Re-) Designing Learning Spaces in Higher Education

Gestaltung von Lernräumen an Hochschulen und Universitäten

Learner-Centred Design of (Digital) Learning/Teaching Spaces

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Abstract

This contribution addresses – from a learner-centered perspective - the design of physical spaces for digitally supported and group- oriented learning in higher education. Today, higher education institutions are confronted with new demands in the context of the broad digital transformations of society and economy, for which comprehensive transformation processes must be strategically planned. Amongst other things, novel concepts are needed for improvements of innovative (post-pandemic) learning and teaching designs: e.g. for high-quality distance, blended and hybrid learning scenarios. For this, a functioning infrastructure must be used in conjunction with physical learning and teaching spaces in such a way that it promotes learning (and does not limit it!). This sounds easier than it actually is.

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How should physical and digital learning spaces be designed and put together so that social learning and teaching processes can be best supported? In order to try to resolve this, we present with this study, an interdisciplinary project named "FHNW-Learning Spaces" where an iterative method approach on learning space design was applied at our University, involving various participating agents: students, lecturers, central organisational units, such as IT services, libraries, committees and subject-specific organisational units. Further, we present the project results – including tangible results: our redesigned rooms (i.e. learning and teaching spaces with their respective equipment), and also further training measures for people working in higher education teaching, as well as the development of a changed culture at an organisational level. We have built our work upon the discourse on learner-centredness, i.e. posing the question: How are spaces in higher education institutions to be (digitally) equipped and how can associated approaches to learning psychology and media education be effectively integrated? The implications of our work for further research and practice of higher education are discussed.

Zusammenfassung

Im Rahmen der umfassenden digitalen Transformationen in Wirtschaft und Gesellschaft stellen sich heute neue Anforderungen an die Hochschulbildung. Hierbei spielen digital unterstützte Lehr-Lern-Szenarien (z. B. online, "blended", virtuell und hybrid) eine zentrale Rolle – sie werden die Art und Weise bestimmen, wie zukünftig studiert wird. Hierbei stellt sich die wichtige Frage: Wie gestalten wir eigentlich an Hochschulen die physischen Kontexte für digital unterstütztes Lernen? Wie lassen sich Räume in Hochschulen lernerzentriert (digital) ausstatten und gestalten? Diesen Fragen nähern wir uns in diesem Kapitel aus eine lernzentrierten Perspektive. Aus dieser Perspektive beschreiben wir Learning Space Design als einen Prozess, der verschiedene Rollen einbezieht: Studierende – Dozent*innen – IT-Fachleute/Services: Rauminfrastruktur, AV-Medien – digitale Medien-Fachstellen. Am Anwendungsbeispiel eines interdisziplinären Projekts „FHNW-Learning Spaces" zeigen wir diesen Prozess als Instrument. Die im Projekt entwickelte und realisierte interdisziplinäre Methode wird vorgestellt ebenso Ergebnisse, d. h. konkrete Räume mit ihrer jeweiligen Ausstattung, aber auch Ideen zur Kompetenzentwicklung für Dozierende, Änderungen im Mindset auf organisationaler Ebene. Implikationen für die Forschung und Praxis werden diskutiert.

1 Introduction

Digitalisation is one of the most important global megatrends. It experienced a strong surge during the Corona pandemic, especially in Europe, partly due to the mobility restrictions caused by the pandemic and the corresponding intensive use of computer-

mediated communication channels in companies, organisations and institutions. Colleges and universities are challenged to comprehensively transform themselves digitally by means of iterative and participatory processes (not just by purely technical infrastructure measures, cf. Global Learning Report 2021). Comprehensive innovations in the field of education are seen as playing a central role in the resilience of entire nations (cf. WEF 2020).

