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# Blending an on-campus undergraduate course by integrating MOOC-based learning activities

## The BK6MA3 Management and Redevelopment case

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### Abstract

Integrating online study material into campus education poses a significant challenge for coordinators and students. When in-person education activities are limited, structural change in the balance between online and face-to-face learning activities occurs. However, online education development also requires meticulous preparation and tailor-made solutions. This chapter first illustrates the didactical choices made in partly blending the third-year bachelor course 'Urban Management and Redevelopment' (BK6MA3) and then discusses the experiences and evaluations from both instructors and students in the architecture programme.

In designing the blended variant of BK6MA3, a conscious choice was made to re-use and adjust existing videos and assignments from two faculty's massive open online courses in three course themes in a structured manner. Evaluations show that it is pivotal for instructors to explain to students that blended learning is introduced to stimulate active learning and clarify expectations. In terms of education innovation, a healthy balance between online and face-to-face learning activities for a theoretical course is achievable but requires delicacy to create a satisfying learning experience.

### Keywords

Blended learning, online and face-to-face learning, bachelor education, massive open online course, management and redevelopment

**COVER FIGURE** Schiekadeblok, by Erwin Heurkens, 2024.

# 1 Introduction

Blended learning is a form of education with a 'deliberate "blending" of face-to-face (F2F) and online instructional activities, with the goal of stimulating and supporting learning' (Boelens et al., 2017, p. 1). Blended learning environments with combinations of F2F and online teaching activities have been found to offer several new opportunities for optimising learning (Spanjers et al., 2015). In the last decade, the concept of blended learning has been "widely adopted across higher education, with some scholars referring to it as the 'new traditional model' (Ross & Gage, 2006, p. 167) or the 'new normal' in course delivery (Norberg et al., 2011, p. 207)" (Dziuban et al., 2018, p. 1). In a broader sense, blended and other forms of online learning at many academic institutions are integrated within university policies aimed at establishing education innovation associated with the benefits of blended learning, such as more effective pedagogy, enhanced cost-effectiveness, and increased flexibility for learners (cf. Bonk et al., 2006; Graham, 2006; Graham et al., 2005; Joosten et al., 2014).

These didactical developments offer a contextual background to the design of a blended version of BK6MA3 'Management and Redevelopment' (Dutch: Beheer en Herontwikkeling), a third-year bachelor-level course taught at the Faculty of Architecture and the Built Environment at TU Delft. In principle, this is a traditional 'knowledge'-based course in which students are assessed by assignments and exam-based textbooks and lectures corresponding to five themes. In 2019, this course was remodelled to a blended version supported by the university's Blended Education Programme (BLEAP). The goal was to integrate MOOC-related material within campus education and to provide more (inter)active learning. In terms of objectives and ambitions, this blended course resonates greatly with what literature teaches us.

This chapter intends to provide insight into the didactical choices that have been made to blend this course and to critically evaluate the extent to which this was done successfully. Consequently, the article commences with a short literature review on the didactical challenges of blended learning that are paramount in constructing and running such courses. Then, a more detailed description is given of the didactical choices and changes made in the course structure, particularly learning activities. This overview is followed by a brief discussion of the education evaluations based on experiences from students and staff and a critical reflection of the didactical solutions in comparison to key literature findings. Finally, the article concludes with some lessons learned and recommendations on blending traditional campus education courses in the ABE programme.

## 2 Challenges in blended learning

When designing a blended course in higher education, several challenges appear (Boelens et al., 2017) and must be dealt with accordingly.

### 2.1 Incorporating flexibility

Flexibility involves learners having control over the content, learning sequence, pace, time, place, and path (Bonk et al., 2006; Ruiz et al., 2006). In blended learning environments, it is often impossible to let students randomly choose and study a topic within a course and follow their own 'learning path'. This case applies especially to structured blended campus courses offered within a limited time period, including fixed assessment moments, and due to the close relations between online and scheduled F2F activities.

One way to deal with this inflexibility is to enable students to choose between weekly or topical participation in online and F2F modes (Beatty, 2014). De George-Walker and Keeffe (2010) even argue that it is not the role of the instructor to decide on the blend. However, given the complexity of designing a blend, as well as students' limited didactical expertise, it seems that flexibility can best be implemented and achieved (Kineo & The Oxford Group, 2013; Ma'Arop & Embi, 2016) by giving students the flexibility to choose learning activities in random order.

