



UvA-DARE (Digital Academic Repository)

What makes blended courses successful in the experience of teachers and students?

Vermeulen, E.; Bruck, S.; van Loenen, B.; Pareja Roblin, N.; Cornelissen, F.; Voogt, J.; Volman, M.

Publication date

2023

Document Version

Final published version

[Link to publication](#)

Citation for published version (APA):

Vermeulen, E., Bruck, S., van Loenen, B., Pareja Roblin, N., Cornelissen, F., Voogt, J., & Volman, M. (2023). *What makes blended courses successful in the experience of teachers and students?* Universiteit van Amsterdam.

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

Universiteit van Amsterdam

What makes blended courses successful in the experience of teachers and students?

Department of Child Development and Education, Programme Group
Educational Sciences



UNIVERSITEIT VAN AMSTERDAM

Emma Vermeulen, Suncica Bruck, Bart van Loenen, Natalie Pareja
Roblin, Frank Cornelissen, Joke Voogt & Monique Volman

09-06-2023

TABLE OF CONTENTS

Table of Contents	1
Introduction	2
Method	3
Design	3
Sampling and Data Collection	3
Sample and Participants	4
Teacher interviews	4
Student focus groups	4
Instruments	4
Teacher interview guide	4
Student focus group protocol	4
Procedure	5
Teacher interview	5
Student focus groups	5
Data Analysis	5
Teacher interviews	5
Student focus groups	6
Findings	7
Blended Course design	7
(1) Integration of Course Activities fitting the Learning Goals (teachers)	7
(2) Appropriate use of online and on-campus modalities (teachers and students)	8
(3) Accessibility (teachers)	9
(4) Choice and Flexibility (Students)	10
(5) Transparency and clarity of course expectations and structure (teachers and students)	11
Integrating digital tools in Blended Courses	12
(1) Stimulating and Facilitating Student-Student Interaction and collaboration (teachers)	12
(2) Relating content to practice, real life, and students' interests - Using technology to engage students (teachers)	13
(3) (Self)-monitoring of students' learning processes (teachers)	14
Conclusion	16
References	18
Appendix A: Overview of Blended Courses	19

INTRODUCTION

Digitalization has been high on the agenda of many European higher education institutions. While online teaching became a necessity during the Covid-19 pandemic, this situation also brought along a renewed recognition of the value of on-campus teaching and learning (El-Soussi, 2022). More recently, Blended Education (BE), in which online and on-campus aspects are combined, is becoming an increasingly popular delivery mode (Gaebel et al., 2021). BE can be generally defined as the thoughtful and conscious integration of online and on-campus activities in the context of a course or programme, where both types of activities are well-aligned and intended to reinforce each other (Oliver & Trigwell, 2005; Prinsen & Terbeek, 2021; Van Valkenburg et al., 2020).

A previous literature review study (Bruck et al., 2022a) into characteristics of effective and meaningful BE has shown that there is not a “one-size-fits-all”-approach in BE and that educators should always carefully consider their blended course design and teaching in light of the specific course (e.g., learning goals) and educational context (e.g., availability of technology) at hand. This might pertain to choices made about what activity should take place online or on-campus and with what goal, but also to how to meet students’ needs regarding, for example, differentiation in instruction and flexibility in choosing their own learning pace. Thus, the success of BE depends on several contextual factors, and more insight is still needed into what works under different circumstances and for different learning goals.

This study is part of a larger study investigating BE at the University of Amsterdam (UvA) at the request of the Executive Board of the UvA. When it comes to BE, lecturers at the UvA are still experimenting and discovering what works. Moreover, there is little in-depth insight into why teachers make certain choices in designing and teaching blended courses, for example concerning the online versus on-campus ratio, digital tools or the teacher role. Hence, a qualitative approach was chosen to complement findings from a previous survey report into BE practices at the UvA (Bruck et al., 2022b). In this study we investigate what features of blended courses were perceived as successful by students and lecturers, in order to inform further development and improvement of BE at the UvA. The following research question guided the study: “*What makes blended courses successful in the experience of teachers and students?*”. We did not define the term successful beforehand, but instead focused on what teachers and students themselves consider a successful course. Answers to this question were sought by means of interviews with teachers, who taught and developed one or several blended courses at the UvA, and focus groups with students who followed these courses.

METHOD

DESIGN

This study aims to provide an inventory of course design characteristics and teaching practices that contribute to the success of a blended course, from the perspective of the teachers and students involved. Given that a previous quantitative study indicated strong variation in UvA teachers' blended course decisions and perceptions regarding BE (Bruck et al., 2022b), this study sought to provide more context-rich insight into BE. In order to gain an in-depth understanding into what contributes to the success of blended courses within a given context, the study used a qualitative approach to analysing teacher and student perspectives. This was done in a sequential manner by first interviewing teachers and subsequently interviewing students in focus groups about the same courses that teachers were interviewed about.