At the same time, problems at universities and colleges have been exacerbated by the pandemic, such as social inequality, questions of inclusion and diversity, and the "digital divide" problem of a heterogeneous student body (Beaunoyer et al. 2020; Krauskopf and Zahn 2015; Pelletier et al. 2021). Moreover, the changes brought about by digitalisation are having an impact on the tasks which colleges and universities have to fulfil. For example, the teaching of important key competences (*digital competence*, cf. Carretero et al. 2017; *21st century skills*, cf. Rotherham and Willingham 2009; "*Bildungsverantwortung*", Reimer 2019), as well as teaching more practice-relevant content and skills in order to bridge the gap between the job market requirements and the competences taught in educational institutions (cf. Ehlers and Kellermann 2019). For many years, it has also been repeatedly pointed out that future generations of students will approach universities and colleges with new needs ("Net generation", cf. Brown 2005 or the "Generation AI", cf. Pelletier et al. 2021).

Not only in crises, but also in the long term: in the future, it should be possible to anchor well-functioning, and economically viable, hybrid solutions in everyday university life alongside distance and blended learning (Pelletier et al. 2021) with special attention to social sensitivity in collaborative learning (cf. Isohätälä et al 2021). Ehlers and Kellermann (2019) emphasised a "next mode of learning" (p. 4) with a focus on autonomy, knowledge and creativity. They outline, a "future skills university" (p. 5) characterised by learning/teaching scenarios that, in addition to imparting knowledge in lecture halls and seminar rooms, focus on collaborative complex problem solving, dealing with uncertainty and open questions, as well as students' self-responsible action. This naturally has an impact on learning/teaching space design at universities (*learning space design*, cf. Brown 2005; Huang et al. 2019), because it is difficult to learn *actively* in full lecture halls with rows of tables and a wall projection, and surely more difficult in large video lecture broadcasts (possibly even with students' cameras switched off).

The design of learning spaces refers to places of learning and teaching, and their surroundings; it includes indoor as well as outdoor spaces and both physical and virtual spaces (Huang et al. 2019). Contemporary group-based learning requires both supportive and inspiring group spaces with sufficient freedom of movement, as well as virtual shared whiteboards, digital chat functions, audio–video connections, screen-sharing, network connections, etc. (cf. Huang et al. 2019). Empirical studies indicate that learning in innovative and flexible learning spaces is more engaging, task-oriented and socially interactive, as well as more effective than learning in traditional classrooms (Byers et al. 2018; Kariippanon et al. 2020).

According to Bachmann et al. (2014) colleges and universities need: "…'learning worlds of options' that support and enable diversity as well as 'learning places for

people' where you not only learn but also feel comfortable …" (p. 36). The question is: How can an appropriate learning space design be implemented in an evidence-based manner, i.e. with reference to important research findings, such as those of the learning sciences (cf. Sawyer 2014). Especially since the didactic-pedagogical ideal is often limited by a clearly defined scope for action within the framework of financial resources. Ultimately, considerations of "hybrid education" are to be pursued in this context (cf. Reimer 2020, 2015), for a fair balance between analogue and digital (cf. Stalder 2016; Kerres 2018) in the education system. In addition, a comprehensive consideration of the necessary developments within the university system is required in order to reflect on the topic of future learning/teaching spaces. The starting point for organisational development towards the future is a systemic analysis and an iterative implementation of development steps (Parviainen et al. 2017). Strohm and Ulich (1997) developed a socio-technical-systemic framework concept for such an analysis. Socio-technical systems are understood as open and dynamic systems in which people, technology and organisations interact or work together on a task to be fulfilled. Consequently, the more human and technical resources, as well as environmental conditions are considered equally, the more likely a successful implementation of digital technologies and the (re-)design of learning spaces at universities would be. In this case, the focus should not only be on the individual classroom or lecture hall, but also on the overall offer of rooms, spaces and local infrastructure. As a result, coherent learning/teaching areas or learning landscapes can be created, with complementary learning and teaching spaces, which take into account the diversity of today's and tomorrow's requirements, as well as the individual learning needs of students that demand flexible use of different learning/teaching paradigms due to increasing student heterogeneity (Krauskopf & Zahn 2015) much more than the classic lecture halls and seminar rooms.

The next section describes the project "FHNW-Learning Spaces", which, based on international research in the field of learning sciences (cf. Sawyer 2014) and by means of a socio-technical systems approach, addressed the opportunities and challenges of interdisciplinary and cross-university organisational learning/teaching space development. The aim was redesigning individual seminar rooms of a face-to-face university (FHNW) in such a way that they are both attractive and useful for physical face-to-face teaching, for blended learning and for hybrid settings of creative and collaborative learning.

