Integrating Digital Media in Higher Education Teaching

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Abstract

As evaluations during the summer semester 2020 have shown, the integration of digital media in higher education largely consisted of basic applications, and digital teaching scenarios often lacked didactical consideration. Large-scale implementation attempts were hindered by perceived mismatches between efforts and outcomes, or by ambiguous ideas of what works and what does not. Thus, didactical services supporting scenarios of teaching and learning have developed schemes, trainings, and materials that are useful, approachable, and time efficient. With OdiLe and ABC, we propose a focused, yet comprehensive approach on how digital media can easily be integrated in higher education teaching.

Keywords

digitalization; quality of teaching; training; media competencies; learning design

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1 Introduction

The digitalization of teaching in higher education has become an important prerequisite of educating students in universities (KMK 2017; Ridsdale et al. 2015; HFD 2018). Digital scenarios are supposed to up flexibility and enhance the transfer of digital skills and media competence (cf. Carretero et al. 2017). Lecturers[1], thus, require didactical and digital competencies for designing, implementing and embedding digital formats (Jokiaho 2018; Grabowski & Pape 2016; Eichhorn et al. 2017). However, teachers often held reservations against digital scenarios (cf. Schünemann & Budde 2018; HFD 2016). Advantages of digital teaching were fuzzy and implementing digital scenarios was primarily associated with additional workload (Goertz 2018; Schmid et al. 2017). Furthermore, the multitude of digital formats, methods and tools is still often unmanageable for laypersons whilst the practical implementation into particular teaching routines is sometimes not instantly apparent. This resulted in digital teaching repertoires being largely dominated by basic applications, e.g. using presentation software or digital texts (cf. Schmid et al. 2017; Friedrich & Persike 2016; Ruhr-Universität Bochum 2020). Although large-scale digitalization in universities received a boost in the course of the COVID pandemic, preliminary evaluation data indicated (cf. Uni Halle, 2021) that teaching staff resorted to well-known applications within their learning management systems and added web conferences as a substitute for face-to-face in class meetings. University didactics must offer solutions to minimize barriers hampering the integration of digital formats.

Our supportive components, based on a development of Laurillard's (2012) learning formats, address the need for concise orientation in the field of digital teaching and learning. Based on Laurillard's framework, we outline easy options of integrating digital elements into teaching and learning projects.

In this article, we outline our theoretical and practical starting points. We then explain the core elements of our supportive structure, provide a brief insight into initial implementation experiences, and describe adaptations.

2 Theoretical considerations and practical implications

Studies regarding digitalization in higher education contexts highlight advantages of digital teaching but they also provide useful insights on potential obstacles and prerequisites.

According to the German Standing Conference of the Ministers of Education and Cultural Affairs (KMK 2017), digital learning and teaching scenarios increase flexibility. Digitalization is supposed to meet the needs of heterogeneous student bodies as it allows for alternative modes of following study paths. Moreover, the inclusion of digital scenarios contributes to the concept of lifelong learning that also calls for flexible models of teaching and learning. In their analysis of digital usage, Friedrich & Persike (2016) have shown that lecturers must actively incorporate digital elements in their teaching in order to encourage students to engage with new learning practices and stimulate increases in (digital) competences (Friedrich & Persike 2016). Teachers hold a double role in that context: they are initiators in terms of integrating digital elements in their classes, and they are multipliers in terms of promoting competence development. Hence, the digital expertise of teachers themselves is essential. Digital tools such as presentation software, digital texts or learning management systems are already part of the standard repertoire, while innovative formats such as digital collaboration, providing audio or video content, or adaptive feedback systems were hardly relevant in teaching practices (cf. Schmid et al. 2017; Friedrich & Persike 2016; Ruhr-Universität Bochum 2020). From the teachers´ perspective, time and effort appear to be particularly problematic. A survey from 2017 reports that 60% of university teachers stated that the effort required for digital scenarios was too high and the acquisition of skills was mostly an unsystematic, time-consuming learning-by-doing process (Schmid et al. 2017).

