending on intensity and duration [25].

How can emotions be effectively engaged to optimize learning? Several experts suggested that learners should feel emotionally secure to foster learning [A, I, J, K, P]. At DECP, Lepaya and Marel, experts recognized that hierarchical differences among the group of learners can inhibit the learning process. To make sure the learners feel comfortable speaking up, the experts from DECP and Lepaya recommended strategically to divide the group of learners during training to minimize status differences.

Defining Blended Learning

Now that we know more about how to create a supportive environment, conducive to learning, that motivates and engages learners, we can move on to blended learning. To gain an understanding of what blended learning is, while considering all its shapes and facets, this chapter further elaborates upon the concept of blended learning. You may be surprised how many forms blended learning can take and how multifaceted it is!

What exactly is blended learning?

In recent years, digitalisation and technological change have led to increased discussion around the topic of "online learning" [26]. However, it is crucial to draw a clear distinction between the different technological learning methods. For example, while e-learning is practised exclusively through online components [26], the main ingredients for a blended learning programme consist of both face-to-face and online components [27]. However, there are also other dimensions of blended learning, so we decided to use the following definition illustrating the variety. Therefore, blended learning implies *"the organic integration of thoughtfully selected and complementary face-to-face and online approaches"* [28]. As the authors describe, they chose the term "organic" to highlight that both online and face-to-face components must relate and be grounded in practice. The term "thoughtfully" intends to emphasise the importance of implementing blended learning approaches in a way that is considered to maximise the effectiveness and efficiency of the learning experience as a result.

Blended learning aims to stimulate and promote learning [1] and can be constructed differently.

Various conceptualisations describe blended learning, and accordingly, there are many different frameworks presented [28, 29, 30, 31]. Consequently, is it not overly astonishing that blended learning became an umbrella term used to describe various concepts. For example, blended learning is applied to describe the mixing of e-learning with traditional learning, mixing online learning with face-to-face, mixing media, mixed contexts, mixing theories of learning, mixed learning objectives and mixed pedagogics. Not surprisingly, this may result in more confusion.

Therefore, we present an overview of the five general different definitions of blended learning designs below [32], combining and representing all the different learning strategies and conceptualisations of blended learning highlighted in the literature. The blended learning concept can contain a combination of one or more of the following dimensions and comprises both online and offline components and other methods that are, at best, thoughtfully coordinated to maximise the experience for learners and instructors.

Table 1: Definitions of Blended Learning

Blended Learning Dimension	Explanation	Example for implementation
<p>1. Blending offline and online learning</p>	<p>At its simplest level, a blended learning experience combines offline and online components. Here, online learning usually takes place via "the internet or intranet" while offline learning is conducted in a more traditional classroom environment, with offline learning opportunities also managed through an online learning system.</p>	<p>In this dimension of blended learning, for example, learning materials and resources could be provided via the Internet but discussed during a guided face-to-face training session. It could also simply be a mix of online and offline sessions, with the material still more likely to be provided online.</p>
<p>2. Blending self-directed and collaborative live learning</p>	<p>Self-directed learning implies that the pace of learning is controlled or directed by the learner. Collaborative learning, on the other hand, aims at knowledge sharing by having a more dynamic communication between numerous learners.</p>	<p>The mix of self-directed and collaborative learning may include, for example, the provision (online or physically) of materials and resources. Learners shall then study the material and resources provided. Afterwards, a live online peer-to-peer discussion takes place about the material's application to the learner's (and their clients') work environment.</p>
<p>3. Blending structured and unstructured learning</p>	<p>Much learning tends to take place informally in unstructured ways in meetings, hallway conversations or via email. This is because not all forms of learning need to be sequenced like chapters in a textbook, and thus require a pre-planned, structured or formal learning programme with organised content.</p>	<p>A mixed programme design of both structured learning and unstructured learning can involve structured learning sessions as mentioned in other dimensions but also actively capture conversations and documents from unstructured learning events in (online) knowledge repositories. These in turn should be available and can be retrieved whenever needed.</p>

<p>4. Blending custom content with off-the-shelf content</p>	<p>Standard content is by definition universal, does not take into account a unique context, is much cheaper to purchase and often has a higher production value. Standard content for self-study can be completed with live sessions (in the classroom or online) or/and with customisation of content. Blending standard and customised content in a flexible way can improve the user experience while minimising costs.</p>	<p>Material and resources for (training) sessions that may consistently be reused (are standard) could be available in an online portal, giving the learner access whenever required. These standard components can then be reinforced with customised materials, concerning a specific context.</p>
<p>5. Blending learning, practice and performance support</p>	<p>Perhaps the most delightful form of blended learning is to supplement learning with practice and achievement assistance tools that facilitate the appropriate performance of tasks.</p>	<p>In this blended learning dimension, learning is practised through real-life examples or simulations, and supported by tools that complement the previously learned and practised task to facilitate the execution.</p>

**** find the overview of the blended learning dimensions and examples for practical implementation in the toolbox*

Designing Blended Learning Programmes

Having learned a lot already about optimising learning and what is meant by blended learning, you must be curious what that looks like in practice? This chapter now dives into the didactic conception of blended learning arrangements. It summarizes what needs to be considered by (again) elaborating upon relevant literature while also considering practical examples.

The didactic conception of a blended learning programme

It might be surprising that clear guidance on how practitioners can foster and implement blended learning arrangements is still limited in the literature [33]. However, this can be explained by establishing general guidelines since the didactic conception depends on the (organizational) context [34]. Only a few

organizations have a concrete plan for the strategic implementation of blended learning arrangements [35, 36]. Nevertheless, some guidelines are gathered in the literature and presented in the following. Let's have a look at them!

Designing a blended learning programme

The didactical framework for blended learning of Kerres and De Witt [34] serves as a starting point for designing blended learning. According to Kerres and De Witt [34], (blended) learning environments consist of three main components: content, communication, and construction. The content component provides learning material to the learner and thus, makes it available and accessible. The communication component represents the interpersonal and social exchange between learners and instructors. Along with the constructive component, decisions are made about how the content should be facilitated, which activities are implemented and how the learning should be assessed. More precisely, it promotes various learning activities for individuals or groups of learners, such as several tasks on different levels of complexity, to actively operate on learning tasks. According to Kerres and De Witt [34],

none of the components must necessarily be present in every blended learning arrangement. However, for a rich learning experience, a combination of all

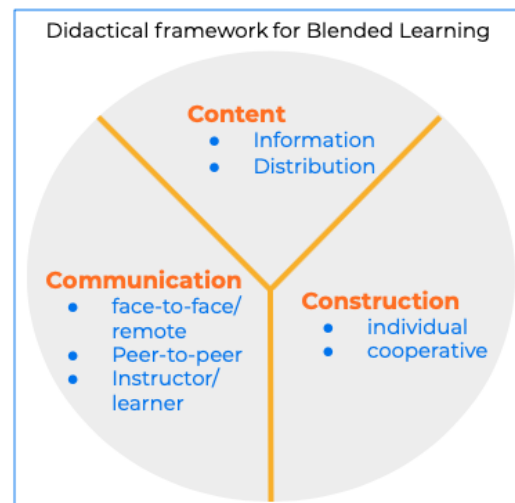


Figure 4: Didactical framework for blended learning (adapted from Kerres and De Witt, 2003)

components are recommended (see figure 4). Hence, when designing a blended learning experience, the relative weight of each component must be defined. More precisely, the question practitioners should ask themselves is: How much time do I want the learners to spend on each component? The definition of the relative weight of each component depends on various factors. A first step in designing a blended learning arrangement is to identify the learning goals and objectives, the characteristics of the content and target group, and situational and institutional demands to ensure that the learning arrangement meets its objectives. For example, the learning arrangement may only be

focused on the acquisition of basic knowledge. However, it may also be targeted at understanding the subject matter and applying theory to practice. Once the learning objectives are defined, the relative weight of the three components can be decided upon [34]. This approach of designing blended learning experiences is recognized in the literature and well applied in practice. For instance, tutors at Maastricht University emphasized the importance of clarifying the learning objective first. Once this is done, other components, such as the learning activities and the assessment and evaluation, can be defined following the learning objective [E1, E3].

Khan's Octagonal Framework - Designing blended learning



Figure 5: Khan's octagonal framework (2005)

Next to the three main components of a blended learning arrangement, another helpful

model when creating a blended learning programme and a meaningful learning environment is Khan's Octagonal Framework. Badul Khan [37] developed this octagonal framework to represent a magnifying glass encompassing the eight main factors to consider when setting up and reviewing an E-learning or blended learning programme. According to Khan's model, a systematic understanding of each of these eight factors enables learning designers to create meaningful distributed learning environments [32]. These eight factors are as follows: pedagogical, technological, interface design, evaluation, management, resource support, ethical, and institutional [37].

Pedagogical

This part of the framework refers to anything related to teaching and learning. It encompasses content analysis, audience analysis and goal analysis. This way, it looks at the content that has to be delivered, the needs of the learner and finally, the learning objectives of the programme. One consideration one must make is how the learner needs and learning objectives are related to the delivery method.