2 Case Study: The FHNW-Learning Spaces Project

The *FHNW-Learning Spaces* project concerns itself with interdisciplinary university development at the University of Applied Sciences and Arts Northwestern Switzerland (in short: FHNW). FHNW comprises a total of nine schools (see Table 1) at various locations (example, see Fig. 1) and offers students 29 Bachelor's and 18 Master's degree programmes (cf. https://www.fhnw.ch/de/die-fhnw/facts-und-figures).

Table 1 FHNW-Schools and participating agents from different organisational units at FHNW. ("Third Space" cf. Salden 2013)

Universities	Third Space
• FHNW School of Applied Psychology, Olten • FHNW School of Architecture, Civil Engineering and Geomatics, Muttenz • FHNW Academy of Art and Design, Basel • FHNW School of Life Sciences, Muttenz • FHNW Academy of Music, Basel • FHNW School of Education, Brugg • FHNW School of Social Work, Olten • FHNW School of Engineering, Brugg • FHNW School of Business, Olten	• FHNW—Vice Presidium for University Development • E-Learning contact point (ELK) • Staff units/university organisational units/ libraries • FHNW Corporate IT (CIT) – (Field) IT Strategy & Project Management – (Team) Collaboration • Property and Infrastructure (I&I) – Team AVS Service Management

Fig. 1 University Campus Building Muttenz (FHNW) near Basel, Switzerland – Photo by *Gataric Fotografie*. [*Gataric Photography*]

Project Context

"FHNW-Learning Spaces" was one of six *strategic initiatives* (SI for short, duration: 2018–2020) within the strategic development focus of the FHNW for strengthening the competence for interdisciplinary cooperation. This focus was launched to develop "… forward-looking solutions for pressing social problems …" on the basis of interdisciplinary cooperation (cf. https://www.fhnw.ch/de/die-fhnw/strategische-entwicklungsschwerpunkte/strategische-initiativen).

Project Aims

The overall aim of the project was to address the question of how learning/teaching spaces of the future could or should look in the context of shaping the digital transformation

at universities, in which innovative digital technologies can be used in a meaningful, learning-promoting and user-friendly way. The project focused on the (digitally) networked physical space with people and their learning processes at its centre (Huang, Spector and Yang 2019). The goals included realising specific learning/teaching spaces for collaborative interactive forms of studying, such as student projects, or computer-supported small group work. On the one hand, this involved an active examination of existing spaces (in the light of their potential for meaningful further development). On the other hand, one aim was to develop the (digital) competences of those working in teaching (for instance, *TPCK*, see Mishra and Koehler 2006) as well as those of the students in future education. The following specific objectives were addressed:

1. Reviewing international research findings and implementation examples as a basis for setting up new learning spaces that are fit for the future ("pilot spaces").
2. Expansion of the FHNW room portfolio[1]: Developing specific concepts for "pilot spaces" with model status (spaces of possibility and experimentation in the sense of "hybrid education", i.e. both physical/material and virtual/web-based).
3. Initiating a conscious discussion on the topic of "space" in connection with future-oriented and digitally supported learning and teaching scenarios among various participating agents (stakeholders).

During the 2-year timeframe (2019–2020) of the project, methods for redesigning new learning and teaching spaces and how these could be evaluated were developed. In addition, this included the continuous active involvement of the relevant agents, i.e. students and people who are active in teaching, as well as people from the areas of services and IT, who are responsible, for example, for the properties and infrastructure, the audio-visual media and IT infrastructure, plus central organisational units in this context such as, organisational units and points of contact, who have both scientific (media) pedagogical expertise, technological know-how and can support university lecturers in media pedagogical questions of university teaching. In the project described here, this was, for example, the cross-university e-learning contact point or individual organisational units at the various FHNW universities.

