

# The means to a blend: A practical model for the redesign of face-to-face education to blended learning

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**Abstract.** Learning design models provide guidelines and guidance for educators and course designers in the production and delivery of educational products. It is seen as beneficial to base learning designs on general learning theories, but these must be operationalised into concrete learning design solutions. We therefore present one such educational design model: the Design Cycle for Education (DC4E). The model has primarily been created to support the shift from traditional face-to-face education to blended learning scenarios. The cycle describes eight steps that can be used iteratively in the (re)design of educational products and provides educators and course designers with a flexible but clearly structured design model that enables them to reinvent traditional course content for blended learning with appropriate learning design tools.

**Keywords:** blended learning · learning design · design model

## 1 Introduction

Many higher education institutions aim at enticing their learners to get the best out of themselves and to realise their ambitions. One of the ways to achieve this is to develop and offer flexible and attractive blended learning, i.e. the combination of traditional face-to-face and IT-based education. Turning existing educational products such as courses and modules created for face-to-face settings into more flexible and blended ones, however, is not an easy process and does not only require substantive content knowledge for a given course, module or program, but also educational, didactic and technological knowledge [6].

There is a range of existing models in the field of learning design and instructional design, of which the most commonly known ones are the Principles

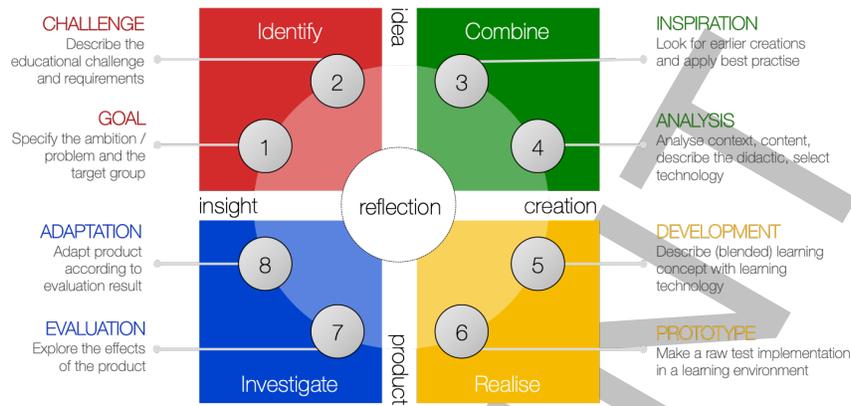
of Instructional Design by Gagne and Briggs [3], the ARCS Model [5], the AD-DIE Model [8], the 4C-ID Model [10], the Curricular Spider Web Model [9] and the Systems Approach Model [2]. Models differ in nature and can be categorised in different ways [4], which makes it hard for educators to select an appropriate design model. A recent systematic review of 21 TEL-models concluded that most existing models were conceptual in nature rather than procedural [1]. They also differed in pedagogical flexibility, i.e. the degree in which models adopt a pedagogical underpinning or do not mention any pedagogical orientation at all. Many models did not consider context or did not specify the level of design the model was intended for. There is very limited attention for student-teacher interaction, selection of appropriate technologies and evaluation in most models and examples of the application of the model are lacking as Bower and Vlachopoulos conclude [1]. This makes it hard for educators to assess which model to adopt and practical design support is overall limited in these models.

Therefore, as we have been in the need to extend a traditional face-to-face university with a part-time higher education programme for professionals in the work context with blended learning scenarios, we opted for the creation of our own design cycle, i.e. a procedural model, enriched with templates, tools, information and design examples for educators to specifically support and facilitate the redesign of blended learning. By creating the Design Cycle for Education (DC4E) we aim to retain the strong characteristics of the autonomous design of education, while at the same time exercising a normative function on the development process. Within the DC4E, sufficient space is provided for the unique culture of education, but at the same time we are also able to offer guidance. Finally, the development of such a broadly supported design cycle also provides the framework for a common language within which (re)design of education can be shared and communicated. We hope to contribute to the longstanding ambition of the learning design field to help educators create, describe and share teaching ideas.

## 2 The Design Cycle for Education

The DC4E was developed in close collaboration with different stakeholders, such as educators, instructional designers, researchers from the technology-enhanced learning field and members of the educational support service within our institutions. The model was developed, edited and adapted iteratively by members of Zuyd Hogeschool and Open Universiteit based on existing literature and in close collaboration with researchers, the support experts and associate professors from the Research Centre for Educational Innovation and CPD and the Research Centre for Professional Assessment at Zuyd University of Applied Sciences. Although the model is developed as pedagogically flexible, it includes elements of different design approaches such as backward design, rapid prototyping and multimodal design, which are recognisable within the model.

We developed the DC4E to support the transition through (re)design of face-to-face education to blended learning. The model was thus enriched with



**Fig. 1.** Visualisation of the eight steps of the DC4E

a number of elements that can enhance the transition, defining a number of tasks in the various steps and referencing tools and templates that can be used. When designing blended education, one can make use of a wide range of educational technologies to support learners and teachers in their learning and teaching processes. The visualisation of our model, inspired by the work from Mor and Mogilevsky [7], is depicted in Figure 1. There are four phases with two steps each: phase *Identify* – from insight to idea – with the steps *Goal* and *Challenge*; phase *Combine* – from idea to creation – with the steps *Inspiration* and *Analysis*; phase *Realise* – from creation to product – with the steps *Development* and *Prototype*; and phase *Investigate* – from product to insight – with the steps *Evaluation* and *Adaptation*.

The concept of reflection is central to the model. This means that the DC4E is not only based on a cyclical, iterative structure in general, but that the designing educator is forced to critically look at and reflect on the result of each of the eight steps and to properly document any design choices made. In addition to the design cycle and its eight steps we provide ready-made tools and templates for each of the steps that can be applied by the educator to gain evidenced-based insights or technical solutions for the (re)design of the course and its stakeholder group (<https://onderwijsontwikkeling.zuyd.nl/tag/dc4e/>).

At many educational institutions LMSs are used in a rather basic way, i.e. learning material is provided, assignments are handed in, or announcements are made. From a didactic perspective, such use of an LMS adds little if any value. With the DC4E we aim at enriching the didactic side of blended learning by offering a structure that makes the design of blended learning activities communicable and mutually comparable and thus inspires educators with examples of blended learning designs. Our ambition is to create a culture within an institution where the potential of blended learning is known. An essential part of such a culture is a very user-friendly and powerful LMS that is able to support various designs for blended learning. The DC4E very strongly supports the use of the

LMS not only by providing a structured design process but also various examples as well as a template for the local LMS. Educators are offered a flexible and design-appropriate tool, while students are confronted with a clearly-structured set of learning activities.

### 3 Conclusion

We presented a practical learning design cycle for course designers that need to (re)design traditional face-to-face courses to blended learning scenarios. The DC4E therefore bridges the gap between educational theory and educational practise; at the same time, it introduces a form of standardisation of courses while upholding the autonomy of educational designers. The experiences so far show that the DC4E enables communication of course design from different disciplines very well. The DC4E therefore contributes towards an institutional culture of (blended) course design. This leads to higher awareness of good design decisions as well as a common knowledge on good blended learning design. Finally, a model alone is not enough to drive this change: for the final realisation of successful blended learning, templates and examples as well as a community of practitioners within the university are needed to sustainably implement new learning offers. Within the close future, we will explore whether the DC4E can also be applied for the design of other learning scenarios. Additionally, we will look into how learning analytics indicators can be considered and suggested in the design process of new course modules and learning activities.

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