Since not all delivery methods are suitable for conveying the same learner experience or learning goals, this is one of the vital considerations when designing blended learning [38]. More information on the different delivery methods and how they relate to learning goals and learner needs can be found later in this chapter (see “Choosing your Delivery Method”).

Pedagogical

- This part of the framework refers to anything related to teaching and learning. It encompasses content analysis, audience analysis and goal analysis.
- **How are the learners’ needs and learning objectives related to the chosen delivery method?**

Technological

Though a pretty self-explanatory and straightforward category within blended learning, the technical aspect of blended learning design is often more elaborate than one might initially assume. This factor examines all issues related to infrastructure in learning environments. Once the proper delivery method(s) for the learning has been determined, technological issues must be addressed. Here is where we look into available tech solutions such as learning management systems (LMS), virtual training software (Zoom, MS Teams, WebEx, etc.), technological infrastructure (computers, wifi, webcams, etc.), and other digital learning tools. However, technology does not only limit itself to the

virtual setting as in-person learning activities might also benefit from technological assistance (e.g. PowerPoint presentations, microphones, projectors, etc.). Many of our experts pointed out that tools such as Mural, Mentimeter and Kahoot, significantly improve the learner’s enjoyment, attention and learning outcome [D, E3]. In this way, technology offers the instructor to make the learning experience fun, interactive and exciting. Research on the enjoyment of various learning delivery methods backs this up with a recent study finding that programmes using an online or blended learning model reported an overall higher learner enjoyment [39].

Technological

- Examines all issues related to infrastructure in learning environments, with digital tools opening up new learner experiences.
- **Less is more: How can technology help you support the learners with reaching their learning goals?**

Interface Design

This dimension looks at the design of the learning environment and how the different elements of the programme work together. The term user interface design (UI design) is a term from the tech industry. It refers to the process designers use to build interfaces in software or computerized devices, focusing on looks or style (Interaction Design Foundation, n.d.). The idea is to create an intuitive design for the user and easy and enjoyable to navigate. When designing a blended learning programme, it is similarly essential to consider how the learner interacts with specific learning materials, such as an online learning module, and navigating throughout the entire programme. Do the different elements work together well? Are they interconnected? How does a component of the blended programme follow up on another? How do all components work together to achieve the final learning goal(s)?

This is where you can get creative and use the different elements of the blended programme to help the learners learn more efficiently (see “Optimizing Learning”). Lepaya offers an excellent example of this. In their Lepaya learning app, they provide learners with short introductory videos and learning bites on the theory of a specific topic to ensure that they already knew the most important parts of the theory before attending training. This way, the training can be more focused on the actual application of the theory through practice. Afterwards, learners receive post-bites in assignments to help them practice and implement their learnings in their day-to-day jobs [I]. TalentMiles also offers their learners a similar programme set up [J].

Interface Design

- Considers the design of the learning environment and how the different elements of the programme work together.
- **Do the different elements work together well? Are they interconnected? How does one element of the blended programme follow up on another?**

Evaluation

Of course, no learning programme is complete without evaluating the outcomes and effectiveness of the learning properly. Therefore, when designing any blended learning programme, one must consider whether the learning design allows the “instructor” to evaluate whether the learning goals set at the beginning of the programme design were reached and the learners’ needs were met. Moreover, as settings differ across delivery

methods, an appropriate form of evaluation must be considered for each aspect of a blended programme. Overall, one must think about the **assessment of learners** and **evaluating the instruction and learning environment**.

Evaluating learning

The quality of blended learning is most often measured in terms of benefits to the

organization, namely return on investment, employee performance and cost-benefit analysis. Agreeing that *“pointing out the direct effect on behaviour change or company results of training is becoming more and more complex”*, our expert at Marel referred to the use of the Kirkpatrick model (see figure 6) when evaluating their learning programmes [K]. The Kirkpatrick model consists of four evaluation criteria for training programs and is often applied to assess training in organizations. Level one would refer to the **participant’s reaction to**

the training program, for example, if the learners liked the movement and how satisfied they were with the instructor. Level two is related to learning measures, such as **how much information was acquired**. Level three, behaviour, measures to what **extent the learning is applied on the job** and influences the learner’s behaviour. The fourth level, results, measures the **impact of the training on the business level**, i.e., organizational objectives [36].

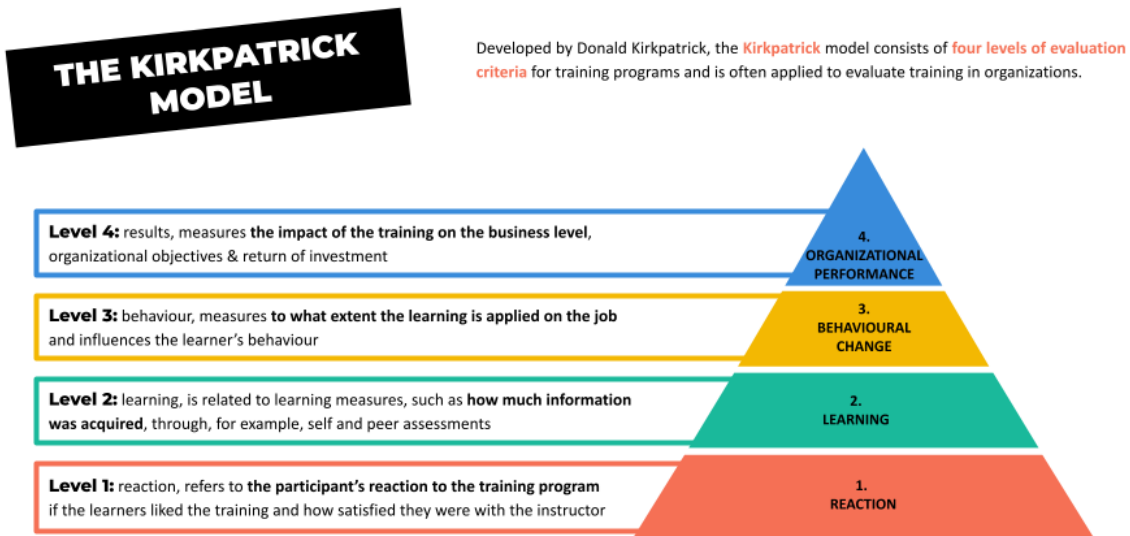


Figure 6: Kirkpatrick model (1994)

At Marel, they evaluate their learning success mainly at level 2 and 3 through conducting interviews with learners and managers after completing a learning programme and setting up learning analysis inside their internal LMS system [K]. In another example of level 2 and 3 analysis, provided by Lepaya, each learner fills out a baseline assessment before their learning programme, the results of which help them with setting their personal learning goals. After completing their programme, learners are again invited to fill out an assessment to indicate the growth of their KSA’s throughout the

programme. To provide an even better assessment, the learners’ managers or direct reports are frequently invited to fill out both assessments [I]. Literature confirms that there is a trend towards evaluating blended learning arrangements on higher levels of the Kirkpatrick framework [33].

Next to the overall evaluation of the learner’s success, another point mentioned by our experts was the importance of continuous evaluation. Inviting learners to reflect on and self-test their progress throughout the programme through coaching sessions,

interview sessions, short quizzes or evaluated assignments (both individual and in groups) provides them with the spaces to instil their learnings. Moreover, experts suggest considering areas that they might need to focus on more moving forward [E3, I, J]. For example, when Solar Training facilitates multi-day courses, they kick off each training day with a quick Kahoot to go over all the content covered the days before and *“ensure learners are still on the same page”* [D].

Building the evaluation on personal reflection has proven beneficial in practice; empirical evidence shows that systematic review stands out as a prominent tool for learning [40]. As our expert at TalentMiles describes, especially *“[...]*

when it concerns more complicated topics such as leadership, it [learning assessment] comes down to more personal reflections” [J]. At the end of the training, learners should be asked how they perceived it. For example, instructors could invite the learners to rank their top three insights, think about their main takeaway, and reflect upon what they still need to work on [E3, J]. Besides, learners should be provided with the opportunity to give feedback twice. First, learners should give feedback immediately after the training and second, they should be invited to provide feedback again after a few weeks. This also allows assessing the long-term effects of the training [G, P].

Evaluation

- No learning programme is complete without taking the time to properly evaluate the outcomes and effectiveness of the learning.
- **Kirkpatrick’s evaluation model:** Individual learners’ learning reflection & evaluation
- **Feedback collection:** Evaluation of the instruction, delivery methods and learning environment

Management

Management in this regard relates to two different dimensions: firstly, the management of the learning environment and secondly, the informational management of the learning programme. When considering and designing for learning in the workplace, one must consider that the effectiveness of learning and learning retention is partly reliant on the work environment in which the learner exists [41,42]. Therefore, it is crucial to consider the learners themselves and their management when designing blended learning programmes. More precisely, it should be discussed how management defines the subject, what the status quo and current challenges are, and what the role of training is at the moment [R].

Another practical example of how you can involve management is providing them with supporting information in the form of learning content (e.g. emails, weblinks or modules). This way, *“managers can become part of the learning process of the learners by actively engaging with the learning goals of their team members”* [I].