Method: Socio-Technical and Interdisciplinary Approach

As an overall methodological framework we used the socio-technical systemic perspective by Strohm and Ulich (1997) as explained above. Accordingly, participants from teaching and research at all nine FHNW Schools (cf. Table 1) and students worked together in 14 interdisciplinary work units, also including participating agents from Third Space institutions (Salden 2013, cf. Table 1). In sum, 40 people worked

[1] The term "room portfolio" refers to all the different rooms available at a university (lecture halls, seminar and group rooms, laboratories, workshops, etc.).

together, which resulted in about 6700 working hours over the course of 2 years. With the interdisciplinary approach including all relevant stakeholders, central questions of learning psychology and media education should be considered together with questions of architectural spatial design (aesthetics, design, flexible furniture, sense of space, technical/technological aspects of the furnishings, audio-visual media, good audio and video quality even in larger seminar rooms with corresponding background noise, etc.) and at the same time logistical, financial and process-technical operational aspects (room reservation, allocation, preparation, etc.). Ultimately, it is also a question of integrating the learning and teaching spaces into the building and spatial operating concept of the respective campuses.

For the literature research (aim 1), various databases and internet services were (classically) used. For example, the databases NEBIS, Psyndex, Google Scholar, which in turn were systematically searched with keywords such as "teaching spaces (of the future), learning spaces (of the future), twenty-first century skills, learning hub, learning space, hybrid learning environment, and Third Space, room, space, material space, virtual space".

Project Results

Aim 1: *Reviewing international research findings and implementation examples as a basis for setting up new learning spaces that are fit for the future ("pilot spaces")*
Based on the research literature on the design of university learning spaces, the following approaches and topics were filtered out as particularly relevant for the project (Table 2):

Table 2 Relevant concepts for the room design of FHNW-Learning Spaces

Topic/Concept	Author
Interfaces, combinations and transitions between physical and digital learning settings—hybrid spaces	e.g. Boys (2011); Rummler (2014)
Areas of tension: e.g. location-independent vs. location-bound; individual vs. discursive, room service vs. learning participation, subject culture vs. a whole institution, living atmosphere vs. working place, etc.	e.g. Brandt and Bachmann (2014)
Dialectic of "room" (= designed space, e.g. furnished room) and "space" (= space to be designed, e.g. free space; in-between space or cyberspace); spatial symbolism	e.g. Sesink (2014)
Space as a social construction: space is created in action and in social interaction with objects and symbolic markings; spatial design influences social interaction	e.g. Löw (2015)
Behaviour setting: spaces as habitats, predefined spaces as concrete environments in which a certain behaviour is displayed (e.g. classroom—learning setting—learning behaviour)	e.g. Barker and Wright (1978)

The following conclusions have been drawn from the related research literature as a basis for setting up future learning spaces:

1. Learning spaces must be planned as convergent spaces (online and offline). Convergence arises where transitions are easily "manageable" (i.e. buildings, equipment and technology interact to serve everyone involved).
2. Learning spaces are not permanent empty containers. They are constructed by lecturer and learners in (inter-)action. A higher education institution can provide places and material that can be moved and linked, and facilitate transitions and networking.
3. The participating agents behave in learning spaces as social spaces according to structuring factors such as norms, time grids, architecture, digital technology, etc. Therefore, it is important to consider structuring elements when planning learning spaces. Opportunities must be opened up to create and perceive placements and links, also between analogue and digital, and also across institutional boundaries into the environment.

In view of the complexity described above, it becomes clear that the design of teaching, with the inclusion of digital media, requires professional competences that lecturers (newly) need. Krauskopf and Zahn (2015) postulate, the extent to which only a fundamental understanding by teachers of digital media as (socio-)cognitive tools for learners enables a certain flexibility for the planning of specific teaching/learning scenarios. The competences of lecturers at universities are, therefore, central and must be considered in the context of the university culture as a whole. This was supported by the results of an interview study ($N = 16$) we conducted at the beginning of the project in 2019, before the start of the Covid19 conditional protective measures (online teaching; face mask obligation), for the analysis of needs. The interviewees from the FHNW reported that they were not only faced with the challenge of having to strike the right balance between contact teaching and online-based learning methods and were of the opinion that more flexible rooms would offer more creative options, they also expressed organisational needs (e.g. digital room booking) and wished for supportive competence development (on digital tools and their use).

