iLab Manual

Future-proof your classroom – teaching skills 2030

Module 1

The role of teachers in 2030

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Future-proof your classroom – teaching skills 2030

Welcome to the course Teaching2030!

Technology rapidly changes the way we think, live, learn and lead. Education plays an essential role in this transformation process. Teachers and trainers have to be prepared for new challenges and learning environments in order to guide future generations the best way possible. Based on these considerations, the blended-learning course "Future-proof your classroom – teaching skills 2030", Teaching2030 for short, addresses teachers, tutors and trainers in higher education institutions providing them with instructional competencies and skills over eight modules. The course comprises a web-based training course (cBook) and an on-site learning space (iLab) and can be accessed without limitations and is free of charge. It is funded by the Erasmus+ Austrian National Agency under Key Action 2 Strategic Partnerships.

Lucia and Marko will guide you through the cBook and iLab

The didactical concept of the entire blended-learning course follows the principles of **storytelling**. Storytelling is quite common in company training but has so far not been commonly used in educational courses. It is, however, an essential part of Teaching2030. Throughout the modules, Lucia and Marko, two teachers at a higher education institution, will guide you through your learning experiences, helping you deal with the new trends and difficulties you might experience in your future teaching. They will accompany you and share stories about their recent successes with their students and their reservations about giving new approaches a try. They provide each other with teaching advice and support, and, last but not least, they help future educators manage the challenges they may face. They are both a constant presence in the cBook and in the iLab, which are closely interlinked.

The **cBook (computerBook)** is a web-based training environment that contains the eight modules of the course, each of which comprises five chapters organised around key topics. The cBook offers you a diverse range of learning material, like information (texts, hot spots, didactic sequences), interactive exercises (drag and drop, multiple choice, memory, surveys, word clouds), reflection tasks, videos and additional materials and links. Each cBook module contains five major tasks entitled "iLab", indicating that these tasks are better suited for use within the iLab**.** In addition, the cBook provides reflection tasks, called "iThink", for discussion in the iLab. Nevertheless, you can also work with the cBook as a stand-alone MOOC.

The **iLab (innovationLab**), as part of the blended-learning course, is an on-site, open, self-directed learning space, estimated to require two days per module. It can be organised as a training environment under the supervision of a Teaching2030-developer, or without supervision, as a self-directed learning environment for teachers who would like to widen and strengthen their teaching approaches and skills. The iLab is designed to be used flexibly, as it provides additional exercises, tools, materials and links, but it is recommended that the cBook be completed first in order to build a solid basis for the iLab. Each iLab module offers a guide explaining the didactical approach of the entire course and a glossary containing the central items and terms used by the development team.

Give Teaching2030 a try and have fun!

Your development team:

CREATE 21st century GmbH

Eszterházy Károly Egyetem Eger

Fachhochschule Burgenland GmbH

Faculty of Tourism & Hospitality Management

Universidade de Aveiro

Universita degli Studi di Perugia

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What to expect

1. New challenges facing the teaching profession

As learning environments are undergoing major changes, module 1 focuses on the professional teaching role 2030. Teaching "broadcasting-style" in front of an audience may be justified in certain cases, but will not be the essential role of teachers in the future. In contrast, educators have to be able to adjust their roles according to the environmental and technological surroundings. Performing *with* students, not in front of them, goes along with distinctive communicative roles as a moderator, coach and supervisor.

The teacher becomes **a personal guide** to the students, supporting individual progress. Moreover, when working within a technological environment like virtual classrooms, teachers are not recommended to use the same skills and competencies as they do on-campus. They have to take into account the possibilities of technology first when planning their lectures.

Teachers as **technical performers** have to manage the technology to a certain extent. It is not recommended here to transfer on-campus methods and skills without any changes to virtual environments. In contrast, it is recommended to adjust to these environments by using the tools provided to create effective learning. In addition, on-campus environments will have to change as well.

Teachers should contribute to this process as **environmental designers**. Although higher education institutions still lack flexible arrangements in class, teachers may be able to enrich their teaching by rearranging some aspects of a classroom design or providing room for individual work. Focusing on the personal development of students, collaborative methods like skills- and problem-based learning or applied service design methods are in the centre of the teaching and learning process.

This collaborative approach may be supported by the implementation of social media in teaching. Teachers as **social media networkers** foster collaborative work and may use these tools in favour of connecting students all over the world. Sharing ideas and access to information count more than hierarchical orders and knowledge delivery by teachers. Within this process, also teachers have to adjust and agree to these new requirements.