The switch to online teaching during the COVID pandemic has boosted the digitalization of teaching. However, evaluations of the summer term´s digital scenarios imply that didactic considerations were often not taken into account. For example, in a short survey of the Ruhr University Bochum, 57% of the lecturers

1 In this article, we use the terms teacher and lecturer synonymously to refer to teaching staff in higher education institutions.

stated that they had not adapted the learning objectives in any of their courses (Ruhr-Universität Bochum 2020). One can assume that the availability of technical tools appeared to define the course design rather than considerations of didactical purpose, appropriateness, usability etc. That can be exemplified by the use of web-conferencing. Web-conferencing has been the major new addition to the standard methodical repertoire, namely e-mail communication, presentation software, material upload in learning management systems (cf. Ruhr-Universität Bochum 2020; Uni Halle 2021). However, the prevalent use of web-conferencing is mimicking mandatory attendance in a virtual setting. The evaluations of digital teaching from summer semester 2020 deepen the impression that the current digital boost largely focuses on merely transferring course contents from one setting into another. (cf. Forschung rund um Lehren & Lernen in Zeiten von Corona; Ehlers 2020).

Digital learning scenarios can only be fully advantageous if they intertwine with didactic considerations. The arguments for (or against) a method, a format, or a tool have to be the objectives of a learning sequence (Stegmann et al. 2016; Mayrberger 2018).

The presented services aim at two goals: 1) we want to ensure that the selection of formats or instruments is guided deliberately and fosters high quality teaching and learning; 2) we wish to support the sustainable implementation of digital scenarios into teaching practices.

At the bologna.lab of Humboldt-Universität zu Berlin (HU) mainly two projects were involved with enhancing student's flexibility – „Part-Time Study" and „Study in High-Performance Sport". These projects strove to promote digital teaching as one way to support students with multiple additional commitments. Based on the perceived difficulties for students and lecturers to use digital technologies in teaching, various offers were developed for these two target groups. As one of these, the project „Part-Time study" designed a call for applications that offered teaching staff financial support and the help of a student assistant to develop their own digital teaching projects. However, collaborating with the teachers the necessity became apparent to provide short theoretical and practical background to digital teaching. The involved teaching staff expressed the need to be provided with an overview of possibilities to use digital media and a basic introduction to digital teaching. Based on their desiderata and the theoretical background, the ***O****rientation map for integrating* ***di****gital media in* ***le****arning and teaching* (OdiLe) and the *ABC Learning design* course were developed as supporting services. These were first offered to the teachers involved in the projects and in the summer semester 2020 OdiLe and the ABC course (at that time transferred into a self-study course in the HU learning management system Moodle) were opened to all teaching staff at HU. OdiLe serves as a quick starting point for lecturers to explore possibilities of using digital media in their courses and tying these back to didactical considerations. Following the first entry point of OdiLe, teachers are encouraged to use the ABC Learning design course on Moodle, that follows a more in-depth approach of explaining the underlying categories and guiding the participants through redesigning their courses. Additionally the bologna.lab strives to assist the teachers further by offering guidance on how to proceed in digitalizing their courses.

3 Integrating digital media in higher education teaching

Our supporting services within the framework systematize key information on digital teaching and its prerequisites. Framework, here, refers to the set of terms and suggestions we took from Laurillard's learning categories. (Laurillard 2012, 2002, 1998) These serve as a theoretical frame for the support elements OdiLe and ABC Learning Design workshop/Moodle course. In customizing the framework to meet the needs of teaching staff at the HU, we drew on our work experience, data on digitalization in higher education settings and key concepts of learning theory and didactics. We adapted the framework´s elements to be easy and quick to pick up. Hence, the components link directly to the teaching projects/courses; the focus within OdiLe and ABC Learning design is set individually; the elements are intended to provide orientation on how to implement digital teaching without teaching specific techniques, technologies or tools; the compo-

nents are theoretically founded without being preceded by abstract introductions or meta-discussions. From learning theories, we employed established models and approaches, e.g., constructive alignment according to Biggs (1996), learning goal taxonomy according to Bloom (1976), and didactic design according to Reinmann (2015).

Our support structure comprises three steps that allow teachers to retain the greatest possible autonomy with regard to the design of their projects. The three elements are:

1. **O**rientation map for integrating **di**gital media in **le**arning and teaching: OdiLe;
2. ABC Learning Design orientation workshop / Moodle course *ABC Learning Design*;
3. further consultation and qualification.