For the research on actual implementation examples, 15 colleges, universities, libraries and companies were visited internationally (e.g. University of Sydney, KU Leuven (online), TU Delft, Central Library Oodi, Helsinki) to collect and evaluate ideas and thoughts regarding future-oriented teaching and learning spaces. In addition to a large number of good examples in practice and room categories (cf. Fig. 2), which cannot be reproduced in detail here due to time and space constraints, it was noticeable in summary that colourfulness and inspiration, as well as a variety of technical possibilities (e.g. mobile-flexible digital tools, BYOD), variable room-in-room constellations (e.g. for individual vs. group learning), flexible furniture (e.g. partition walls that can be written on) are available. A tendency towards "co-working spaces" is also noticeable. In addition, it became apparent how strongly international the spaces of a university are an expression of social and institutional values and university culture, and how **culture-forming** they are.

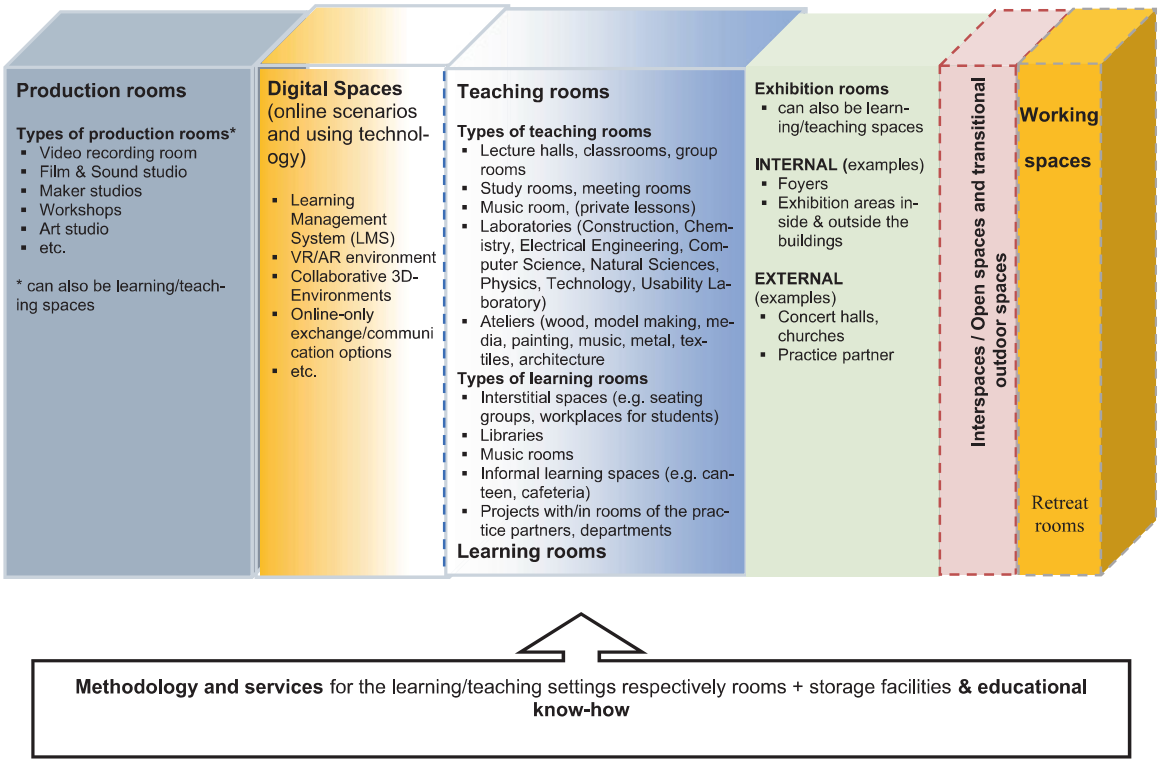

Fig. 2 Space category system (FHNW Learning Spaces Project Group, 2019/2021) based on the Cookbook Education Spaces, Requirements for Education Spaces University of Technology TU Delft Campus, Version 2.0, published in April 2018, Piet von der Zanden, Themara Bogerd, Irs von Loon as well as Bachmann et al. (2014)

Learning Space Categories Raumkategoriensystem (summarized by the group FHNW Learning Spaces, 2019/2021) based on the Cookbook Education Spaces, Requirements for Education Spaces University of Technology TU Delft Campus, Version 2.0, published in April 2018, Piet von der Zanden, Themara Bogerd, Irs von Loon sowie Bachmann et al. (2014).