1.1. Teachers as technical performers

Assuming the year 2030, the job profile of educators will have changed in four decisive areas. The most significant one is related to the field of technology. **Educators as technical performers** (Chapter 2) have to be capable of managing virtual classrooms, using and producing e-learning tools, assisting students in some technical facets of their studies and working with social media. It is no longer tolerable for educators to teach in front of a class like in the 19th century. The incorporation of technology requires the educator to shift their teaching style. The classical role of a teacher will subside in favour of the roles of a coach, moderator and supervisor according to the contact hours, online hours and self-study periods of blended learning. This requires teachers to be excellent communicators*.*

Online courses, MOOCs, explanatory or instructional videos as well as web-based trainings are highly appreciated and can be applied in class as well as in blended learning phases. In this case, students value videos if they are easy to understand. Moreover, online courses save time, no matter if the students listen to them in class or online and the lectures can be repeated as often as necessary. The questions on the topic, the exercises and feedback processes then take place in the on-campus training. Virtual classrooms and interactive online training sessions are perceived as a useful add-on for on-campus classes if it is not possible to interact in person. Virtual classrooms are advantageous if students are not able to take part in the lecture, nevertheless on-campus classes are still very much appreciated.

1.2. Teachers as personal guides

Teachers will have contact with diverse and international student groups. This means they must adapt their own communication style according to the student population in class. When using online lectures and virtual classrooms in the future, teachers have to develop different approaches, skills and tools for on-campus training as well, especially for communication and feedback processes. The personalised learning approach demands high attention be paid to the individual development of the students. Communication in the classroom is based on coaching, reflection and feedback, students and teachers are perceived as an entire "learning and teaching unit".

Teachers as *personal guides* (Chapter 3) will show students the way through their learning process. Learning no longer means recapitulating information but arranging information in a personal and meaningful way and developing the competencies needed in the area a student strives for. As learning will turn into a holistic and emotional experience in class and

incorporate technological tools, the teacher has to be able to frame this process didactically. The proper selection of tasks and exercises according to the diverse phases of teaching as well as the arrangement of an entire blended learning course will be a core asset in the future.

1.3. Teachers as environmental designers

This means, teachers have to be *environmental designers* (Chapter 4), working in smaller groups and in study labs instead of huge lecture halls. Information will be delivered via videos or MOOCs, saving the valuable time in class for applied work. Thus, if Q&A sessions, activities, exercises and peer group feedback are essential parts of on-campus training, the educator needs a way to arrange the setting meaningfully and to lead the students through the lecture according to their self-reliance. Teachers as guides, applying student-centred methods in class, have to provide a learning environment that suits the communication processes and enables students to take part in class actively. "The lab allows a number of arrangements, using various elements like flexible partition walls, diverse light for creating a specific learning atmosphere and furniture for concentration as well as relaxation. Access to computers, internet and electronic media go without saying" (Hauptfeld, 2016, p.12).

1.4. Teachers as social media networkers

Finally, in order to support the process, educators should be **social media networkers** (Chapter 5) to understand communication patterns in web 2.0 and to be able to evaluate information critically. In particular, smartphones and tablets can be used for feedback processes and tasks. It does not make sense for teachers to ban these devices from the classroom. Instead, they should use them productively. Producing a video with a smartphone and uploading it on YouTube, using the mobile phones as an electronic dictionary in language teaching, or establishing a learning wiki is quite easy to do. Moreover, social media provide easy networking and research opportunities all over the world. Thus, teachers can provide contacts to their students in order to foster their career. Social media represent interconnectivity and permanent exchange and educators have to be in the centre of this process to strengthen their own up-to-date knowledge.

Technical performers	Personal guides
• e-learning exercises • instructional videos • virtual classrooms • online courses and MOOCs	• coaching • moderating • supervising • guiding
Environmental designers	Social media networkers
• holistic learning with all senses • new classroom design • learning everywhere	• collaboration - sharing • user-generated content • social media in teaching

Activity: Technology in the 21st century

What do you think about the following statements?

- There should be a growing emphasis on digital media in the teaching-learning process.
- "Modern" teachers often use digital tools in their lessons.
- It is very useful to have experience in virtual education.
- Technology will never replace teachers.

You can set up a project work in class about the statements above:

- ✓ Divide the class into 4 groups.
- ✓ Each group should argue for a statement using proof (practical examples, media etc.).
- ✓ You will be the moderator. You should collect counter-arguments to the points above.
- ✓ At the end of class, you should ask your students for new ideas about the teachers' role in the 21st century education.