3.1 Orientation map for integrating digital media in learning and teaching: OdiLe

Our classification OdiLe (see Fig. 1) visualizes media formats, their application and their didactical key references. The focal point of the map are the media formats based on Laurillard (2012, 2002, 1998) because they focus on learning activities and the learner´s perspective. The approach follows the premise that „different media contribute to the learning process in very different ways" (Laurillard, 1998). We developed the original learning categories (acquisition, exploration, exercise, discussion, collaboration, and production) further and dovetailed them with classical teaching-learning-settings and essential didactic concepts (e.g. learning objectives, activation). Additionally, we (re-)arranged the elements to create a template that allows checking how individual teaching projects and specific digital formats are matching (cf. Conole & Fill 2005; Lameras et al. 2012).

The categories *didactic focus*, *activity level*, *advantages* and *pitfalls* provide understanding of what to consider in the design process. With the help of OdiLe lecturers can quickly develop an idea of a digital scenario or sequence and its prerequisites (e.g. time investment, required know-how).

We designed OdiLe to be read from the top down. At first the teacher considers what *Didactic Focus* is connected to the session, element, or activity – the exemplary *Teaching formats* are supposed to provide classical examples of usage – to then decide on the *Activity Level*. The combination leads to the *Media Format*. These were developed to simplify the visualization, as they should tie directly to the *Examples*. The media formats are based on the learning categories and in OdiLe serve the purpose to emphasize the connection to the technical implementation. The media formats match selected learning objectives in the *Advantages*. Acquisition focuses on the students acquiring preselected knowledge. Interaction clarifies that the students interact with the acquired knowledge. Application stresses that the students apply their knowledge in predefined settings. Communication illuminates the exchange between the students.

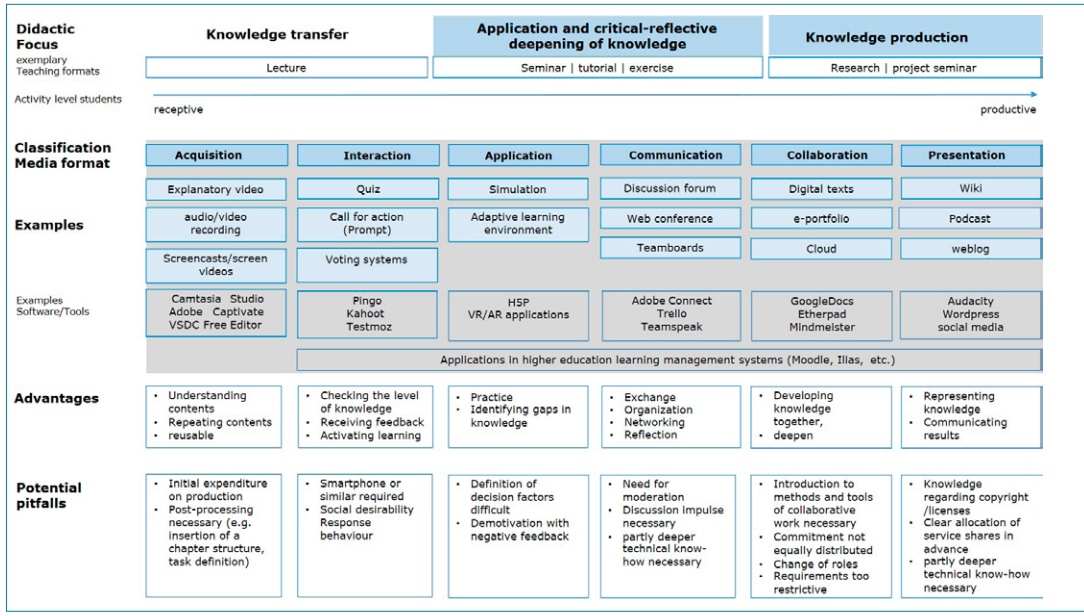

Fig. 1: OdiLe

Collaboration points towards the students working together to deepen their knowledge. Presentation highlights the students' production and presentation of results. Under the media formats, *Examples* of possible tools spotlight applications that are more common. Possible disadvantages of the digital tools are named under P*otential Pitfalls* to clarify the challenges in digitalizing the desired media format.