### 2.2 Stimulating interaction

Both student–student and student–teacher interactions in blended courses are somewhat difficult to organise in the online component of blended learning environments (Okzan & Koseler, 2009; Owston et al., 2013). Specifically, online learning environments can lead to an enlarged psychological and communication space called the 'transactional distance' (Chen et al., 2014; Moore, 1993).

In most blended cases, social interaction is therefore generally stimulated through face-to-face meetings (Boelens et al., 2017) that may occur, to a lesser degree, in the online learning environment. Nonetheless, Nortvig et al. (2018) indicate that educator presence in all online learning activities is paramount, especially in videos for cultivating students' interest in the topic under study (Southard et al., 2015). Additionally, peer-to-peer online activities and individual instructor feedback increase satisfaction and inspire a sense of community, potentially decreasing transactional distance and improving learner engagement (Halverson & Graham, 2019).

## 2.3 Facilitating students' learning processes

Due to the increased flexibility and autonomy of learners in blended learning environments, self-regulation becomes a critical factor for study success (Barnard et al., 2009). Participation in blended learning courses requires organisation, discipline, time management, technological skills, and self-efficacy to control the learning process (McDonald, 2014). These qualities are more common among 'high achievers' than low-achieving students who have difficulties with independent learning (Owston et al., 2013; Tsai & Shen, 2009).

Vermunt and Verloop (1999) argue that this challenge can be dealt with by instructional activities that follow four regulative strategies: orienting and planning, monitoring, adjusting, and evaluating (see Boelens et al., 2017). For example, instructors may introduce the course and conduct regular tests to assess students' competencies. Students monitoring their study progress can also increase their ability and motivation for independent learning.

## 2.4 Fostering an affective learning climate

The increased transactional distance in the online part of blended courses is characterised by less spontaneous encounters when compared to face-to-face communication (Osguthorpe & Graham, 2003), an issue that can negatively affect the learning climate. It might cause feelings of learner isolation (McDonald, 2014), reduced motivation to learn (Osguthorpe & Graham, 2003), and higher drop-out rates (Angelino et al., 2007).

In affective learning environments, students seek more blended learning only when it is highly structured, of high quality, and supported by tutorials (Morton et al., 2016). Therefore, the online element should not solely be an addition to classroom-based teaching but rather an integral part of the course methodology (Bowyer & Chambers, 2017). 'Flipped classroom' forms, where students engage with online lectures and textbook material at home before participating in in-person classroom interaction activities, are particularly successful (Stockwell et al., 2015) when compulsory online activities are further applied and assessed within F2F settings. Bralić and Divjak (2018) argue that MOOCs can also enrich traditionally taught courses and provide complementary resources to achieve learning goals.

Instructors can thus overcome the multiple challenges faced in blended forms of education but only by making specific didactical choices within each course. The following section explains the main ideas, structure, and choices for the BK6MA3 course.

## 3 The case of blending BK6MA3

### 3.1 **BK6MA3 course outline**

BK6MA3 is a third-year course taught in the first five weeks of both quarters 1 and 3 within the bachelor curriculum of the ABE programme. It forms the final course of the Bachelor's MA learning track Society, Process, and Practice (Dutch: Maatschappij, Proces en Praktijk) and is taught simultaneously with the BK6ON5 design game course 'Urban Development', for which it provides diverse (management) knowledge. BK6MA3 focuses on management and redevelopment, which is taught and approached from five disciplinary domains or 'themes': urban development, spatial planning, real estate management, building law, and building economics. The learning objectives are:

- Students can define relevant functions, actors, strategies, and performances belonging to physical redevelopment.
- Students can understand physical redevelopment assignments based on accommodation demand and societal needs, drawing upon fields that include real estate management, spatial planning, and urban development.
- Students can apply management methods with regard to the organisational, financial-economic, legal, and sustainability aspects of physical redevelopment.

The learning objectives are assessed based on five theme-based summative group assignments (10% weight) and one final summative individual exam in week 5 (90% weight), making use of theme-specific learning material (textbooks, articles and presentations).

### 3.2 **Blended learning approach**

A key element in blending this course was the ambition to integrate MOOC-related material developed by faculty and staff members, thus re-using existing online education material from the MOOCs 'Managing Building Adaptation' and 'Rethink the City'. Notably, the aim was to provide more (inter)active F2F learning activities for students and to deliberately connect blended and F2F activities as assignments. Given the coordinator and staff's familiarity with teaching online courses and the ambition of the faculty to transform some traditional courses in the undergraduate curriculum into blended education versions, BK6MA3 was seen as a logical receptive case.