References

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2. Teachers as technical performers

Digital transformation in teaching means more than just the use of digital tools in the classroom, but encompasses a holistic concept that affects both individual teaching and the entire university institution. This requires a well thought-out concept of teaching where tasks, tools, materials and learning outcomes are coordinated. Conventional courses usually focus on only one area and neglect the holistic teaching context. However, it is much more a matter of conveying multimedia "literacy" to teachers in this context and supporting them in the best way possible, because:

1. Teachers often do not have **time** for costly further training in areas of teaching due to the focus on research activities; they therefore need a "toolkit" of methods, competencies, instructions and materials in one place that is easily accessible and offers all the necessary resources.

2. Teachers need **confidence** in their own handling of technology, e-learning, and virtual classrooms within the framework of a university's digitisation concept; therefore, methods and materials that are easy to implement and create are a basic requirement for reaching all teachers.

3. In their **commitment** to digital teaching and learning they must be supported by the higher education institution at all levels, as the move to technology changes the whole idea of teaching, including face-to-face instruction and the changing roles of teachers.

Technology changes on-campus instruction and it is necessary to interweave it with face-to-face teaching in an effective way. This, in return, requires concepts of course planning where tasks, tools and materials are well coordinated.

2.1. Importance of educational technology

Technology-based instruction is a fundamental paradigm for teachers in higher education and an asset for positioning and profiling their university. Particularly teachers, tutors and educators, aged around 40, who are still described as "digital immigrants", may feel the need for improvement in technological skills but are often plagued with doubts and scepticism. Moreover, the "Report to the European Commission on improving the quality of teaching and learning in Europe's higher education institutions" clearly demonstrates that academic careers still develop based on research and not profound teaching skills. The study highlights

the fact that "quality teaching is not an optional extra. Higher education teachers should be trained as teachers" (2013, p. 34).

Following this requirement, technological skills for teaching must be improved. Hochschulforum Digitalisierung formulated 20 theses on the digitalisation of higher education (2016), focusing on the fact that roles and responsibilities of educators and teachers will change in future. Wannemacher et al. state for Germany that "39% of higher education institutions still rate the importance of digital teaching formats as below average, low, or very low" (2016, p. 17), and "only 50% claim that their universities offer qualification programmes for teachers – even fewer actively encourage teachers to use digital formats" (ibid, p. 26). 41% of the universities participating in this study also mentioned that institutional cooperation is inevitable when fostering education on technological issues (ibid, p. 34). Higher education institutions have to support the teachers in developing their professional and e-learning skills to prepare them for the digital era. They urgently need relief from the stress caused by the implementation of e-learning formats.

2.2. Mastering technological tools

There is no consistent use of the term e-learning as it is used for many areas in teaching. Although technology-based education is already widespread, some teachers have reservations against it that may go together with the unclear term, the changing of roles, fear of technology in general and the prejudice of time-consuming preparation. However, teachers have to face the fact that technology will influence teaching processes in the future to a huge extent. The most common argument is time: Even if the teacher knew how to create an instructional video, it is time consuming.

Therefore, to overcome this hurdle, it is essential to provide teachers with manuals for e-exercises that enable them to produce instructional videos, podcasts or interactive power points without a huge effort. One must admit that producing an entire MOOC is intensive work, but rewarding at the end when combining it with on-campus classes. The instructional parts and the explanation of tasks can be sourced out using the valuable time in class for feedback processes on the work of the students. In the cBook (Chapter 2) we discuss the following doubts and elaborate on some strategies on how to beat them:

"What if technology does not work in class?"

One of the main arguments against the use of technology in class is their unpredictability. Teachers may encounter technical difficulties such as the internet is disconnected, sound or videos are of poor quality and virtual classrooms features do not work as expected. There is a gap between the vision of delivering personalised instruction and the use of technologies for this purpose.

STARTER KIT

- Start with a simple tool or a device you can easily master.
- Before starting class, check your internet connection and make sure the PC works.
- Make sure an IT help desk technician is available.
- Stay cool when technology does not work – and have a plan B!

"Students are more tech-savvy than I am!"

Lecturers and professors are experts in their fields – at least that used to be a common assumption. However, when it comes to using new methodologies or technological tools in class, they might fear losing face in front of their students, in particular if they appear to be tech savvy. Teachers may use this argument as an excuse for not keeping up with technological issues.