SAMPLING AND DATA COLLECTION

A mixture of purposeful and convenience sampling techniques was used in this study. For the interviews, teachers were recruited through a survey about BE practices that was distributed UvA-wide. Teachers could leave their contact details if they were interested in participating in a follow-up study and were considered eligible to participate if, in the survey, they indicated having experience with both designing and teaching blended courses. We aimed to recruit at least two teachers per faculty, to have a balanced representation of bachelors' and masters' courses, as well as courses with smaller (<50 students) and larger (>100 students) numbers of students. This was especially important given that previous literature indicated vast differences across academic disciplines in the usage of and preferences about learning technology (Buzzard et al., 2011).

Students who followed the courses taught by the teachers that participated in an interview were recruited. The reason for restricting recruitment to these students was ensuring that, for each blended course included in the study, both the students' and teacher perspectives were available. As Oliver and Trigwell (2005) caution, when connecting learning theory to blended learning in practice "*we must start from the position that many students may not experience the learning environment as one that is blended in ways similar to the way intended by the 'instructional designer'*" (p. 24). The students were recruited through an announcement placed by the teacher on the course learning management system (LMS) Canvas. Students could then contact the researchers via e-mail if they wanted to participate in the study. In a similar way as with teachers, the aim was to have one focus group of students for each faculty (eight in total). Because of time constraints and recruitment issues (e.g., not being able to reach students who had already graduated or finished the course), focus groups with students were held for five of the eight faculties.

SAMPLE AND PARTICIPANTS

TEACHER INTERVIEWS

In total, 18 interviews were conducted with 18 teachers (8 male, 10 female) from all faculties at the UvA (Faculty of Economics and Business [FEB], Faculty of Humanities [FGw], Faculty of Law [FdR], Faculty of Medicine [AMC], Faculty of Social and Behavioural Sciences [FMG], Faculty of Dentistry [ACTA], and Faculty of Science [FNWI], plus Amsterdam University College [AUC]). For FEB and FMG, three interviews were held. For each of the other faculties and AUC, two interviews were held. Of all the interviews, 13 were about bachelor's courses and five about master's courses. In Appendix A, an overview of the blended courses included in the sample is presented.

STUDENT FOCUS GROUPS

Seven focus groups ($N = 21$, 6 male and 15 female) were held with students from five different faculties at the UvA, including AMC, FGw, FMG, FNWI, and FEB. Only students who had followed a blended course by one of the interviewed teachers were included in the sample. Two focus groups were on master's courses and the remaining sessions were about bachelor's courses. No focus groups with students were held at FdR, ACTA and AUC.

INSTRUMENTS

TEACHER INTERVIEW GUIDE

Teachers were interviewed with a semi-structured interview guide. After a brief introduction, teachers were asked about (1) their work at the UvA, (2) their experiences with and definition of BE, (3) a description of their blended course, (4) the course structure (e.g., integration of online and on-campus activities, the use of digital tools), (5) their teacher role, (6) their reflection on the course (i.e., challenges and opportunities while designing and teaching the blended course), and (7) a take home message in the form of advice to other teachers. The interview guide was piloted with 2 teachers. The pilot did not lead to any major adaptations. Therefore, the pilot interviews were included in the analyses.

STUDENT FOCUS GROUP PROTOCOL

Focus groups were guided by a semi-structured protocol. After an introduction stating the goal of the session and some practical and privacy-related matters, participants were asked to introduce themselves. A warming-up activity followed, in which students shared their ideas about 'ingredients' of blended education. Thereafter, participants were encouraged to discuss the following topics: (1) experiences with the blended course (i.e., (integration of) online and on-campus learning activities), (2) experiences with interaction between students and with the teacher in the blended course, and (3) the teacher role in the blended course. Each topic was

introduced with an activity using the Whiteboard of Zoom (e.g., students were asked to write down activities that took place on-campus or online), after which a group discussion followed. The focus group was wrapped up with a short scenario activity in which students were asked to reflect on the role of BE in the future. The pilot focus group with four students did not lead to any major adaptations and was therefore included in the analyses.

PROCEDURE

TEACHER INTERVIEW

Nine of the participating teachers were approached via the survey and nine teachers were recruited via personal networks. Of these participants, two were approached for a pilot. Data was collected between May 2022 and November 2022. Interviews took place either online via Zoom or at the campus in person and were audio recorded. All interviews lasted between 30-60 minutes and were either done in Dutch or in English, based on the preference of the participant. For each interview, one interviewer and one moderator were present. For participating, teachers received a thank you card and a box of chocolates.

STUDENT FOCUS GROUPS

Seven focus groups (minimum of two participants, maximum of six participants) were held online via Zoom, either in Dutch or in English. All the sessions were both audio and video recorded, and each lasted 70-90 minutes. For each session, one interviewer and one moderator were present. Student data was collected between July 2022 and November 2022. For participating, students received a 15-euro gift card.

DATA ANALYSIS

TEACHER INTERVIEWS

All data were transcribed and subsequently analysed by two researchers, using the software package ATLAS.ti (version 22). Major decisions in this process were discussed in the research team. As a start an a priori codebook was used to guide the analyses of the interview data. This codebook was derived from the interview guide, which was based on insights from a previously conducted literature review (Bruck et al., 2022a). During the analyses new codes emerging from the data were noted. Consensus on the coding was reached by trial coding two interviews, and through comparing the codes assigned. Discrepancies between the two researchers' understanding and application of the codebook were discussed until consensus was reached. When in doubt, a third researcher was consulted.