As part of the university's BLEAP project, the course coordinator, university e-learning developer, faculty education quality coordinator, involved instructors, and student assistant in various workshop settings worked towards designing a logical and recognisable storyboard for two (later three) themes with a blend of online and F2F learning activities (see Figure 2). This storyboard was based on the idea for a recognisable 'blended learning wave' illustrated in Figure 1.



FIGURE 1 Concept blended learning wave with online and F2F activities, by E. Heurkens, 2024.



FIGURE 2 Concept storyboard for two themes, by E. Heurkens, 2024.

As a basis for the 'blend', the decision was made to let students work through part of the learning material of a certain theme (only for urban development, real estate management, or spatial planning) on a designated day (Tuesday or Thursday). Students were supposed to use the morning for online learning activities, and the afternoon was reserved for F2F encounters. For the online part, the teacher team prescribed online learning activities centred around a specific (set of) topics, including:

- 1 Reading part of the (mandatory) learning material;
- 2 Watching short videos (taken from MOOCs);
- 3 Making short quizzes (based on MOOCs);
- 4 If of added value, reading some practice case stories or news articles.

Importantly, the link between online and F2F activities was stressed, clarifying that the knowledge students gained during morning online activities provided a base for making theme-based F2F assignments in the afternoon. The F2F part of the day included four more interactive learning activities:

- 1 A short evaluation of the blended learning activities and introduction to the assignment by the teacher;
- 2 An assignment presented by groups of two to three students (applied learning);
- 3 Practitioner lecture (illustrative learning);
- 4 Professor lecture (inspirational and reflective learning).

### **3.3 Examples of theme day online and F2F learning activities**

Figure 3 provides an idea of the learning activities students should carry out during the day, as illustrated here by an example of the Brightspace course page for Gebiedsontwikkeling (Urban Development). In this particular case, students are requested to perform six online learning activities (within four hours): 1. reading a book chapter, 2. watching a short MOOC video, 3. studying policy documents, 4. and 5. watching two other short MOOC videos, and 6. reading a case study document. These online learning activities provide the basis for the F2F group assignment (Dutch: *werkcollege*) in which they apply their insight and knowledge gained through self-study. Besides this assignment, students follow interactive practitioner and professor lectures in class, and the slides are made available afterwards on Brightspace. Students can monitor the completion of learning activity topics with a simple progress bar.

- Overview
- Bookmarks
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- Table of Contents 34**
- Course Information **11**
  - Hidden
- Instructor Area
  - Hidden
- Instructor Area
  - Hidden
- Cursusinformatie **8**
- Week 1 **3**
- Week 2 **4**
- Gebiedsontwikkeling **2**
- Vastgoedmanagement **2**
- Week 3 **4**
- Week 4 **3**
- Week 5 - Tentamen **1**

## Gebiedsontwikkeling ▾

Add dates and restrictions...

Ter voorbereiding op de collegedag **Gebiedsontwikkeling** dient het onderstaande, het college, bestudeerd en bekeken te worden. Na afloop van deze dag zullen de hieronder geüpload worden.

1. Bestuderen boek
  - De Zeeuw, F. 2017. *Zo Werkt Gebiedsontwikkeling: Handboek voor studie Praktijkleerstoel Gebiedsontwikkeling.*
    - Hoofdstuk 7 (let op: andere hoofdstukken uit dit boek zijn ook onderdeel van de tentamenstof!)
    - Te verkrijgen bij de Bouwshop of als e-book [hier](#) en [hier](#)
2. Bekijken video 1
  - [Urban Development Policies & Markets](#)
3. Bestuderen materiaal Rotterdam Duurzaam & Resilient rapporten (quick scan):
  - [Programma Duurzaam 2015 - 2018](#)
  - [Rotterdam Resilience Strategy](#)
4. Bekijken video 2
  - [Urban Development Functions and Stakeholders](#)
5. Bekijken video 3
  - [Schieblock & Schiekadeblok Tour](#)
6. Bestuderen materiaal
  - [Casebeschrijving Schieblock & Schiekadeblok](#)

Upload / Create ▾

Existing Activities ▾

Bulk Edit

- Werkcollege Gebiedsontwikkeling** ▾
  - Assignment
    - Due 10 September, 2019 18:00
    - Available on 10 September, 2019 13:45. Access restricted before availability starts.

FIGURE 3 Screenshot of the Brightspace online learning environment page for the theme urban development, by E. Heurkens, 2024.