STARTER KIT

- Do not overestimate students' technological skills.
- Differentiate between your professional status and your technological skills.
- Say "thanks" when students offer their help – they will appreciate it.
- Use technology in class in a cooperative way.

"It's so time-consuming!"

Producing entire MOOCs or designing an ambitious blended-learning course takes a lot of time, particularly in the beginning. If traditional methods of teaching work, why implement new tools? As a consequence, teachers often see technological innovations not within the scope of their job description.

STARTER KIT

- "Content is king", not technology: Low-level production is fine.
- You can easily record a short video or audio using your smart phone. You can create a blog using templates.
- Be curious about which possibilities technology has to offer you: be creative and get inspired!

"I have no institutional support!"

Although educational institutions should be pioneers in preparing students for their future careers, they often lag behind in matters of technology. Institutions do not always undertake the necessary adjustments in teaching practices because of technological changes. Teachers are often left without the tools and skills from the institutional side to integrate educational technologies in class.

STARTER KIT

- Start using technology in one of your classes!
- Try to find colleagues with the same spirit at your institution for exchanging knowledge and experiences!
- Apply for an external training on educational technology!
- Visit conferences on e-learning for networking

2.3. Areas of e-learning in teaching

The use of e-learning tools will be a matter of fact in the future, but even teachers at the tertiary level still lack skills in using or embedding them within blended learning systems. They have to be equipped with the technical knowledge required for distance learning, the creation of online courses and didactics for teaching processes in virtual classrooms. The key question here is which tools best fit which desired aim or purpose. Learning outcomes and technical feasibility determine the choice of e-learning materials. Five areas in the field of e-learning are decisive:

LMS as collaborative tools. The first area covers various e-learning exercises based on LMS systems provided by universities. Most of them allow synchronous communication via chat rooms and discussions in fora as well as asynchronous communication like mail or the delivery of e-portfolios and diverse materials. They can be used best for interactive tasks, the exchange of ideas, collaborative work and documentation online. **Module 4, Chapter 2** in the cBook elaborates on this topic.

Use of social media. Instead of neglecting the necessity of sharing content via the internet, social media often go hand in hand with the collaborative function of e-learning tools. A teacher therefore should be informed about the ways of online communication and making use of social media in teaching. Widely used in the fields of communication, advertising, marketing and broadcasting, the application of social media as a teaching instrument is rarely accepted. Naturally, students write wikis or blogs at the initiative of a single lecturer, but what is missing is a strategic implementation of these media within teaching programs. **Module 5 and 6** in the cBook are dedicated to this topic.

Virtual classrooms, the third area, extends this collaborative function by incorporating an audio and video function, virtual whiteboards, chat function and the sharing of documents. Moreover, media like videos or MOOCs can be used within virtual classroom teaching. The teacher has to be able to handle all the technical issues that go along with the didactical approaches for online teaching. This means a further new role for educators, namely as that of a moderator. The online learning content has to be arranged according to a moderation process and condensed into detailed information bits that have to be well-structured. **Module 7** of the cBook explains how a teacher can design, implement and evaluate a virtual classroom training.

Online courses. The fourth area incorporates online courses and trainings like MOOCs, massive open online courses, Computer Based Trainings (CBT) and Web Based Trainings (WBT). The degree of interactivity can vary; MOOCs can be used for delivering the information only; but some of them also allow a progressive learning path; CBT are rather used for self-paced learning without a tutor whereas WBT are similar to LMS-based systems with collaborative functions supported by a tutor. **Module 4, Chapter 3** of the cBook provides tips and recommendations in this area.

Single tools and exercises. The fifth area of e-learning refers to single activities, based on technological media, like the use and/or production of videos (YouTube, Ted Talks), podcasts, the application of online games and e-exercises, often provided by training institutes or publishers as additional add-ons. Educators can work with them either in class or online. Concerning the production of own material, one must admit that producing an entire MOOC or a CBT is very time-consuming. Nevertheless, an educator can produce podcasts and instructional videos quite easily. In the US, the question is already being discussed if a video lecture, produced by a professor, is part of his lecturing obligation or not (together with remuneration). **Module 3, Chapter 5** on gamification as well as **Module 4, Chapter 4** on video production demonstrate within the cBook opportunities for implementing and producing e-learning materials.

Story

Lucia: Marko, have a look at this video I recently produced for my lecture. I really tried hard but I am not that satisfied with the result!