During the final phase of the analysis, emerging themes were identified from the coded material by looking for patterns among the codes and corresponding quotations. Agreement about themes was reached among the two researchers in consultation with the

larger research team. The themes are presented in the findings section, which is also structured according to the main themes.

STUDENT FOCUS GROUPS

All data were transcribed and subsequently analysed with the software package ATLAS.ti (version 22). In order to identify relevant themes from the student data, a reflexive thematic analysis approach was used. As described by Braun and Clarke (2019), this method does not involve the use of a codebook, but instead, the themes are derived directly from the data in a flexible and reflexive manner. As with the teacher interviews, this analysis was mainly done by two researchers who periodically consulted with the rest of the research team, and each other, to address any discrepancies and ensure common ground. Each of the researchers started by identifying and separating quotes which seemed relevant to the overall research aim of identifying elements of blended courses which, according to the students, made the course a successful course. After initial codes were assigned to these quotes, the researchers combined their insights to cluster the codes that came up as most prominent into global themes.

FINDINGS

In this chapter we answer the research question “*What makes blended courses successful in the experience of teachers and students?*”. As mentioned before, we did not start from an a priori definition of ‘successful’, but instead focused on what teachers and students themselves consider a successful blended course. From both teacher interviews and student focus group data it became clear that teachers and students found blended courses successful when these contributed to student engagement or activation, and to student autonomy.

The findings are presented according to the themes that were identified during the analyses. We first address themes pertaining to the *design of* blended courses and then themes pertaining to the *use of digital tools* in blended courses are discussed. For both aspects we first discuss what makes blended courses successful in the experience of teachers and then focus on students’ experiences.

BLENDING COURSE DESIGN

In the teacher interviews, three themes came to the fore that pertain to the design of blended courses. First, teachers emphasized that the blend of activities in a course is a means to work towards the learning goals. This means that for a successful blended course design, a thoughtful integration of online and on campus activities with the learning goals in mind, is crucial. Second, teachers explained how they integrated online or web-based asynchronous elements and on-campus elements in such a way that each was used for activities that they were most suited for. The importance of making appropriate use of online and on-campus modalities was also mentioned in the student focus group. Third, the accessibility of a blended course was considered an important aspect of successful BE. In the focus groups with students, the two most important themes pertaining to successfully designed courses were choice/flexibility and transparency. The latter theme was also considered important by the teachers. Below we elaborate on each of these five themes, namely: (1) Integration of course activities fitting the learning goals (2) Appropriate use of online and on-campus modalities, (3) Accessibility, (4) Choice/flexibility, and (5) Transparency.

(1) INTEGRATION OF COURSE ACTIVITIES FITTING THE LEARNING GOALS (TEACHERS)

It has already been pointed out that there is no “one-size-fits-all” formula for deciding about the ratio of online to face-to-face instruction, and no specific digital tool that outperforms all others regardless of which classroom it is used in (Bruck et al., 2022a). Teacher interviews confirmed that indeed, depending on what the learning goals of a course are, different blended formats can be appropriate. Teachers experienced a blended course as successful when learning activities were integrated in a way that fits the intended learning goals, as illustrated by this teacher (FMG):

(..) Everything you do should actually have some kind of function (..) If you do something that falls outside those [learning] goals or that falls outside of what is necessary, then students lose interest. (..) You should not do something that (..) does not really bring anything to the students.

(2) APPROPRIATE USE OF ONLINE AND ON-CAMPUS MODALITIES (TEACHERS AND STUDENTS)

When teachers were asked about how they made decisions regarding the integration of online and on-campus activities and choosing digital tools for their blended course, two trends stood out. Teachers used on-campus activities to foster interaction and online activities for knowledge transfer (e.g., by means of knowledge clips). These trends were also supported by the students.

Using contact moments for interaction and engagement

Most teachers preferred to use on-campus activities to foster interaction and collaboration. To achieve this, teachers made use of a flipped classroom format in which face-to-face meetings are dedicated for in-depth content discussion and elaboration and are preceded by web-mediated instruction. As one teacher (FMG) explained:

(..) if they [students] have questions [after web-mediated instructions], they can always ask them during a face-to-face classroom session, and that gives a lot more time to engage in discussion during a class. So, in fact, a blended format makes the contact increase and not decrease.

Teachers found the flipped classroom design successful, mainly because the web-mediated instruction element stimulated students to come prepared to class (e.g., by watching a knowledge clip or taking a quiz), which enabled them to contribute to discussions in class. Not only can this kind of structure create time for an interactive and collaborative learning experience during contact moments, it can also serve as a way of linking on-campus contact moments with students' work at home. A teacher (FGw), for example, described how she organized her course in a way that students were first asked to watch a recorded lecture, following which they started her on-campus class with a question related to the material. In subsequent lectures she referred to questions raised by students in the on-campus class discussion in order to address concepts that were left unclear or raised interesting discussion points.