The question here is, how can you reach outside of the classroom and involve managers or team members in the learning programme and encourage both learners and their environments to instil their learnings?

Management

- Relates to firstly the management of the learning environment and secondly the informational management of the learning programme.
- **How can you reach outside of the classroom and involve managers or team members in the learning programme and encourage both learners and their environments to instil their learnings?**

Resource Support

As established earlier when discussing optimal adult learning environments, when it comes to learning, support is critical, especially when it comes to blended learning. For this reason, you should consider how information regarding the programme is managed and distributed to the learners and how oversight can be ensured from both the programme designers' side and the learners' side. Communication is always an essential factor in any learning programme, but when navigating blended environments, the importance of communication becomes even more apparent [P]. In digital environments, it is easy for messages or learning content to get lost; therefore, more actually is more [J] when it comes to communication. Our experts emphasize the importance of *“regularly checking up on the learners and asking them*

how they are doing” [E2]. This counts for both during the training sessions or through digital communication such as emails or messaging [I, J]. Creating a way for learners and instructors to be in regular contact with each other ensures optimized learning and avoids confusion.

By considering resource support when designing a blended programme, learning designers can allow learners to optimize their ownership and independent learning while offering support where needed. This way, the right combination of online and offline support and learning resources will enable instructors to foster significant learning environments in ways that non-blended or traditional settings will not.

Resource Support

- Considers how information regarding the programme is managed and distributed to the learners and how oversight can be ensured.
- **How will you be communicating with the learners throughout the programme? How can you provide the best learner support?**

Ethical

An essential factor to consider in any learning programme, whether blended or non-blended, is ethics. The ethical dimension here refers to any ethical issues that might need to be

addressed when designing the programme, such as equal opportunity, cultural and geographical diversity, learner diversity, information accessibility, bias and social and

political influence. Within blended learning, the question of ethics might pose many new possibilities for global companies as switching to more online-based learning systems allows for more diversity and collaboration within the learning space. As a learning & development department operating on a worldwide scale, Marel stresses the importance of offering

learning materials in the native language of employees as well as considering different cultural backgrounds when designing learnings stating, *“We are getting more and more aware of how important understanding the different cultures is”* [K].

Ethical

- refers to any ethical issues that might need to be addressed when designing the programme such as equal opportunity, cultural and geographical diversity, learner diversity, information accessibility, bias and social and political influence.

Institutional

Lastly, institutional issues regarding organisational, administrative, academic affairs, and learner services must be addressed. Especially when designing a blended learning programme for an external organisation, one must be aware of the organisation's preparedness, the availability of the content and (technological) infrastructure and the learners' needs [I]. Asking questions such as; Does the organisation have access to the infrastructure needed to support the intended delivery methods?; Has a proper needs' analysis of the learners been performed, or are requests only coming from management who might have a different understanding of the needs?; Is management willing and able to be involved in the learning programme?; Are there any legal considerations to be made regarding the programme design, such as confidentiality?.

Tip! Whenever possible, consider integrating your digital learning platform with the technologies that your learners are already used to and working with regularly. For example, Lepaya has integrated their learning application in Slack (a widely used company chat server), allowing learners to receive learning notifications directly in their work chat and immediately be directed to the learning platform from there [I].

Mapping out these eight dimensions when designing a blended learning programme will allow you to capture all the crucial elements to a successful learning programme. Together, they will help organise thoughts and ensure that the resulting blended programme creates the intended learning outcome.

Institutional

- Can the organization manage offering each trainee the learning delivery mode independently as well as in a blended program?
- Has the needs analysis been performed in order to understand all learners' needs?

Choosing your delivery method and strategy

In terms of designing blended learning experiences, choosing the right learning strategy plays a crucial role. Research shows a trend towards more **collaborative, active** and **authentic learning** [33]. Such strategies allow instructors to link learning and performance. Research recommends **incorporating learner-centred, problem- and team-based approaches** since instructor-based arrangements are becoming obsolete and less popular [33,43]. Therefore, it is not surprising that webinars, podcasts and video streaming represent the emerging technologies in the world of blended learning [33].

Moreover, blended learning can consist of multiple delivery methods related to different learning dimensions and objectives (see “Defining Blended Learning”). Learning can occur offline or online, synchronous or asynchronous, individual or in groups, and formal or informal [32].

Therefore, options of blended learning stretch far beyond the traditional classroom, and with

new technological advancements, new delivery methods and platforms are continuously introduced. To provide support in choosing the suitable delivery method for your blended learning programme, an overview of various delivery methods and their optimal application was prepared (see table 2).

Knowing all of the different learning facilitation options available might feel more overwhelming than helpful at this moment. So let’s see if we can make a more apparent distinction in using which type of content/facilitation method. According to Rossett et al. [38], which learning content to use in your blended learning programme can be determined by considering six different dimensions of your specific learning programme; (1) stability, (2) urgency, (3) touches, (4) cost, (5) learning resources, and (6) experience. Each dimension offers straightforward suggestions on navigating specific constraints tied to your learning content/facilitation options [38].

Table 2: Overview of delivery methods

<p>Live face-to-face (formal)</p> <ul style="list-style-type: none"> • instructor-led classroom • Workshops • Coaching, mentoring • On-the-job training (OTJ) 	<p>Live face-to-face (informal)</p> <ul style="list-style-type: none"> • Collegial connections • Work teams • Role modelling
<p>Virtual collaboration (synchronous)</p> <ul style="list-style-type: none"> • Live e-learning classes (e.g. Zoom, MS Teams.) • E-mentoring 	<p>Virtual collaboration (asynchronous)</p> <ul style="list-style-type: none"> • Email • Online bulletin boards • Listservs* • Online communities

Self-paced learning

- Web learning modules (e.g. LMS)
- Online resource links
- Simulations
- Scenarios
- Video and audio files (e.g. YouTube videos, or Podcasts)
- Online self-assessments (e.g. MBTI or DISC)
- Workbooks

Performance support

- Help systems
- Knowledge databases
- Documentation
- Performance & decision support tools

* Listservs are applications that distribute messages to subscribers on an electronic mailing list. As part of blended learning one could set up a system to periodically reach out to learners through email, offering them content and progress reminders.

Stability and urgency

The first two dimensions of your learning programme to consider before deciding on a specific type of learning content or facilitation type are content stability and content urgency. Content stability considers how likely it is for particular learning content to change over time and lose its relevance or application. For example, learning programmes that consider specific software or coding skills might be less stable as technology is continuously changing rapidly; therefore, investing a lot of time and money into creating extensive learning content might be less desired.

Content urgency considers the level of urgency in which learners need to comprehend and

apply the content and, in turn, the amount of time available to create the programme. During the first weeks of the COVID-19 pandemic learning how virtual conferencing software worked was an integral part of continuing work in many companies and industries. In this case, spending multiple weeks to set up an extensive LMS (learning management system) or workbook on navigating this software was ill-advised. Instead, many companies decided to quickly refer to the already available introductory and trouble-shooting videos available online and create short quick-start guides for their employees.

CHOOSING YOUR DELIVERY METHOD

To decide which learning content to use in your blended learning programme consider the following dimensions of your learning programme;

Learning resources: How will your learners be using the learning resources? Will learning materials be delivered and quickly disappear or will they be available long term and future reference?

Experience: Will learners work alone on the job or at a home office, train, or plane? Will learners engage with others in their attempt to learn and improve performance?

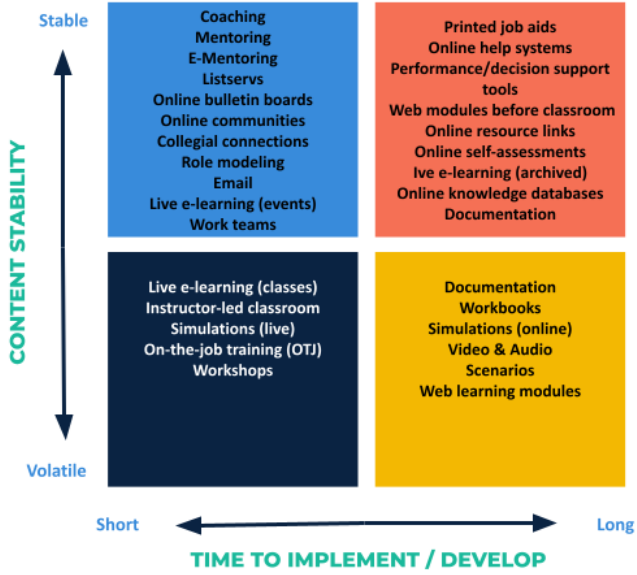


Figure 7: Stability and urgency (Rossett et al., 2003)

Tip! Experts recommend either having your own digital learning design team in-house or hiring outside experts to assist with setting up your content for those looking to grow the digital part of their blended learning programmes. This is increasingly important when discussing more complicated technological skills such as video recording and editing, online software design and integration or when working with individualized apps or learning management systems [D, I, J, K].