Aim 2: *Expansion of the FHNW's space portfolio: developing specific space concepts for "pilot spaces" with model status*

Based on and inspired by the research results (see Aim 1 above), a total of seven pilot spaces were developed as learning spaces at FHNW, and a collaborative 3D environment called AULA was used in the project period 2019 and 2020. In Table 3, the learning and teaching spaces are presented and explained briefly. Lecturers can further develop innovative forms of learning and teaching here, whilst students and participants in higher education have already been able to experience these, as far as this was possible outside of lockdown. An accompanying evaluation concept was developed, and a standardised questionnaire was available, which has already been used and tested. Based on evaluations of the use of the rooms, evidence-based recommendations where action could be taken for the further development of learning and teaching rooms, and the associated processes could be developed.

Table 3 Pilot rooms as a result of the FHNW-Learning Spaces project

 Multimedia Experimental Room. Gataric Photography	**Nr. 1 Multimedia Experimental Room** In this room, various audio-visual media *(video conferencing system, electronic flipchart, web-cam, beamer, visualiser)* are available enabling hybrid learning and teaching settings. The flexible furniture allows for various interactive and collaborative learning and working settings Location: Campus Brugg-Windisch
 Workshop Room. Gataric Photography	**Nr. 2 Workshop Room** The Workshop Room is particularly suitable for interactive and collaborative methods such as project work, group work, workshop settings, Design Thinking, or case studies. All the furnishings; touchscreen monitor, electronic flipchart, high tables, bar stools, seating, are mobile and can therefore be rearranged very quickly. Location: Campus Brugg-Windisch
 Lecture Recording Room Gataric Photography	**Nr. 3 Lecture Recording Room** In this room, image and sound recordings of courses can be made automatically with a video camera and ceiling microphone, even as a series, and then post-processed and made available to students or participants in further education. Location: Campus Brugg-Windisch

(Fortsetzung)

Table 3 (Fortsetzung)

 Multimedia Experimental Room. Gataric Photography	**Nr. 1 Multimedia Experimental Room** In this room, various audio-visual media *(video conferencing system, electronic flipchart, web-cam, beamer, visualiser)* are available enabling hybrid learning and teaching settings. The flexible furniture allows for various interactive and collaborative learning and working settings Location: Campus Brugg-Windisch
 Flexible Seminar Rooms. Sandro Fiechter/ FHNW	**Nr. 4 and Nr. 5 Two Flexible Seminar Rooms** The coloured chairs on castors with integrated desk shelves allow for quickly changing interactive learning/teaching settings (plenary discussion, group work, individual work) in different group sizes. The room was developed especially for case study training. Location: Peter-Merian-Haus Basel
 Collaboration Room. Roger Giacomelli/FHNW	**Nr. 6 Collaboration Room** In this seminar room, three large touch screens with a very powerful computer enable the simultaneous large-format visualisation of different data and models side by side Location: Campus Muttenz

(Fortsetzung)

Table 3 (Fortsetzung)

 Multimedia Experimental Room. Gataric Photography	**Nr. 1 Multimedia Experimental Room** In this room, various audio-visual media *(video conferencing system, electronic flipchart, web-cam, beamer, visualiser)* are available enabling hybrid learning and teaching settings. The flexible furniture allows for various interactive and collaborative learning and working settings Location: Campus Brugg-Windisch
 Study Work Places. Gataric Photography	**Nr. 7 Study Work Places** Forms of learning, such as group and project work are gaining in importance among students and participants in further education With modularly combinable wooden boxes, students and continuing education participants build their own learning environment according to their needs in freely accessible student workplaces Location: Campus Brugg-Windisch
 AULA. Screenshot	**Collaborative 3D Environment (AULA)** The 3D environment offers much more than an exciting change from video conferencing systems, it allows for immersion and an avatar-based form of interactive and collaborative work between participating agents. Location: online