Using knowledge clips for knowledge transfer

Teachers experienced *knowledge clips*¹ as a useful way to offer preparatory materials in a blended course. According to teachers, knowledge clips increase efficiency and flexibility, both for the teacher and the students, as teachers only have to record this once and students don't have to come to class and can choose when to watch them. Knowledge clips were also mentioned to prevent passivity among students, by activating them and thus stimulating their "information absorption", and to optimise knowledge transfer, because students are able to

¹ This is a video in which content information is efficiently captured, often replacing the classical lecture or used as an additional means (either complementary or additionally to the book, readings, and/or lectures) for students to learn the course content.

pause the video and rewatch parts of the video. Also, difficult subject matter can be offered to students in manageable parts.

Students mentioned preferences regarding what activities take place online and what on campus that were similar to those of the teachers. Several students expressed that on-campus activities should focus on facilitating interactive and collaborative learning. Instruction activities, such as lectures, can be offered online. Thus, also according to students, the setting in which an activity is organised should fit the purpose and learning goal of that activity.

(3) ACCESSIBILITY (TEACHERS)

An important contributor to the success of a blended course brought up by teachers in the interviews was ensuring accessibility of their courses. Teachers reported two ways in which blended courses could contribute to increasing accessibility: differentiation and flexibility.

Providing accessibility through differentiation

Some teachers touched upon accessibility in relation to students' abilities and personal disposition. For example, one teacher (AUC) discussed working with a very heterogeneous group with students of varying degrees of expertise. The teacher provided that students could interact with the content at their own pace through recorded lectures. This was done to accommodate students' needs regardless of their level of background knowledge, while also ensuring that this did not increase the differences in learning outcomes. In this case, the digital element in the blended course is used to differentiate the content for students with varying levels of expertise.

This same teacher also described how student experience was taken into account when choosing which digital tools to introduce in the course:

So, look at these kinds of questions - Is it coherent? Does it fit? Or is it going to confuse the students? With students who are more advanced, I would not mind keeping throwing at them different tools (..) But with first year students, where they are still trying to learn the basics, I would be very careful with throwing too much on them. Some of them are technologically very quick, others need time to get used to the tools as well (..).

In another example, a teacher (FMG) structured the course in a way that catered to the preferences of different students:

Some students like to have a book and clarity (..) And others want depth and will read that book themselves (..) So, I wanted to find a form where I serve both groups of students. On the one hand, I thought there should be some kind of structure (..) with a very clear division. But, also that depth for people who want to be stimulated more. (..) That is how I came up with the idea of a basic lecture and an in-depth lecture. (..) In that first hour I tell the basics, what is in the book (..) In the second hour, I invite a guest lecturer to talk about their expertise, which is linked to that basic lecture.

Providing accessibility through flexibility

In most cases, teachers discussed accessibility in terms of designing for flexibility in time, location, and access to digital content. For example, at ACTA teachers try to accommodate students who have to commute to campus often due to the demands of their program (such as lab activities [*practicum*]) by offering online modules that provide increased flexibility in time and place. One ACTA-teacher described how these online modules were followed by students throughout the year to complement the on-campus clinical practice education. Besides, these modules were also open for students from other institutions who wished to enrol in them, thereby increasing accessibility beyond the program itself.

(4) CHOICE AND FLEXIBILITY (STUDENTS)

Flexibility was also one of the central themes in the student focus groups. However, whereas teachers saw the flexibility that a blended course can offer as a way to improve the accessibility of the course, for students flexibility made a course attractive because it implies choice. Although students indicated personal preferences for doing coursework either online or on-campus, they agreed that a successful blended course has a flexible design. Students appreciate blended courses where both on-campus and online activities are offered and where students can decide themselves whether they want to study online or on-campus. Several students explained that, while their preference lies in attending classes in-person, they liked to have alternative options available for practical reasons, such as in cases of illness. For example, one student (FGw) expressed:

I enjoy on-campus learning and I feel like it suits me and helps me to keep on track. But sometimes there are situations that (..) do not allow us [students] to follow a lecture to the greatest of our abilities. So, I feel like the positives of keeping online lectures available outweigh the negatives.

Other students also described that, since they work alongside studying, having the possibility to follow lectures online or to revisit old recordings was helpful.

Some students also discussed the benefits of this flexibility in accommodating their learning preference. For example, one student (FMG) expressed a preference for holding interactive and collaborative activities in-person, but found following lectures from home more efficient and fitting their learning preference:

Anything that is interactive and needs participation, I would like that on campus (..) A lecture is a one-way street most of the time. (..) And if I ask questions, that usually takes me a while (..) I never really ask questions during the lecture. So, for me, it is easier to watch it at home. (..) I usually work throughout the day, so for me that is easy to combine. Plus, you can watch it faster (..) That is a big win for me.

Another student (FEB) described how having flexible means of communication within a blended course accommodated their disinclination towards public speaking:

I think [communication] works differently in terms of in private or publicly. Even though I can share my opinions publicly, I feel more comfortable sharing it personally with teachers or the persons I

specifically want to share it with. I think that matters in BE, because if we totally go traditional [i.e., on-campus] or online, then students like me do not have the choice and we need to force ourselves to speak out publicly.