Touches and cost

According to Rossett et al. [38], the following dimensions consider those of touches and cost. When it comes to "touches", the main question to ask yourself is "Is human interaction essential to reach the desired learning goal or will technology alone suffice?". The more controversial, abstract, or complex the desired learning outcome is, the more human interaction or "touches" are expected. Topics that consider specific communication skills such as negotiating are more complex and situation-dependent than the previously mentioned example of learning how to work with a new video conferencing software. However, according to our expert at Hobéon, one must always consider the level of complexity and abstractness from the learner's perspective rather than one's own. For some,

learning how to work with new software is more intuitive and prominent than those who are not used to working with technology [38].

Researchers suggest **starting any blended learning arrangement with a face-to-face kick-off meeting to build relationships and strengthen the learner's commitment to the course** (Kerres & De Witt, 2003). These findings align with what we have gathered from experts who agree that all content and theory can be taught online, whereas social aspects (e.g. interpersonal skills) are best conveyed face-to-face [A3, J, R].

Compared to touches, the cost is the more precise dimension to consider and offers less explanation. Certain learning content or

facilitation methods cost more to produce or use both in labour hours and direct software costs or licensing. Therefore, taking into account the organizational and learner's budget is therefore integral to the final learning content, or facilitation method is chosen.

Overall, blended learning arrangements are expected to increase efficiency while at the same time decreasing costs [44].

Since face-to-face meetings are associated with higher prices, they must be designed to serve a different purpose. More precisely, we advise assessing whether it is indispensable to conduct it offline for each face-to-face meeting within a blended learning arrangement.

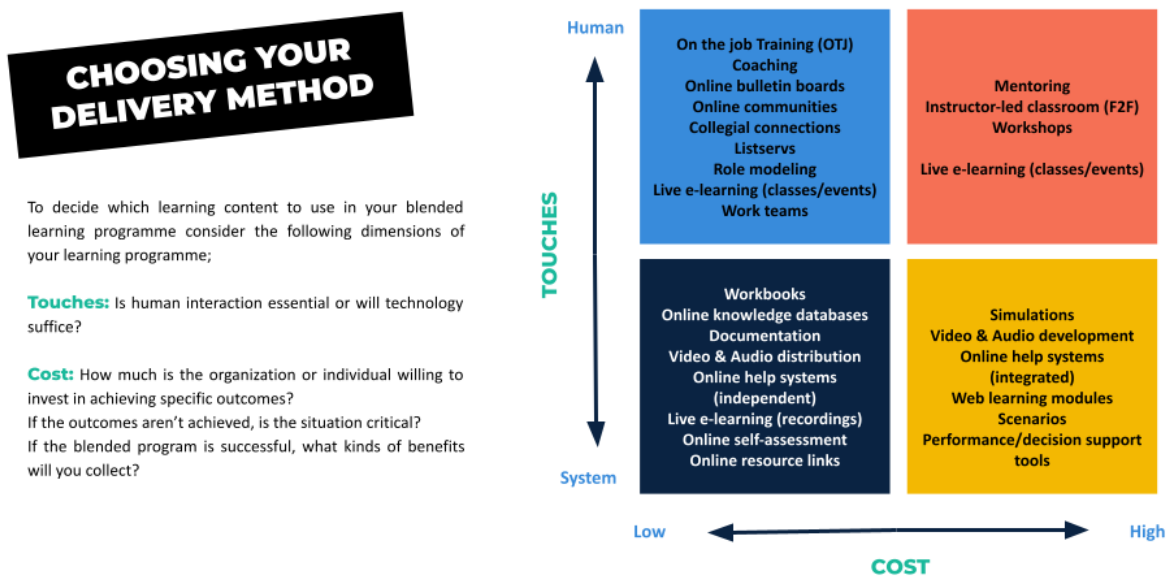


Figure 8: Touches and costs (Rossett et al., 2003)

Learning resources and experience

Lastly, one must consider the learning resources and learner experience. When we talk about learning resources, we aim to pay attention to the availability and use of the learning resources offered within a blended learning programme. How will users be interacting with these resources? How long will they be available, is the material meant to be delivered only once or should learners access the material long term? This could become particularly important when dealing with more detailed knowledge and information-based topics. But also when the

learning content is subject to frequent changes (such as technology), or when a material is used on an infrequent basis since learnings that are not regularly used or practised can be easily forgotten. In these cases, learning materials such as documentation, performance support tools, or online knowledge databases can prove valuable to your learners.

Now let's talk a bit about the learning experience; within blended programmes, learning can occur in many different forms and areas. This final dimension considers the social

versus the independent learner's experience. Learning setting determines how learners interact with the material, and frequently social, groups or team settings can be a beneficial experience to instil learning inside your learners; other times, individual learning might offer a better way for a learner to grasp a concept or theory. Furthermore, where and

how your learners will be learning and accessing the materials will also determine the type of learning content you can offer them. If your material is only available on the company computers, your learners will be less likely to engage with their learning programme in their day-to-day lives [38].

CHOOSING YOUR DELIVERY METHOD

To decide which learning content to use in your blended learning programme consider the following dimensions of your learning programme;

Learning resources: How will your learners be using the learning resources? Will learning materials be delivered and quickly disappear or will they be available long term and future reference?

Experience: Will learners work alone on the job or at a home office, train, or plane? Will learners engage with others in their attempt to learn and improve performance?

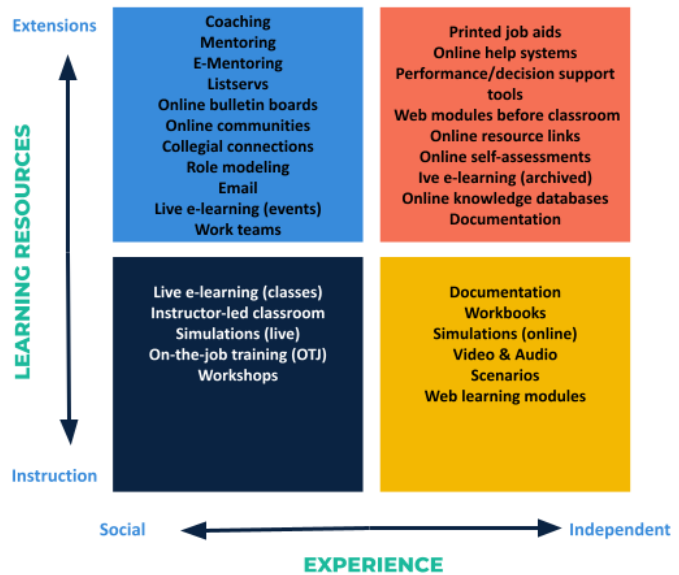


Figure 9: Learning resources and experience (Rossett et al., 2003)

Finding the right blend

Because of all these strategies, delivery methods, and possibilities blended learning has to offer, a question that is likely to arise is precisely the “perfect blend”. For example, an aspect that needs to be considered when designing blended learning is the balance between online and offline sessions [34]. But how do you determine the right blend? In the following section, we will be diving deeper into the different considerations that can help you decide on the right combination, illustrated by blending offline and online components. In doing so, we will be referring to what our experts have to say about finding the right blend.

When it comes to blended learning, there is no right or wrong blend, as illustrated by our interviewed experts as *“there is no recipe for the right blend”* [E2]. Instead, you have to figure out your right blend [B, E2, F]. Moreover, according to one of our experts, the right blend depends on the context of the training and the needs and preferences of the learners (Hobéon). One expert explicitly stated that it *“depends most on your target group. You need to tailor it 100% to your target group, then you can estimate an optimal blend”* (Anonymous). Nevertheless, some general recommendations can be concluded based on our interview findings.

According to our experts, a first step in finding the right blend is always to ask yourself what needs to be conducted online or offline [B, E2, F]? For example, it is common to assume that content is best delivered in an online setting, whereas social aspects may require offline

meetings [G, R]. Face to face meetings are more personal and, thus, serve great in creating a team bond, getting to know each other and increasing commitment on behalf of the learners [G, I, J, R]. Moreover, face to face meetings allow for more innovation and creativity and are therefore suitable for brainstorming or for practising certain subjects interactive [G, J, I]. Online settings, however, serve more purposes than solely delivering theoretical content to the learner. Online learning content can help to deepen a learner's understanding of theory by allowing for more self-directed learning and long term access to the material (e.g. videos, articles, quizzes).

Moreover, when working with geographically dispersed groups, online learning environments and virtual meetings can provide an excellent place for groups or individuals to connect with the instructor(s) before or following a face to face training setting to establish personal relations [A3, I]. Similarly, it offers the possibility of enriching the instructor pool by gaining access to experts who might not have the opportunity to fly out [J]. This often results in weight distribution of 40% online and 60% face to face[G].

Moreover, it may not always be helpful to distinguish between both dimensions. Indeed, it can be beneficial to integrate online and offline settings to gain the most out of it. For example, within the face to face settings, online elements can also be combined to enrich the learning experience [Q]. Hence, it is important to emphasize again that the weight distribution depends on the subject, objective and context of the training. So, what is your right blend?

The Benefits and Challenges of Blended Learning

Now you are well prepared to get started on designing blended learning activities, isn't that great? However, we should still consider its advantages and disadvantages. Moreover, we must consider all of its promising benefits and be aware of the challenges that come with blended learning. But of course, we will also tell you how to cope with potential challenges. Let's have a look at what research and experts say!