Figure 4 below shows a screenshot from the TU Delft OpenCourseWare page, where students can watch a MOOC video corresponding to learning activity 2. Additionally, Figure 5 displays a screenshot of the F2F group assignment the students can make if they have carried out the online learning activities. Students in groups of three discuss and write down their answers in the document in the classroom and upload them to the Assignment page on Brightspace. Subsequently, tutors assess the work, both with quantitative grades and by giving qualitative feedback.



Home > Courses > Managing Building Adaptation: a Sustainable Approach > Course materials > Lectures > 2.2.2 Lecture: Urban Development Policies and Markets

Managing Building Adaptation: a Sustainable Approach

## 2.2.2 Lecture: Urban Development Policies and Markets

[Course Home](#)

Course subject(s) #2\_URBAN DEVELOPMENT MANAGEMENT

[Course materials](#)

Video Lecture 2.2

[Lectures](#)

When starting a building adaptation initiative, it's always important to take the **building context** into account. In this lecture we will look at the bigger picture of urban redevelopment, by discussing **policies and real estate markets**. We will also present **management tools** you can use to collect and position data on these topics. Enjoy watching!

[Readings](#)

[Subjects](#)

Urban Development Policies & Markets

**Interested in a full learning experience?**  
 The materials in this course are part of a TU Delft free online course. [Click here to find out more.](#)



FIGURE 4 Screenshot of the TU Delft OpenCourseWare page with an embedded MOOC video, by E. Heurkens, 2024.

# Werkcollege: Gebiedsontwikkeling

BK6MA3 Beheer en Herontwikkeling (2019/2020), Bachelor Bouwkunde

Datum: Dinsdag 9 september 2019

Inleverdeadline: 9 september 2019 18:00

Maak de werkcollege-opdracht in je werkcollege-groep waarin je bent ingeschreven bij Brightspace.

Vul de antwoorden in op de aangegeven plaatsen (antwoord).

Upload per groep één ingevuld bestand in de *assignment submission folder* van “Werkcollege: Gebiedsontwikkeling” op Brightspace. Eén persoon uploadt het ingevulde bestand voor de rest van de groep op Brightspace.

Ontwikkeld door: Erwin Heurkens

Groepsnummer	antwoord	
	Naam ↓	Studentnr. ↓
1	antwoord	antwoord
2	antwoord	antwoord
3	antwoord	antwoord

## Opdrachten

De werkcollege opdracht bestaat uit het definiëren en motiveren van een herontwikkelingsstrategie voor gebiedsontwikkeling Schiekadeblok in Rotterdam. Deel 1 bestaat uit het downloaden, tekenen en invullen van de herontwikkeling naar eigen inzicht, deel 2 bestaat uit een geschreven motivatie voor deze herontwikkelingsstrategie van maximaal 300 woorden.

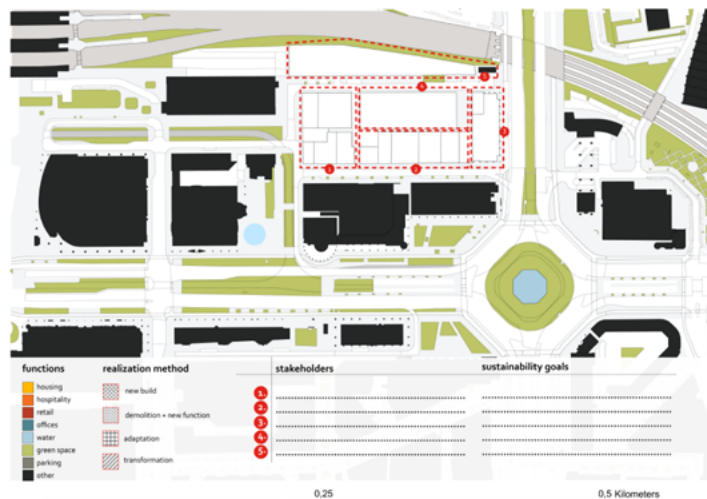


FIGURE 5 Screenshot of a F2F group assignment example, by E. Heurkens, 2024.

## 4 Evaluation of the blended BK6MA3 course

### 4.1 Learner perspective

The course has been evaluated amongst participating students, generating interesting quantitative and qualitative results. Additional to general course evaluation questions, some specific questions were addressed, asking about their experiences with the blended learning form. For the former, the survey with a response of 32 students indicates an overall 6.39 grade (out of 10) for the course, which is 0.5 points lower than the average grade given for this course in the previous evaluation. Nonetheless, students indicate with an average grade of 3.77 (out of a maximum of 5) that they have learned a lot in this module. Furthermore, 51.5% of the students indicate they spend more or less the same amount of time scheduled for the course (140 hours for 5 ECTS).