Thus, a blended course can offer students choice can in how they prefer to communicate and voice their opinions. However, this might also be a pitfall, because an important aspect of higher education is to learn to speak publicly.

(5) TRANSPARENCY AND CLARITY OF COURSE EXPECTATIONS AND STRUCTURE (TEACHERS AND STUDENTS)

Besides choice and flexibility, students found transparent and clear course expectations important. Specifically, given that blended courses often involve students working in different environments, students expressed that what made some courses stand out was having a clear and comprehensive overview of what was expected of them both online and on-campus. To illustrate, one student (FMG) emphasized the importance of clarity in a blended course, especially relating to the modalities:

It really is the best course in terms of structure that I have taken at university so far. It was so clear and manageable, like, okay I just have to do this for every class. (..) I can do this from home, and for this I have to come to campus. I think a lot of teachers can take that as an example.

In addition to having a clear overview of course expectations and structure, students mentioned that the added value behind a certain blended course structure should be clear. They appreciate when the reasons behind certain course-related decisions (e.g., why a certain activity is organised online) are clear.

Teachers in our sample indeed saw providing structure for students and frequently communicating about this as an important teacher task in blended courses. Some teachers described using specific digital tools to create a structure and overview for students, such as the platform LabBuddy/ExperD at FNWI. Similar to the Miro Whiteboard, the FNWI-teacher used the platform LabBuddy/ExperD for larger groups of students (i.e., more than 10) to communicate and collaborate, assign tasks, map out ideas, and to organize and keep an overview of the assignments. The teacher described it as “a digital version of a ring binder”. Students can also receive immediate feedback in this platform. According to the teacher, these platforms were successful in motivating students, making them aware of and understand the course matter better, but above all creating more structure and overview for students:

(..) Students nowadays are much more visual, much more digitally inclined [than before] (..) I notice that the visual aspect, (..) that helps with the overview, because before there was no overview. (..) Before, you just got a stack of generic protocols and now it is broken up by week (..).

INTEGRATING DIGITAL TOOLS IN BLENDED COURSES

When asked what made their blended courses successful, many teachers' answers pertained to the digital tools they used to promote certain qualities in their course. It thus seems like teaching a blended course for many teachers goes hand in hand with increased use of digital tools, both in the online and the on-campus parts of the course. In this section we therefore discuss how teachers used digital tools for (1) Stimulating and facilitating student-student interaction and collaboration, (2) Relating content to practice, real life, and students' interests, and (3) (Self-)monitoring of students' learning processes.

(1) STIMULATING AND FACILITATING STUDENT-STUDENT INTERACTION AND COLLABORATION (TEACHERS)

Using digital tools to facilitate interaction and collaboration

In BE, there are unique opportunities to facilitate and encourage interaction between students by integrating digital tools, that are either used outside of class or during classroom time, to work on course-related assignments or activities. One teacher from FWNI used an interactive whiteboard in Miro in her blended course to facilitate collaboration between students. By means of group assignments on the whiteboard, students were able to work together on this both at home or in class. This was illustrated by the teacher:

Usually, I try to have students in a group collect all kinds of ideas, collect questions, also visualize ideas sometimes on such a board. So, it can vary (...) I come up with something different every week. I've also had them work on a storyboard or a game.

Another teacher, also at FNWI, mentioned using the platforms LabBuddy and ExperD to accommodate collaboration between larger groups of students (i.e., more than 10). Both tools similarly allowed the teacher to monitor students' learning and collaboration processes. These kinds of platforms are preferred by teachers over Canvas because of the functionalities they offer, as was elucidated by this teacher (FNWI):

Canvas is for discussions. If I just want them to respond to a certain statement (...) In the reaction to each other I think just the discussion forum of Canvas is fine. (...) But (...) with this kind of interactive whiteboard you just have a lot more options. You can create anything on it (...) And often there are entire assignments or schemes mapped out on it (...).

On campus, infrastructure is important for facilitating collaboration between students. For example, at the FdR, teachers can book so-called active learning spaces. This is a hall especially designed for co-working between students. It is a larger hall that can host around 90 students but can be divided up in three smaller rooms with sliding doors for 30 students each. Groups of students are seated at different tables together and the teacher walks between those tables and assists where necessary. These learning spaces are meant to activate students by facilitating collaborative activities for discussing the materials more in-depth. In the active

learning spaces technology is available to facilitate collaboration between the students and to facilitate the interaction between teachers and students.

Using digital tools for peer feedback

Besides having students work together on assignments, tools like LabBuddy can also facilitate peer feedback. Another and less faculty-specific tool for peer feedback is Perusall, which was used by several teachers across faculties. One teacher at the FEB mentioned using Perusall to increase interaction among students by having them answer each other's questions about the materials and giving peer feedback, instead of assigning this role to the teacher:

You can clearly see most students saying, “I don't understand this, can someone explain this to me?”, Perusall works very well for that. [*Question interviewer: So, there is also some interaction between students, that takes place there?*] Yes only. That's the point of it. (..) It works very well for the students who actively participate in it.