Benefits of Blended Learning

Research suggests that blended learning can increase understanding, interaction and engagement in the learning process [45]. Moreover, it can increase the efficiency and effectiveness of the learning experience [43]. A blended learning programme provides many benefits and opens up new possibilities for a practical learning experience, creating advantages for both instructor and learner. The most common services emerging in the literature relate to improved **pedagogy**, **cost efficiencies** and increased (learner) **flexibility** [1,29,33,46]. These were also mentioned by the interviewees, underlining the same advantages as those pointed out in the literature [E, I, J]. Besides, we identified two additional benefits through the interviews, namely an **individualised learning experience** and the **expansion of the network** [A, D, E, Q, J, L].

Pedagogy

Research suggests that blending materials in online and face-to-face environments can create an **active, interactive and collaborative learning environment** [43], creating a **sense of cohesion** between learners and encouraging engagement in group work [47].

We found that one of the experts also confirms that the interactive exchange can be promoted

within the blended learning format through the interviews conducted. Moreover, the expert says that through blended learning, relationships with each other can be better managed and maintained [A1]. Furthermore, research suggests that increasing exchange between learners and between learners and instructors positively affects cognition, metacognition, and motivation and thus improves pedagogy matter [48].

Cost efficiency

By reducing face-to-face teaching time and supplementing it with online components, the instructor's working time is reduced, resulting in cost efficiencies [43]. These findings align with what we have gathered from our experts who agree that many resources (e.g., costs or personnel) can be saved within the company, enabling the **allocation of resources to be adjusted** and employed more effectively [F, L]. DECP believes that, for example, savings due to reduced travel might be invested in optimising training [A]. Moreover, one of the experts from DECP says that less travelling will **"contribute to a more sustainable society"** [1]. Additionally, the Ivorian employers' organisation emphasises that less travel may reduce the stress level, reflecting positively in the learning (and

teaching) experience [G]. One interviewee says that face-to-face training is more costly and sees blended learning as a suitable method to make the learning experience more favourable [Anonymous]. Therefore, both researchers and interviewees agree that blended learning can conserve resources, resulting in a more cost-efficient learning process.

Flexibility

Research suggests that the flexibility of blended learning offers a unique feature that no other learning setting can achieve [49]. Moreover, we found that Lepaya believes that blended learning fits today's environment best from the interviews conducted. Through such a learning environment, one can make sure that what you learn is tailored [I]. Researchers [1, 33,49] and our interview partners [E, D] verified that flexibility created by the online components of blended learning could relate to time, path, pace and place. For example, "non-live" online elements can create more flexibility in time, as the learner may choose when to complete this part of the learning program.

On the other hand, instructors can use the time learners spend on "non-live" activities differently and more efficiently. In addition, the learner can determine the order and thus the path and pace in which he or she conducts a specific activity or task of the blended learning programme. It also creates flexibility in terms of place, allowing training and meetings to be undertaken and exercises from anywhere globally [1, 33,49]. Many interviewees agree that flexibility offered through blended learning encourages learners to take responsibility for their learning process and therefore promotes self-management [E1, E2, G, N]. Indeed, one expert claims that face-to-face meetings require instructors to dedicate time, but *"[...] in today's world, people learn when they have time, not*

when the instructor has time" [Anonymous]. Thus, we can state that with blended learning and the flexibility it provides, learners can decide where and when they want to learn and are less dependent on the instructor.

Network expansion

In addition, experts from various organizations cite the expansion of the network as one of the most significant advantages. According to them, more learners can be reached through blended learning, both nationally and internationally. But not only the network of learners can be expanded through blended learning, but also the network of instructors. With blended learning, not only can learners from all over the world learn from wherever they want, but also instructors from anywhere can give their training. Therefore, experts from various organisations agree that the possibilities of increasing the quality of training sessions leading to an optimised learning experience can be achieved through **dedicated instructors** [A, G, J, D, N].

Individualised Learning Experience

A tutor from the University of Maastricht emphasises that blended learning allows for more innovation, as the different dimensions enable various designs [E1]. In addition, many of the interviewees are in favour that blended learning facilitates a more individualised learning experience by adapting components to different types of learners and blending them in a way that they complement and enhance each other [D, E2, I, J, L, Q]. TalentMiles highlights that the learning materials and units can be somewhat shorter in blended learning, resulting in a more sustainable learning effect [J]. An expert highlights that *"[...] you must adapt the*

content to the audience” [P]. Therefore, by employing more concise learning units and

individualised tasks, an enriching and innovative learning experience can be created.

Table 3: Benefits of Blended Learning

Pedagogy	<p>Sense of cohesion: Increased engagement in group work</p> <p>Exchange/Interaction: Exchange between learners and between instructors and learners increases motivation</p>
Cost-efficiency	<p>Instructor’s working time: Supplemented with online components</p> <p>Saved (travel) costs: Can be invested in other valuable issues</p>
Flexibility	<p>Time: Learners decide when completing online tasks and instructors use the time for non-live activities more efficiently</p> <p>Path: Learners determine the order of conducting tasks or activities</p> <p>Place: Instructor conducts training and learners complete tasks from anywhere</p> <p>Pace: Learners are responsible for their own learning process</p>
Network Expansion	<p>International and increased reach: more learners can be reached through blended learning, both nationally and internationally</p> <p>Access to global experts: Instructors can give their training from anywhere allowing organisations to hire experts they would normally not have access to</p>
Individualised Learning Experience	<p>Increased room for innovation: Blended learning allows for more innovation, as the different dimensions enable various designs</p> <p>Individualised design: Creating an individualised learning experience by adapting components to different types of learners and blending them in a way that they complement and enhance each other</p>

Challenges of blended learning

Some challenges can arise when we think about blended learning. These can be divided into three categories: **technological**, **organizational** and **instructional challenges**. However, research [27] and our interviewees agree that the benefits of blended learning outweigh the negative aspects of such a programme [E, D].

From the instructors' point of view and that of the learners, we have gathered through our interviews and surveys several challenges encountered in the transition to blended learning, especially in the adaptation to the online side. We will take a look at these in more detail below to be aware of them. We believe that being aware of them allows us to detect challenges and cope with them more effectively.

For further information on how the organisations practically coped with different challenges you can check the helpdesk in the appendix (see appendix E).

Technological challenges

Research suggests that technological challenges include **access to technological devices** and the **user-friendliness of the materials** made available online. Indeed, also through the interviews, the technical aspects emerge as one of the biggest challenges [C, E2, F, G]. Here, securing a functioning internet connection is not the only issue. The Ivorian employers' organisation says that both the lack of familiarity with tools and a lack of internet connection prevented learners from attending training sessions. Moreover, an associate professor from the University of Maastricht, for example, says that especially the knowledge of how to use various tools poses a challenge. We found out that many other experts consider this

a challenge [A2, L2]. An expert from the VIVES Hogeschool Belgium Kortrijk sees another challenge in applying the tools efficiently and creating a complementarity between the tools and tasks. Moreover, the expert states, it cannot be assumed that everyone has space to study and can concentrate, as computers may be shared with other family members [L].

Organisational challenges

Researchers believe that online interactions are generally considered less spontaneous due to the increase in social distancing in the online environment than face-to-face meetings. Due to the remoteness and lack of interaction, learners may feel isolated [1,50]. This negatively impacts learners' motivation and socialisation skills, resulting in increased dropout rates. Therefore, the research suggests that **instructors' role needs to be adjusted** [2,50]. This is also in line with the results of the interviews, according to which experts also believe that the role of the instructor will be adapted to the blended learning environment, requiring different competencies [E, D, M]. According to one expert, adapting the role can be challenging because of change itself and because resistance to change due to more conservative values prevents them from doing so [G].

Moreover, anything done online might suffer from attention span. Therefore, blended learning programs must be well organised, and the instructors must facilitate the learners' needs in a timely and organised manner to be effective [51].

Research suggests that instructors will have to act more as a facilitator during the online

meetings to make the learner feel safe, accepted and valued as this will eventually promote positive attitudes towards the course (e.g., by showing empathy, having a sense of humour, providing encouragement and paying attention to individual difficulties and characteristics) [1]. An expert from ASML agrees and underlines that blended learning is about transferring knowledge and accompanying the learning process while fostering an effective learning climate. Therefore, he says that instructors need to constantly reflect on and ask themselves *"how to facilitate learning rather than transfer knowledge"* [M]. Moreover, other experts from various organisations argue that instructors have a predominant role in creating an environment conducive to learning. Therefore, it is necessary to prepare differently than for a fully face-to-face learning environment, agreeing that instructors must **adapt the way they teach and transmit knowledge** [B, D, J].

Instructional challenges

According to the research, the instructional challenges mainly relate to the design of the materials. The challenge here is to structure blended learning so that flexibility is given, and the self-management of the learners is promoted at a satisfactory level but not overtaxed. Furthermore, the challenge is to blend the dimensions to stimulate interaction and continuously support the learning process [1,33]. Indeed, many of our interviewees confirm the instructional challenges [E, J, G, N, O].