The feedback we have received so far has been very positive. OdiLe provides an uncomplicated first insight into digital options. An adaptation to new developments and an expansion of the model to include

optional explanations of the core concepts (e.g. as a mouse-over[1]) would be a desideratum. Since November 2020 the scheme carries a creative common license. With the CC license, users are free to adapt our classification to their needs.

3.2 ABC Learning Design Orientation Workshop / Moodle course ABC Learning Design

In a second step teachers can (re-)design their project to use more digital applications. We adapted the ABC approach, created at the University College London by Clive Young and Natasha Perović. The ABC Learning Design (Young & Perović 2016) ties in with Laurillard (2012) as it brings the learner´s perspective and learning activities to the center of attention. Participants (re-)design their projects in a lively, hands-on, yet strictly time-boxed workshop of two hours (cf. Hasenknopf et al. 2019). By first mapping individual learning activities (acquisition, exploration, exercise, discussion, collaboration, and production are the learning activities by Laurillard) in chronological order, the structure and character of a course are visualized. This results in a new perspective on objectives, methods, work phases, etc. A selection of digital techniques is assigned to each learning category. The participants may use these suggestions in a third step to add digital elements of their choice to single sequences. Throughout this process they consider why and when to include specific digital methods. Thus, step by step a storyboard for using digital elements in the teaching project is created. In a final step, the storyboard is assessed and further to dos are noted.

Adhering to the original ABC Learning Design Course we conducted test runs and peer coachings. The pilot group´s feedback indicated that the format was judged to be educational, useful, and entertaining. However, we struggled with enforcing the strict time frames, and the reason for the fast-paced working intervals was not clear for some participants. In addition, we perceived a strong desire for more detailed explanations of the learning categories. Some participants had difficulties articulating learning objectives and individual phases in a pointed manner. We thus decided to up the working time and provide further working aids (e.g. a guide through the learning activities and templates for the tasks) in a future workshop.

Due to COVID-19 restrictions we were forced to interrupt the piloting and implementation phase. In order to support lecturers with transitioning their courses we designed and launched a Moodle course replicating the workshop. The core elements (overview of the learning activities, mapping the course, supplementing digital elements, and reevaluating the finished storyboard) were transferred into digital interactive formats to recreate the process as faithfully as possible. One of the shortcomings of this scenario is clearly that we forfeited the vibrant pace of the method as well as the communicative components. Creating a self-study course, however, has opened the scope of additional information that can be given. Users of the Moodle course now find resources on defining learning objectives, in depth definitions of the learning categories and background information on ABC by Young and Perović. (Young & Perović 2016)

3.3 Further training and consulting

In a final step, we encourage teachers to participate in further qualifications that match their projects or objectives. We provide in-depth consultation and advice for further digital teaching development. With the help of the previous steps, teachers have gained an initial orientation in the field and developed a draft of a digital teaching project. Now they are able to make informed decisions on further steps.

Although we also offer trainings and peer coaching ourselves, the core idea is to identify the best options for the lecturers. Due to the bologna.lab having limited resources, we refer them to a broad range of in-house and affiliated qualification options where lecturers can look for further didactic expertise, technical skills or legal support. This also includes recommending material launched by ourselves or other institutions (e. g. templates, guidelines, tutorials, etc.) that allows for independent learning but is of high-quality contents and systematically composed.

2 Mouse-over: an additional window with information appears when the mouse pointer is on a specific object on the website.

4. Outlook

The feedback we have received so far encouraged us to maintain and expand on the adjusted concept of the framework. The modular preparation and contextualization of OdiLe and ABC meet the need to get information quickly and without prerequisites. The underlying framework provides orientation and effective transition techniques that can be applied as needed to specific courses or learning sequences, which was not only vital during the summer term 2020 but also beyond. Both supportive services can be used as stand-alone resources, which makes them easily accessible. One desideratum remains: optimizing and expanding OdiLe and ABC to support teaching development and quality further.

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