(2) RELATING CONTENT TO PRACTICE, REAL LIFE, AND STUDENTS' INTERESTS - USING TECHNOLOGY TO ENGAGE STUDENTS (TEACHERS)

Technology offers new opportunities to engage students by relating course content to practice, real life, or students' personal interests. In some blended courses, teachers used various digital tools and organized learning activities designed to simulate tasks which are authentic and relevant to the field. These provided students with an opportunity to practice skills in a safe and controlled environment. For example, one teacher (AMC) described a preparatory course for psychiatry and psychology students which takes place before their clinical internships. The course included several interactive modules which aimed to simulate various mental disorders both from the perspective of mental health professionals working to treat them, as well as the individuals experiencing them. For example, the teacher explained working with break-out rooms to facilitate a role-playing activity where one student took on the role of a patient, and a classmate took on the role of their psychologist. Some learning modules in the course also involved students coming to campus and following a story or case (e.g., about having a depressed or anxious roommate), introduced in an interactive digital learning game. The teacher stressed that the benefit of providing such activities was that it helped students see connections between theoretical concepts and their real-life applications and relevance.

Similarly, at AUC an excursion was virtually re-enacted in the classroom to simulate a realistic, real-life excursion to a geographical location of interest. In this virtual excursion, students can walk around and look at panoramas, as well as zoom in on and study digitalized 3D objects. While doing this, students are presented with short descriptions of the objects in question and are asked to do research-based assignments. Students are also encouraged to discuss these in class. The teacher walked around in class to monitor students' learning process, answer questions, give explanations, and guide the excursion, as pointed out by the lecturer:

That feedback is really important, because they do not see it by themselves (..) I want to be there (..) Because I want to point things out to them and when there are questions, I want to show them that. (..) I try to re-enact that [excursion feeling] (..).

According to the teacher, these types of excursions are successful because they are comprehensive and clearly organized, as well as inclusive. Also, the excursion takes place in a controlled environment, which the teacher described as follows:

I can think it all through. You can make it completely teachable (..) No matter if it is raining or not, it is all possible. Yes, and of course that is not the case in real life. Then a lot happens.

An example of how the blended character of a course and the use of digital tools can be used to relate the content discussed in meetings to the students' needs and interests, was provided by an FNWI teacher. This teacher used Miro and Canvas throughout the course to get input from students for seminars, and thus aligned online and on-campus activities.

With those Miro boards or on Canvas (..) I try to gather input for the seminar. (..) It is not like (..) I have already figured out exactly what we are going to do. It is really based on that board that I try to see, what do students come up with themselves? What do they find interesting or what are the problems in their understanding of the matter? (..) And that is what I am building on. Often also in the seminar itself with the same (..) whiteboards.

Thus, the blended format enabled the teacher to be actively in touch with students' needs and interests regarding the course, as well as to respond to these.

(3) (SELF)-MONITORING OF STUDENTS' LEARNING PROCESSES (TEACHERS)

Using technology for monitoring student learning

The use of digital tools in blended courses creates unique opportunities for teachers to closely and actively monitor students' learning processes. Moreover, digital tools can enable the teacher to be aware of the students' learning process and progress, questions that arise, and potential roadblocks during the course. Various digital tools were used to address these aspects, either asynchronously outside of the classroom, or during on-campus activities such as in the aforementioned example of the virtual lab (AUC). LabBuddy/ExperD (FNWI) provides such options as well, where the teacher has access to the environment in which students are working, and is also accessible for questions. Additionally, the Microsoft (MS) Teams environment was highlighted by one teacher (FdR) as a means to follow students' progress on assignments, but also to see the work done by specific students and overcome the so-called 'free rider problem':

If there are signals that something is not right, then you [the teacher] can really find out to the closest detail who [students] did what [in a group assignment] (..). So, you get a much richer picture of students' efforts by using the Teams platform. (..) Teams is a very rich environment for regulating the processes and interaction between students and between the student and the lecturer.

Thus, besides being able to meet students' needs, the Teams environments also enabled teachers to monitor whether students are carrying out assignments in a fair way.

Using technology to facilitate student monitoring of their own learning

Given that blended courses often involve students working with course material asynchronously (e.g., within a flipped classroom format), several teachers noted the importance of providing students, along with opportunities to explore the material at their own time and pace, with opportunities to gauge their own understanding of the course material. This was often done in the form of online quizzes or interactive activities which would provide students with immediate feedback, and allow them to repeat the activities as many times as they need.

CONCLUSION

In this qualitative study, we examined the following research question: “*What makes blended courses successful in the experience of teachers and students?*”. In answering this question, teachers and students mentioned characteristics pertaining to the design of a blended course as well as to the use of specific digital tools in such a course. At a closer look, we can also distinguish two different ways in which teachers and students have answered the question. On the one hand they pointed out conditions for making blended courses successful, on the other hand they identified opportunities that a blended format offers to make a course successful. Below we summarize the findings by reformulating those conditions and opportunities in terms of design principles.