Self-management and Flexibility

Research suggests that blended learning is an excellent opportunity to increase the flexibility of instructors and learners, allowing control over time, place, path, or pace during the

learning programme [1]. However, some self-management skills are required for successful participation in blended learning programmes. Research says that many learners initially struggle with the autonomy given and do not know precisely how to manage themselves within the learning process [1,27]. TalentMiles and UM validate that learners need to take more responsibility for the learning process and manage themselves more systematically, which tends to be complicated. Moreover, researchers say that it seems rather tricky to find and pre-define the necessary time for the learning session and redesign and manage the course unit [31]. Indeed, professors at Maastricht University confirm that working and preparing blended learning proves to be a challenge [E].

Interaction

According to the research, online learning is successful when learner participation is maintained. Therefore, social interaction with other students and instructors, a **sense of community and belonging is essential in maintaining motivation and willingness to participate** [27]. From the interviews conducted, it has emerged that according to experts, however, many learners feel disconnected and isolated, which is reflected in declining engagement and less attention [J, E3, D]. Other experts state that both instructors and learners find it more challenging to stay focused and motivated [L, P].

According to Solar Training, it is generally more difficult to build personal relationships and networks in the online environment [D]. Another expert agrees and adds that it is challenging to manage a team remotely [R]. The interviews emerged that instructors are often confronted with cameras turned off [P]. This leads to instructors being unsure about the

presence of learners and therefore finding it difficult to assess learner engagement and stimulate interaction [P, H]. According to experts from various organisations, the lack of interaction and the possible resulting in reduced communication, which is easier to maintain in a face-to-face setting, makes it difficult to assess whether learners understand the material [E, J, D].

Furthermore, Zembylas, Theodorou & Pavlakis (2008) introduce the emotional aspect and how it is vital to enhance learners' intrinsic motivation. Positive and negative emotions co-existed and formed particular emotional climates that influenced adults' learning experiences throughout the course. Those emotions inhibit online learning under some conditions while enhancing it under other circumstances due to their influence on an individual's motivation. For example, the emotional climate associated with social relationships from an online program positively impacts some learners' efforts because it helps them deal with negative feelings from studying online. However, social interaction tends to decrease when distance increases [1,51]. Indeed, one of the experts claims that people do not enjoy the fun part, the jokes, the feelings, and the sharing of emotions [Anonymous]. According to research, blended learning environments lead to social and physical interaction becoming less frequent and more complex [1]. Not surprisingly, researchers and interviewees revealed that it is challenging to stimulate exchange to ensure motivation and engagement.

Learning process

As mentioned earlier, due to the increased learner flexibility and autonomy in blended

learning environments, self-regulation becomes a critical factor for a successful learning process. Several researchers have found that increased learner flexibility and control is particularly beneficial for high-achieving learners or learners who have self-regulatory skills, resulting in an effective learning process. Yet, in contrast, low-performing students may not possess the necessary skills for independent learning [1], causing the learning process to suffer. According to research, the learning process may be more straightforward in face-to-face classes because it allows for direct clarifications, explanations and interpretations [50]. These statements are also confirmed by some of our interviewees who say that it is more demanding to understand the learners' needs in blended learning formats. Furthermore, the experts say, and thus agree with the research, it is difficult to ensure that learners are committed to the different learning elements and hence that a learning process takes place [D, E, I, J, R]. In addition, we observed in our interviews that instructors sometimes have difficulty informing their learners about the learning modules and where to find them, which prevents them from facilitating the learning process [G, J, N, O]. One expert argues that with the shift to blended learning, the learning process can be negatively affected as working in front of a screen causes much more neck, head and eye pain due to the intense concentration in front of a computer [P]. Researchers indicate that both learner engagement and the alignment of face-to-face and online elements are critical factors that influence and facilitate the collaborative learning process [52].

Table 4: Challenges of Blended Learning

Technological challenges	Organisational challenges	Institutional challenges
<p>Access to technological devices It cannot be assumed that everyone has space or the means to study and access the materials</p>	<p>Fostering an effective learning climate The role of the instructor needs to be adjusted (incl. managing and monitoring training)</p>	<p>Flexibility Coordination of online (incl. live and non-live learning and training parts) and face-to-face elements</p>
<p>Use of materials Knowing how to use the tools efficiently and thus creating a complementarity between tools and tasks</p>	<p>Tackling attention span Blended learning programmes must be well organised. And the instructors must make the learners feel safe</p>	<p>Stimulating interaction Keeping online parts interactive</p>
	<p>Facilitating rather than transferring Instructors must act more as a facilitator during the online meetings</p>	<p>Facilitating learning process Ensuring learners commitment to different elements of training</p>



7 action steps on designing blended learning activities - in a nutshell

The following part contains best practices on blended learning. In particular, it focuses on points to consider when designing blended learning and competencies that are required on behalf of both experts and learners for the successful conception and implementation of blended learning activities. All best practices are based on the scientific literature and the findings from the interviews and surveys, which we elaborated upon earlier. Finally, our extensive research resulted in **7 ACTION STEPS**. Stay tuned!

➤ Start with why

Trainees need to develop a strong understanding of “why” it is crucial to learn. If the “why” is communicated and understood, the “how” is easy. Therefore, the direct leader of the respective trainees should either create a video, write a written form or talk to them face-to-face to stretch the importance of the training [C]. The leader needs to provide the trainees with powerful reasons and needs to communicate why it is vital to not only learn but also implement the new impulses [E2, I]. Only when the “why” is clear, the learning itself can be tackled [I, R].

Now, injecting the “why” with the help of the direct leader is helpful, but on top of that, it is advisable for trainees themselves to work out reasons why the training is essential. Tangibly that means to divide the trainees into subgroups of 3-5 people and give them the assignment to collect reasons why the training is necessary and what the possible effects are on three levels: the individual learner, the organization and the clients or the greater society [B].

By asking the “why” question on three different levels, the instructor opens up the opportunity for the trainees to broaden their horizon and

understand why they are supposed to learn on a much more profound level. That is what motivates!

➤ Set your objective first

We have already learned from the literature that blended learning incorporates different components. Among those, setting the learning objective is the most important since it represents the first step in designing blended learning experiences [34]. But what does that mean in practice? Our interviewed experts from Maastricht University emphasize the importance of following a constructive alignment of such components when designing successful blended learning experiences. First, the objective and the purpose of the training must be defined. For example, the goal may be a practical application of the subject matter. Once this is determined, course activities must be planned following the objective. If the primary purpose is to enable the learners to apply the subject matter in practice, interactive activities may be most appropriate. A third step is to choose a way of assessment and evaluation that matches the objectives and activities of the course. Thus, to summarize, purpose, activities, and assessment must be aligned for a successful blended learning experience [E1, E3].

➤ Involve learners and management

The importance of involving different stakeholders in the learning process cannot be understated. As was previously mentioned, concerning the learners proves valuable for increasing intrinsic motivation in any learning environment. It is no different when it comes to designing a blended learning program. The experts and practitioners interviewed in this project suggested several ways to involve the learners and benefits from doing so.

First, involving the learners helps instructors find the right blend. Insights from the interviews with experts revealed no right blend when designing blended learning [Anonymous, B, E2, F,]. Instead, most of our interviewees pointed out that the optimal combination depends on the context and the learners' needs and preferences [Anonymous, S]. Moreover, experts at ITC-ILO and Telekom emphasized that learners must be asked about their opinion to ensure learner-centred training by considering, for example, cultural differences and preferences [Q, F]. An L&D expert pointed out another benefit of involving the learners [I]. Lepaya, a company specialized in delivering blended learning, mentioned that involving the learners and positioning learning as something for them *"also increases their appreciation for the organization and helps with employee engagement and loyalty"* [I].

In addition to involving the learners, the literature suggests **involving management**, a lesson confirmed by several interviewed experts. An L&D practitioner at Marel commented that the benefits of involving management extend beyond optimizing

blended learning and can help transform an organization into a learning organization [K].. Referring to management involvement in emphasizing the performance effects of training, the expert mentioned that: *"when the Managing Director is doing that, he also infects the management team, and when he infects the management team, he's changing the system and saying that learning is part of our daily business, and it's an important pillar to build on"* [K].

➤ Make it a journey - incorporate different phases

The next point to consider is integrating different phases in a blended learning programme to transform the process into an ongoing learning journey. Many companies and experts have discovered the value of incorporating several phases into a blended learning programme. More precisely, learners must be activated before, during and after the training sessions. One expert at Daimler spoke of the importance of seeing blended learning as a continuous process, not a one-time activity. Further, she mentioned that learning must be integrated into the daily work, transforming learning into a long-term approach with lasting effects [C].

The interviewed experts mentioned several possibilities of transforming learning into a journey in practice. One way is to split the content into various activities at different points in the blended learning program. Practitioners from Hutner Training AG, Telekom, TalentMiles, Lepaya suggested using numerous assignments, learning "bites" or "nuggets" (short, standalone learning activities one can do anywhere, anytime), and coaching during the process of a

program [B, I, I, F]. Splitting the content into short "bites" proved particularly popular among the experts we interviewed. Both Lepaya and an anonymous contributor to this project mentioned that breaking content into "bites" is a way of accommodating busy schedules, a necessity in today's fast-paced environment, and helps learners remember and apply knowledge better [Anonymous, I].