Aim 3: *Initiating a critical discussion on the topic of "space" in the context of future-oriented and digitally-supported learning and teaching scenarios amongst various participating agents.*

With regard to the objective of raising awareness amongst various participating agents (and in the long term at the university as a whole) on the topic of "space" in connection with future-oriented and digitally supported learning and teaching scenarios, it can be stated that the interdisciplinary project work led to a greater mutual understanding. Specifically, the project team deliberately involved university lecturers, students, staff working within the infrastructure and in support functions, as well as management

staff by means of surveys, personal interviews, meetings and workshops. This was very much appreciated, which is reflected in the positive feedback on the spaces. Sustainable networking and cooperation between the individual participating agents have been established. One example of this is the appointment of a new university-wide AV media committee. Anecdotal evidence of the positive effect of the project can be found in the following examples. During the preliminary discussion of the first workshop room, the need for a large mobile screen was rejected by the person responsible for AV media at the time with the argument that the screen should be fixed to the wall so that it could not be stolen. To date, nothing of the sort has happened, and mobile devices are now easily accessible. Another example relates to the flexible seminar rooms, where there are no tables, just coloured chairs with castors and integrated desk shelves. In the beginning, there was a fear that these rooms could not be emptied because the chairs could not be stacked, but only put together, which would require more space. These initial concerns were overcome in the course of the project.

Discussion of the Results and Future Prospects

The project with its learner-centered perspectives and its evidence-based and interdisciplinary (systems) approach can be considered successful: On the one hand, the most significant impact of the project was, and still is, the new spaces (Table 3), and on the other hand, the fact that a changed awareness of space or "learning and teaching spaces, in and for universities" could be created as an important component of the learning and teaching experience. By reviewing research literature and networking with international and national examples of good practice, the project staff were able to expand their personal expertise and professional network and bring this impetus and these contacts back to the university.

The knowledge which has been gained has helped a lot in the preparation for the autumn semester 2020/2021 under pandemic conditions. In the same breath, it has also helped in procuring infrastructure and it continues to have a lasting impact when it comes to imparting advice, e.g. of the AV media team regarding the implementation of the AV media strategy. Nevertheless, there is potential for optimisation. "Too many" participating agents are not very agile. Specialist needs are contrasted with universal solutions "for all". Another open question is how to better encourage lecturers to use the new spaces and to incorporate them didactically.

Based on the successful implementation and the insights gained, the topic of "Learning and teaching space development" will be continued as an independent sub-project from 2021 to 2024 as part of the strategic development focus "Leading higher education teaching at the FHNW into the digital future". The main goal of the continuing project is to gather further experience through participatory pilot projects, to gain ongoing insights through accompanying evaluations and to be able to formulate recommendations for action for the university. Building on theoretical considerations of Hartmut Rosa's resonance theory (cf. Rosa 2016), further training and networking events will follow in accordance with educational media implementation. Given the

knowledge that the participating players are not only highly heterogeneous regarding their knowledge about the use of technical equipment and the associated concrete implementation of modern teaching/learning settings, as well as the mostly "open-free" room design options offered by the rooms, this theoretical requirement can be met in practice. Building up competence in the sense that event participants "master" the room after an event is hardly possible and is, therefore, not aimed for. Rather, it should be about looking together for ways to "relate to the space in a processual way". This means that not everything always works out, that perhaps the best implementation is not found immediately, but that participation, active participation becomes possible for everyone. By reflecting on the setting, a classification takes place that does justice to a media education setting in which reception and production are closely intertwined.

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Sie wendet sich ausgewählten Innovationsfeldern zu, aktuell sind dies: Roboter in der Bildung, Hybrid Education und kollaborative 3D-Umgebungen. Die stetige Weiterentwicklung des Ansatzes der kritisch-reflexiven Medienbildung sowie die von Lehr-/Lernszenarien ist ihr ein besonderes Anliegen. An der Universität Basel lehrt sie im Masterstudium Educational Sciences.

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