Conditions for making blended courses successful

1. Integrate learning activities in a way that fits the intended learning goals;
2. Use online and on-campus modalities for activities that they are most suited for (e.g., contact moments for interaction and engagement; knowledge clips for knowledge transfer);
3. Make sure that course expectations and structure are transparent and clear;
4. Use digital tools to facilitate interaction, collaboration and peer feedback.

Teachers purposefully aligned different learning activities (i.e., online and on-campus) with a focus on the learning goals (condition 1). They realized this by using a flipped classroom format in which online activities focused on knowledge transfer (often with the help of knowledge clips) and (on-campus) contact moments focused on fostering interaction and engagement (condition 2). This was also experienced by the students as a successful organization of a blended course, because it brought structure (condition 3). Such approach allowed for efficiency for teachers and flexibility for students. Finally, blended education seemed to foster teachers’ use of digital tools both in online and on campus teaching (condition 4). They used digital platforms for collaboration and peer feedback and used VR or digital games to make content interesting and meaningful to students.

Opportunities offered by blended education

1. Make education accessible by (a) offering students flexibility (in time, location) and (b) differentiating (adapting the course content to students’ needs);
2. Offer students choice in whether they want to study online or on-campus and in ways of participation;

3. Engage students by relating content to practice, real life and students' interests;
4. Use technology for monitoring student learning and to facilitate student monitoring of their own learning.

Teachers and students found the potential to provide for flexibility and differentiation an important opportunity of blended education. Teachers offered students online materials that were accessible at any time and place. In terms of differentiation teachers provided online materials that complied with different student needs and backgrounds. This made it possible for students to (partly) choose whether they wanted to study online or on-campus. Teachers purposefully used the opportunities of digital technologies to engage students (VR, digital games) and to monitor their progress by providing immediate feedback through simple quizzes and using tools such as MS teams.

REFERENCES

- Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11(4), 589-597. <https://doi.org/10.1080/2159676X.2019.1628806>
- Bruck, S., Van Loenen, B., Vermeulen, E. J., Pareja Roblin, N. N., Cornelissen, L. J. F., Voogt, J. M., & Volman, M. L. L. (2022a, December). *Characteristics of effective and meaningful blended education: A literature review*. https://tlc.uva.nl/wp-content/uploads/2023/02/221220_Literature_Review_Final_Version.pdf
- Bruck, S., Van Loenen, B., Vermeulen, E. J., Pareja Roblin, N. N., Cornelissen, L. J. F., Voogt, J. M., & Volman, M. L. L. (2022b, December). *Blended Education Practices at the UvA: An Online Survey Report*. https://tlc.uva.nl/wp-content/uploads/2023/02/221222_Survey_Report_Final_Version.pdf
- Buzzard, C., Crittenden, V. L., Crittenden, W. F., & McCarty, P. (2011). The use of digital technologies in the classroom: A teaching and learning perspective. *Journal of Marketing Education*, 33(2), 131-139. <https://doi.org/10.1177/0273475311410845>
- El-Soussi, A. (2022). The shift from face-to-face to online teaching due to COVID-19: Its impact on higher education faculty's professional identity. *International Journal of Educational Research Open*, 3, 100139. <https://doi.org/10.1016/j.ijedro.2022.100139>
- Gabel, M., Zhang, T., Stoeber, H., & Morrisroe, A. (2021, January). *Survey report: Digitally enhanced learning and teaching in European higher education institutions*. DIGI-HE. <https://eua.eu/downloads/publications/digi-he%20survey%20report.pdf>
- Oliver, M., & Trigwell, K. (2005). Can 'blended learning' be redeemed?. *E-learning and Digital Media*, 2(1), 17-26. <https://doi.org/10.2304/elea.2005.2.1.17>
- Prinsen, F., & Terbeek, L. (2021, July 21). *Blended onderwijsontwerp en digitale didaktiek*. Onderwijskennis.nl. <https://www.onderwijskennis.nl/artikelen/blended-onderwijsontwerpen-digitale-didaktiek>
- Van Valkenburg, W.F., Dijkstra, W.P., De Los Arcos, B., Goeman, K., van Rompaey, V., & Poelmans, S. (2020, May). *European maturity model for blended education*. EMBED. <https://embed.eadtu.eu/download/2470/European%20Maturity%20Model%20for%20Blended%20Education.pdf?inline=1>
- Wildeman, IJ. (2022, January). *Visie Blended Onderwijs*. <https://www.uva.nl/en/about-the-uva/policy-and-regulations/policy/education-policy/educational-innovation-and-blended-education/educational-innovation-and-blended-education.html>