In a qualitative sense, a number of compelling responses emerged. Students are very positive about the organisation, teachers, in-person lectures, and the combination of lectures and group assignments. Important points include the (large) amount and (sometimes less sufficient) quality of the obligatory and facultative learning material. In addition, students responded that they were able to examine the learning activities in the Brightspace online learning environment. However, they also recommend that the coordinator indicate the expected time students should spend on each specific activity and that the 'self-study mornings' be scheduled within their official study timetable to ensure enough preparation time before the F2F afternoon sessions.

### 4.2 Coordinator perspective

As the course coordinator, I was interviewed in the context of the BLEAP project and then separately by the faculty's education quality staff. In brief, these are my main evaluation points:

- Generally, students proved able to perform the online self-study activities independently, obtaining grades comparable to those of previous years (passing rate 75%).
- The online self-study time slightly reduced the number of F2F learning activities (i.e., traditional lectures). In my view, this contributed to more effective learning.
- The F2F active learning activities were very much valued and attended by students, illustrating student motivation.
- Additional time (about 60 hours) was spent preparing this blended learning version, but it did not lead to higher student satisfaction overall.

In summary, the initial development and implementation of this course went quite well, but some improvements are necessary to increase learner satisfaction and engagement. After completing this course, I remain convinced of the added value of blended learning for students and staff, as the course has become more dynamic and interesting with the various learning activities tailored to specific themes.

### 4.3 Literature comparison

To what extent does the BK6MA3 course confirm or divert from existing literature? Based on four challenges related to a blended learning environment that have appeared in relevant studies, I briefly illustrate some experiences and solutions in the BK6MA3 course.

- 1 **Incorporating flexibility:** Students indicated that flexibility was not an issue despite the online learning activities being 'conditional' for the F2F assignments. On the contrary, students noted they would have appreciated the structure and even suggested formalising online self-study time in their timetable.
- 2 **Stimulating interaction:** Social interaction was generally stimulated in F2F meetings, in both student-student discussions during the group assignments, and tutor-student discussions in practice and professor lectures and debate, and basically not at all in the online learning environment, which corresponds to Boelens et al. (2017).
- 3 **Facilitating students' learning processes:** Students stated that their learning process was facilitated well enough, as they appreciated the clear structure and relationships between the online and F2F learning activities. Also, the relatively easy-to-use Brightspace learning environment has contributed to that. I believe that both high and low achievers were able to control their learning process autonomously.
- 4 **Fostering an affective learning climate:** The issues of potential transactional distance, learner isolation, and reduced motivation due to the online parts of the courses, in my view, have been compensated by the biweekly F2F encounters between students and tutors, in which social communication and interaction was paramount.

## 5 Conclusions and recommendations

Overall, what can be concluded from the development, operation, and evaluation of this blended learning bachelor-level course? Evaluations show that it is pivotal to explain to students that blended learning should stimulate active learning and clarify what is expected from them. Failing to do so might create a sense of demotivation, as, in general, face-to-face contact between students and teachers is preferred over online activities. Nevertheless, good-quality online learning activities can enrich the learning experience and improve learner control.

In terms of education innovation, a healthy balance between online and face-to-face learning activities for a theoretical course is achievable, yet tutors should make well-thought-out choices to find the right combination to motivate students to learn. Finally, integrating MOOC-based learning material and activities into a traditional on-campus course can be a fairly effective way to improve the quality and focus of online learning activities. For example, instead of re-watching previously recorded campus lectures, watching short theme-focused MOOC videos is more appreciated once purposefully integrated into the learning activities.

In terms of recommendations, the focus is on the course itself, tutors, and the institution.

The recommendations for the course are twofold. First, critically assess the amount and quality of the learning material and activities that constitute the blend. Second, the blended learning environment should be extended to the remaining themes of building economics and building law to create a comprehensive, consistent, and logical course structure based on a recognisable blended learning wave. For teachers and coordinators, it is strongly recommended not to underestimate the amount and nature of the educational

tasks involved in blended learning courses and to follow educational courses that provide the background for the do's and don'ts of developing blended courses.

Finally, for the faculty and university, it is of utmost importance to strategically, critically, and carefully assess and choose receptive campus courses to be blended, as the face-to-face social interaction component in some courses by both students and teachers is seen as highly beneficial for the quality level of education and higher order academic learning. This more interactive intangible knowledge and skill development is hard to replicate fully in an online learning environment, but it is achievable in a blended course. Reaping the success of online education efforts thus can best be achieved by a predefined plan of how such material could be used in on-campus education.

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