Another practical way learning and development organizations are designing these continuous learning paths is by using apps. These allow the learners to, on the one hand, get these short learning nuggets to help better absorb the theory (and simultaneously allow for more valuable interactions during face-to-face sessions). Furthermore, employing apps will help learners to set goals and fulfil short, interactive assignments or buddy tasks [I, J].

Tip! Spread out your learning goals over a more extended period and focus on only one goal or skill in each time frame. This way, learners get the chance to go more in-depth and build a deliberate practice [I, J].

Make it fun

Making learning a journey is closely linked to making learning fun. Experts recommend that training allows the learners to escape stress at work and dive into an inspiring learning space that focuses on creativity and development instead of finding themselves back at school. Various tools have proven valuable to ensure a fun, engaging and exciting learning experience, such as Mentimeter, Kahoot or Mural [D, E3, I, J]. When building online learning environments, instead of existing in an application form or separate models, consider gamification. This is another fun way to make your learners even

more engaged with the content and motivated to learn [C, D, F, I, J].

Furthermore, simply entering the room with a light-hearted attitude, throwing a joke in the room and sharing a loving smile will raise people's positive emotions. As a result, the perfect foundation for learning has been created.

Less is more - reduce technology

When designing a blended learning experience, the role of technology automatically comes in. There are great tools to use and integrate to make training more vivid and interactive. However, caution is advised! Integrating too much technology may impede the learning process, as both learners and instructors may be too concerned about dealing with the technology. Therefore, the right technology must be chosen carefully, and clear instructions to ease the handling of instructors and learners. In this case, keeping the learning goal in mind is critical, and overall, less is more [B, E3]. According to a professor at Maastricht University, the main thing that you need to consider here is: *"What do I want to achieve with this [course], and how can these online tools help me reach this goal? It should be about the content [of the course] and having this online content as a tool ... to reach the goal, instead of having the online tools as a goal as well."* [E3].

Train your Trainers

Over the past year, anyone working in the world of learning has learned that to be successful in applying online or blended content as part of your learning programme, one needs to be

flexible, stay open-minded and sometimes be a little creative' [G, J, H, P, N].

Blended programmes and virtual facilitation put more responsibility on the learner in charge of their learning; this requires learners to possess self-organization skills and self-discipline [E1, E2, E3, G, J]. In this regard, the programme focuses more on process, experience, and reflection than theory and information. In the end, instructors and organizations must recognize that the role of the instructor has changed. Instructors must become learning companions. They must support the learners in self-organized learning, in which the learners experience autonomy, competence and relatedness. Becoming a learning companion means that instructors take more of a supportive role,

stimulating interactions through interactive assignments and tasks [G, F], and providing more space for learners to share their insights, experiences and questions [L1, J].

Organisations must work towards a shift in the mindset of instructors and prepare instructors for their new role by providing train-the-trainer workshops. Such a workshop openly discusses struggles and questions that instructors have while working in an online setting for the last months. Furthermore, this workshop examines the provided toolbox to make blended learning successful. It gives the instructors space to discuss how they could practically involve those tools (see appendix F for the proposed train-the-instructor agenda).

Conclusion

How does one go about designing and implementing effective blended learning? This is the question at the heart of this report. What we discovered is that there is no all-encompassing answer. Starting from this premise, we provided a comprehensive account of blended learning, along with its possible dimensions and ingredients, as well as suggestions to ensure that each component adds up to a meaningful learning experience. Moreover, we looked at possible benefits and challenges that come with implementing blended learning. We took two approaches to get DECP and their partners started on the path to successfully designing and implementing blended learning. First, we conducted an extensive literature research, meant to provide a big picture on blended learning. We complemented our literature findings with interviews and surveys. Collecting practical advice and insights from a wide and diverse network of experts allowed us to complete the big picture, and construct a toolbox full of actionable, practical advice. The toolbox is a guide that practitioners can refer to anytime, meant to support every step of conceiving or implementing blended learning.

In addition to the toolbox, this report presents seven action steps that we synthesized from the

literature and the interviews. In short, any blended learning programme that wants to optimise learning retention and transfer should start by considering the learner's **motivation** to attend the specific course or training, and by setting the right **objective**. Subsequently, the blended learning programme should be designed as a **learning journey**, not forgetting to incorporate some **fun**! Regarding the use of technology, **less is more**, and it should never be used at the cost of sacrificing the quality of the content. Finally, there are challenges that come with transitioning to blended learning, requiring effort in **training** and preparing the **instructors**, not just the learners.

Using the findings of the report, along with the toolbox and seven best practices would ensure a successful transition for DECP towards blended learning, guiding them based on their specific needs, desires and requirements. The findings will help DECP take thoughtful decisions regarding the possibilities of blended learning, and how to use blended learning to increase the impact of their skills development activities. Moreover, the findings will be of immediate use to DECP's partners seeking to implement blended learning.

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Appendix A - DECP Information

DECP Information

The foundation Dutch Employers' Cooperation Programme (DECP), is a public-private partnership established by Dutch employers and the Ministry of Foreign Affairs in 2006. Dutch employers' organisations and the Ministry of Foreign Affairs took the initiative to set up DECP because they believe that well-functioning business organisations can make a contribution to sustainable economic development in the partner countries. A team of ten experts works together with employers' organisations in 22 countries across Africa, Asia, and Latin America, intending to strengthen the position of business member organisations in emerging countries. Via DECP, Dutch employer organisations offer professional expertise through training, workshops, advisory meetings and their network to business member organisations in developing countries to improve local business climates.



Appendix B - Our Consulted Experts

DECP [A]

DECP | Peter Bongaerts, Director.
[A1]



"A business climate does not change automatically"

DECP | Jos van Erp, Country Manager and Deputy Director.
[A3]



"I want to be part of your future"

DECP | Dirk Joesse, Special Advisor.
[A2]



"I like to share my experiences"

DECP | Martien Robertz, Country Manager and Special Advisor.
[A4]



"Start with the end in mind: people make the difference"

Hutner Training AG | Markus Haslinger, CEO [B]



HUTNER AG

The Hutner Training AG is a German training and consulting company that is in charge of a highly diverse portfolio of organizations that they support in their growth. The company focuses on their training mainly on leadership and sales training but consults the companies in general organizational change and growth processes. One of their unique selling points is their high standard of individualization.

Daimler AG | Martina Hug, Learning & Development Expert [C]

DAIMLER

Daimler AG is a German, globally operating automobile manufacturer. The Daimler Corporate Academy is responsible for the internal training and development programmes of the employees. In 2020, the Daimler Corporate Academy gained several experiences in transforming face-to-face training into online learning activities, as a result of the pandemic caused by COVID-19.

The Solar Training Centre (SUNCybernetics) | Nicholaas Faure van Schalkwyk, Energy Research Engineer & Trainer [D]



Solar Training Center is offering solar PV training and technical support for installers, engineers as well as Municipal and Governmental officials that need to deal with distributed generation embedded on their network.

University of Maastricht [E]



Maastricht University (UM) is the most international university in the Netherlands and, with 20,000 students and 4,400 employees, is still growing. The university stands out for its innovative education model, international character and multidisciplinary approach to research and education. Thanks to its high-quality research and study programmes as well as a strong focus on social engagement, UM has quickly built up a solid reputation. Today it is considered one of the best young universities in the world.



Therese Grohnert, Assistant Professor, School of Business and Economics, Educational Research and Development [E1]



Alexandra Mihai,
Assistant Professor, School
of Business and
Economics, Educational
Research and
Development [E2]



Kelly Geyskens, Associate
Professor, School of Business
and Economics, Department
of Marketing and Supply
Chain Management [E3]

**Telekom Deutschland GmbH |
Ricarda Reuss, Learning
Experience Manager [F]**



Deutsche Telekom is one of the world's leading integrated telecommunications companies, with some 242 million mobile customers, 27 million fixed-network lines, and 22 million broadband lines. They provide fixed-network/broadband, mobile communications, Internet, and IPTV products and services for consumers, and information and communication technology (ICT) solutions for business and corporate customers.

**CGECI | Zana Koné, Programme
Manager of the Ivorian employers'
organization [G]**



"Le Patronat Ivoirien"

The *Confédération Générale des Entreprises de Côte d'Ivoire* (CGECI) is the most representative employers' organisation of the private sector in Côte d'Ivoire. It federates 27 professional groups and associations (professional groups, business associations and companies from all sectors of activity - industry, commerce, agriculture and services). The CGECI is a major player in representing companies, defending their interests and promoting their activities.

**ECOP | Ray Tadeo, Learning and
Development Manager [H]**



The Employers Confederation of the Philippines (ECOP) is the umbrella organization and single voice for the entire business community on important national issues related to employment, industrial relations, labour issues and related social policies.