APPENDIX A: OVERVIEW OF BLENDED COURSES

Overview of Blended Courses in Sample

<i>Faculty</i>	<i>Programme/discipline</i>	<i>Course size</i>	<i>Level</i>	<i>Blended course structure</i>
FEB	Actuarial Science & Econometrics	131-141	BA	Flipped classroom: <ul style="list-style-type: none"> • With the sequence: preparatory material and lecture (asynchronous), and tutorial session (on campus)
FEB	Accountancy & Control	149	MA	Flipped classroom: <ul style="list-style-type: none"> • With the sequence: preparatory material and lecture (asynchronous), and tutorial session (on campus)
FEB	Accountancy	30-40	MA	Enriched virtual model: <ul style="list-style-type: none"> • All meetings conducted in classrooms fully equipped for hybrid instruction (i.e. with cameras, microphones and speakers) • Students required to be physically present for at least 70% of lectures • Asynchronous work (i.e. preparatory work, homework, etc.) done in a web-based learning environment (Jupiter)
FMG	Pedagogical Sciences	85	BA	<ul style="list-style-type: none"> • Flipped classroom: Lectures that were recorded beforehand and watched by students at home, explaining the study material. • Tutorials on campus using (inter)active work forms to discuss the study material.
FMG	Communication Science	54	MA	Flipped classroom: <ul style="list-style-type: none"> • Preparatory work (Canvas assignments, desk research, online readings, etc.) followed by interactive, problem-based assignments (fieldwork, group presentations, individual presentations)

FMG	Psychology	± 300	BA	<p>Flipped classroom</p> <ul style="list-style-type: none"> • Preparatory work (e.g. practice assignments, microlectures, weekly assignments with feedback, etc), followed by interactive, problem-based activities (e.g. role play exercises, takeaway assignments, group work, etc.) • Lectures focused on reading materials and online assignments (both online and face-to-face) • Tutorials used to illustrate and train skills <ul style="list-style-type: none"> ○ Role play in small groups (via Zoom), followed by video analysis with written reports and online peer feedback.
FdR	Property Law	588	BA	<ul style="list-style-type: none"> • Flipped classroom: Lecture (digital in form of thematical mini lectures, watched by students at home). • Response (Q&A) lecture with a problem-based assignment • Tutorial, in which homework exercises are discussed, group assignments are carried out, and depth is sought into the material. Focus is on active participation and collaboration. • Weekly quizzes about material with digital feedback.
FdR	-	32	BA	<p>Rotation:</p> <ul style="list-style-type: none"> • Students rotate between collaborative learning in small discussion groups (on-campus), and practice-based work with clients in larger groups (online) <p>Hybrid format used (only if necessary) to offer students the option to attend class online in case of quarantine or illness</p>
FGw	European Studies	169	BA	<p>Flipped classroom:</p> <ul style="list-style-type: none"> • Preparatory work (e.g. pre-recorded lectures, weekly readings, etc.) introduced online (asynchronously) followed by problem-based work on-campus (e.g. discussing the recordings or weekly readings, presentations, written tests, etc.)
FGw	Hebrew	5	BA	<p>Flipped classroom:</p>

				<ul style="list-style-type: none"> • Preparatory work (e.g. pre-recorded lectures, weekly readings, etc.) introduced online (asynchronously) followed by problem-based work on-campus (e.g. discussing the recordings or weekly readings, presentations, written tests, etc.)
AMC	Medical Information Science	33	BA	<p>Flipped classroom:</p> <ul style="list-style-type: none"> • Preparatory work using readily-available online material (e.g. YouTube videos, Kahn Academy) followed by on-campus activities including Q&A sessions, written tests and workgroups.
AMC	Psychiatry Internship	-	MA	<p>Rotation:</p> <ul style="list-style-type: none"> • Students rotate between preparatory work done asynchronously (i.e. pre-recorded videos, interactive online tools, etc.) and team-based learning done in small groups on-campus, which included a VR-simulation module (done in supervision of a mental health professional, in order to assure the comfort and safety of students)
ACTA	Radiation Protection	180	MA	<p>Supplemental</p> <ul style="list-style-type: none"> • Team-based online modules done in conjunction with an overarching course in which student. Activities (all online) included: <ul style="list-style-type: none"> ○ Lectures or videos explaining the material ○ Response (Q&A) tutorials after each assignment ○ Individual meeting with teacher
ACTA	Oral Medicine	-	BA	<p>Flipped classroom:</p> <ul style="list-style-type: none"> • Preparatory and theoretical work done online, followed by more interactive, applied learning done on campus (e.g. practical labs, feedback moments, etc.)
FNWI	Life Sciences (Neurobiology)	40-50 (max. 60)	BA	<p>Rotation:</p>

				<ul style="list-style-type: none"> • Students rotate between on-campus work (including lectures, tutorials, symposiums and lab work) and online learning (preparatory readings, feedback moments, etc.)
FNWI (IIS)	Interdisciplinary Studies	Max. 300	BA	<p>Flipped classroom:</p> <ul style="list-style-type: none"> • Preparatory work (done online) followed by on-campus symposiums and seminars with guest lectures
AUC	Geological Sciences	-	BA	<p>Virtual excursion based course, in which students work through a virtual (digital) excursion within the on campus classroom context. The following activities are included:</p> <ul style="list-style-type: none"> • On-campus interactive meetings • Lab assessments and “note book” on laptops during on campus activities • Presentations on campus
AUC	Logic	-	BA	<p>Flipped classroom:</p> <ul style="list-style-type: none"> • Screencasts, lecture notes and other reading material and digital support beforehand (online) • Quiz at beginning of on-campus class (in e-learning platform) • Interactive and experimental class on-campus, discussion focused • E-learning materials to practice outside of class