**Lepaya Learning | Sophie Baltus,
Learning Strategist [I]**



Standing at the forefront of blended learning, Lepaya is a power skills training company that provides high impact trainings at the career points of starters, professionals and young leaders. Whether your employees have just landed their first job, are already established in their professional career or are on their way to becoming a leader, they have the right training for everyone.

**TalentMiles | Annika Häggblom,
Head of Learning Experience
Design [J]**



TALENTMILES

TalentMiles is a Nordic company set on disrupting the way learning, development and change is done in large organisations. They offer a unique and scalable concept combining interactive and collaborative learning-at-work, gamification and supporting digital technology.

**Marel | Jeffrey van de Wal, Global
Learning and Content Manager[K]**



Marel is in the business of transformation, innovation and inspiration. They provide software, machinery, systems and solutions that help food processors gain a competitive edge and make the most of cutting edge technology such as digitization, automation and robotics. Driven by a passion for meeting the growing demand for quality protein, they create groundbreaking solutions that benefit the global population.



**VIVES University of
Applied Sciences
Belgium [L]**

VIVES University of Applied Sciences provides modern and competence-based education and innovative practical research at the heart of Europe. They are the largest university of applied sciences in West Flanders.



Emma Braeckman,
International Officer and
Lecturer [L1]



Anne van Deynse, Language Lecturer and Coordinator of Incoming Students, Campus Brugge [L2]

ASML |Chris Wanrooij, Learning and Development Expertise Manager [M]

ASML

ASML is an innovation leader in the semiconductor industry. We provide chipmakers with everything they need – hardware, software and services – to mass produce patterns on silicon through lithography.

Conseil National du Patronat du Bénin (CNPB) | Ms Laure, Director Assistant [N]



The Conseil National du Patronat du Bénin (CNP-Benin) was founded on the desire of employers to form an umbrella organisation in order to become a representative interlocutor with the public authorities in defending their interests and promoting the private sector.

Conseil National du Patronat du Togo (CNP-Togo) | Mr Jacob Mondedji, Head of Human Resources and Monitoring and Evaluation [O]



The Conseil National du Patronat du Togo is composed of 21 professional associations, the CNP-Togo works in partnership with the Government, institutions, organizations and private associations and is based in Lomé. The team consists of specialists with broad professional experience representing different trades.

Afrique Digitale |Nour Bouakline[P]



Founder of 2 agencies specialised in digital strategy consulting, Nour Bouakline is an international consultant and trainer in digital marketing and a specialist in the African market in 18 countries. She is also an expert in personal branding and assists many personalities in Tunisia, Africa and Europe in their digital communication.

ITC-ILO | Stefano Merante, Skills Development & Programme Officer [Q]



International Training Centre

ITC-ILO (Turin) is the training institute of the international labour organization. In 2020, they had to switch to online and will keep blended learning formats in the future.

The International Training Centre is an advanced technical and vocational training institution founded in 1964 by the International Labour Organization and the Government of Italy. The Centre offers learning, knowledge-sharing, and institutional capacity-building programmes for governments, workers' and employers' organizations, and development partners, aiming to achieve decent work for all women and men.

TNO-ESI | Joris van den Aker, Programm Manager [R]



An initiative of industry, academia and TNO

Originally founded in 2002, the former Embedded Systems Institute was integrated into TNO in January 2013 as the research group Embedded Systems Innovation by TNO (TNO-ESI). Its partners are industry-leading companies and academic institutions. In October 2017, ESI became a so-called JIC (Joint Innovation Center), an initiative of industry, academia and TNO.

Hobéon | Roel van Krieken [S]



Roel van Krieken is a senior advisor who has an overview of all higher educational institutions in the Netherlands.

Appendix C - The Interview Guideline

Introduction	<p>1. Introduce us, study and purpose: We are a team of 6 students and are part of the masters program "L&D" at the Maastricht University in the Netherlands. As we are approaching the end of our studies, we are engaged in a final consulting project. We are pleased to be working with DECP on the project "Online and Offline training. How to get the best out of both". In the upcoming weeks, we will be working on an extensive report about blended learning. Moreover, we will deliver a scientific article and a toolbox which will allow practitioners to conduct the optimal blended learning experience. Besides reviewing the literature, we will also conduct interviews with experts to gather best practices to draw up the most effective recommendations for action.</p> <p>2. Gather general information:</p> <ul style="list-style-type: none"> - Field of activity / industry - Rough indication of yearly turnover and profit - Number of employees - (Number of companies) - Number of countries they are active in <p>3. Inform them about access to results</p> <p>4. Do you want to be treated anonymously?</p>
Optimizing Learning	<ul style="list-style-type: none"> - How do you motivate the trainees to learn? - What are the techniques you use to make your trainees learn the most?
Blended Learning (Didactic conception)	<ul style="list-style-type: none"> - <i>Give definition of blended learning</i> - Why did / would you decide for a blended learning? - What would you say is an optimal balance between online and offline elements? - What are required competencies (on behalf of the learner/teacher) to optimize blended learning? - When do you consider blended learning as successful?
Limitations and Challenges	<ul style="list-style-type: none"> - What are / were the challenges the teachers faced? - What are / were the challenges that learners faced? - How did you manage those challenges? Examples? e.g.: How did you keep the learners motivated? e.g.: How did you ensure that online and offline elements were complementary?
Conclusion	<ul style="list-style-type: none"> - What is your main advice in one sentence? - Will blended learning be more efficient than f2f only? If so, why? - Do you know any other person who would be relevant for us to talk to?

Appendix D - The Survey

1. What type of training did you deliver before the COVID-19 crisis?
 - a. Online training
 - b. Offline training
 - c. Blended learning
2. Did you face any difficulties regarding your training delivery due to the COVID-19 crisis?
 - a. YES
 - b. NO
3. If so, what are / were the challenges that you faced?
4. How did you manage those challenges? Could you give us examples?
5. What opportunities do you see with a blended learning programme?
6. What are the required competencies (on behalf of the LEARNER) to optimize blended learning?
7. What are the required competencies (on behalf of the TEACHER) to optimize blended learning?
8. Can we eventually approach you again by FaceTime or ZOOM to ask some additional questions afterwards?
 - a. YES
 - b. NO
9. Would you prefer to remain anonymous?
 - a. YES
 - b. NO
10. If you do not mind being mentioned, please indicate your organization below.

Appendix E - HELPDESK: Limitations and Challenges

➤ How to cope with technical challenges

To manage the technical challenges, you have to think from the perspective of somebody who has never had an online training before: always make it as easy as possible [C] and according to the theory of deliberate practice, we learn anyway through our own and others' trials and errors [Anonymous]. Teachers must provide more support to the learners in "how to use" a certain tool or an application to ensure user-friendliness and avoid every question asked to the instructor [D, E]. To manage the connection problems, the management provided the instructors with an "internet key" for those who did not have internet at home; this was done gradually because it was not planned [G].

➤ How to cope with content difficulties

Clear and precise communication about and for the different elements of the session must also be provided to avoid misunderstanding and confusion for the learners. Materials should be provided before the training in an online platform [H]. Teachers must, therefore "hold learners hand" [D, E, F, J], identifying learners' training needs [G], create relevance [B] by addressing any knowledge gaps by asking questions about experiences and familiarity with content [Anonymous] and a psychological safe environment [J].

➤ How to cope with social challenge?

Teachers should focus on team dynamics to foster collaboration [R] and to build good relationships with and between participants [A]. Giving activities at the beginning, middle and end of the programme to ask participants to introduce each other, especially in a small group setting [H]. Teachers have an important role to play here [P] however learners have to adapt themselves and become more self-organised and work on their self-management skills [E, F]. Moreover, instructors should encourage learners to participate often and make sure they follow through by asking them questions [G] and turning on their cameras during the training [J]. Using break out rooms a lot throughout the session. Starting with an energizer immediately to wake them up. This should make them more inclined to also speak up more in the main session [J]. Finally, pushing participants to share questions and ideas at the end of each session where everyone has to write a question in the chat to see if they understood everything [D]. Having the reflections and interactions part be recurring and part of the grading or evaluation process [E] and working with coaches to follow up on the reflections [J].

Appendix F - Train the Trainers an example agenda

TRAIN THE TRAINERS

AN EXAMPLE AGENDA

Connecting with your Why

- In a blended format **focussing on the WHY of learning becomes even more apparent**. As switching to blended formats changes the way instructors are used to train, any train the trainers must allow them to reconnect with their personal WHY as instructors.
- **Why are they here?** What do they want to get out of blended programmes? Openly discusses struggles and questions that instructors have while working in an online setting the last months

Training in the digital age

- **What is blended learning?** Discussing the different dimensions and implementations for blended programmes. **Making instructors excited about the future of learning in the digital age**. Introducing the Toolbox.
- Discussing how **the role of the instructor has changed**. Blended programmes and virtual facilitation put more responsibility on the learner to be in charge of their own learning, and instructors need to be flexible, stay open-minded and sometimes be a little creative.

Digital communication and improvisation

- **Time to practice!** Allowing instructors to **practice communication and improvisation** by working on cases or through role playing exercises.
- It is important here to go into the **commonly occurring challenges within blended formats** and supporting the instructors in coming up with creative solutions on the spot.