Marko: Lucia, You are too critical regarding your own performance! Did you ask your students if they profited from your video? This is, due to my experience, the most important criterion!

Lucia: You are right! I asked my students and they even liked it, especially the possibility to watch it over again to understand the content more easily!

Marko: And once you have recorded the video, you can use it over again in your teaching. This gives you the chance to concentrate on the students' work in class instead of lecturing in front of them!

Activity: Digital technologies for collaboration in research

You are not "only" a teacher, but also a researcher? Any idea of how you can manage your research projects with e-learning support? Think about your next research topic and collect the tools for the next points:

- Choose of a topic (web search)
- Search for sources (academic databases)

- Academic searching (digital tools)

- Connect colleagues for partnership or for exchanging ideas (social media tools)

- Publish the results (digital self-promotion in science; academic databases)

How useful are these digital technologies? Do you have any reservations as well?

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https://hochschulforumdigitalisierung.de/sites/default/files/dateien/HFD_AP_Nr%2018_Discussion_Paper.pdf

Wannemacher, K. et al. (2016). Organisation digitaler Lehre in den deutschen Hochschulen, *Hochschulforum Digitalisierung*, Nr. 21, S. 17 (Translation by P. Hauptfeld)

3. Teachers as personal guides

As the role of teachers will change in many ways, so will the learning environment and the methods applied. Teachers are no longer the centre of knowledge and favour a dynamic relationship between students and teachers. Applied knowledge and meaning is constructed via exchange and not delivery of information. Hence, hierarchy in class will be dismissed in favour of interconnectivity and "respect towards teachers is related to competence and experience instead of status and power" (Hauptfeld, 2016). Teachers adopt the role of a guide who paves the way like a tour guide who explores the territory. This implies that methods also have to change, moving toward student-centred approaches. Many of these approaches are not new – what is new instead is that these methods can be applied in class to their full extent if combined with technology. Inverted classrooms, developed in the mid 90's in the aftermath of Alison King (1993), are an ideal model when combined with knowledge delivery via technological tools. Teachers, applying these models and methods, have to frame this blended learning and guide students through the process.

3.1. From teachers to guides

With the increasing use of technology, one might assume that the importance of face-to-face interaction will decrease. However, it is quite the opposite. More than ever, students appreciate personal contact in class. This may be due to the assumption that they are shunt into virtual teaching. Virtual classroom teaching serves as an additional asset, never replacing interpersonal encounters. Therefore, Module 2 in the cBook highlights the communication skills of educators in the future.

Regarding the valuable time in class, the teacher is responsible for making the best out of these experiences. The teachers' role here is basically that of a coach, guiding and leading students through their learning experiences. Again, the framing of the content is of the utmost importance as students can gather the information from various sources. Teachers and lecturers then have to explain and "teach" the content via applied didactical designs, taking into account the students' entire world and their previous knowledge. Already well-known concepts of **student-centred learning, personalised learning approaches and inverted classroom models** will become more and more relevant within this context. This is due to the fact that in most cases blended learning formats are used allowing an individual

pace of learning. Consequently, this approach considers the personality of the students as "the constructivist model places students at the center of the process" (King, 1993, p. 30).

3.2. Guiding student-centred learning

A real advantage of technology is the shift of information into digital tools like videos, MOOCs or web-based training. This makes it possible to use valuable classroom time for individualised learning and student support. A variety of teaching methods are available for this purpose, which can only be implemented very well when intertwined with technology. The methods range from Inverted Classroom to Design Thinking, originally applied in the field of marketing, but also used for teaching purposes in class due to the open problem solving approach and the iterative way of finding solutions.

Inverted classroom model. The most prevalent model is the flipped or inverted classroom, where the information delivery and the content are taught via technological tools like instructional videos, MOOCs or other sets of e-learning materials, discussed and applied in class. Developed in the mid-90s and introduced by Alison King´s publication "From the sage on the stage to the guide on your side" (1993), it is an ideal model for integrating technology providing the information for the self-study phases and the feedback and discussion phases in class. The teacher as a guide can dedicate their time in class to the individual development of students.

Example

> **AWO – Academic Writing Online: https://awo.academy**
>
> The online course on academic writing with information, videos and exercises in seven languages offers the possibility for inverted classroom teaching. Students work with the course, writing their texts, papers, assignments during online study and presenting the work in class by capturing individual feedback from their peers and the teacher.

Project Based Learning. The method is widely used, especially in Business Studies, to solve real-life problems. Lectures are designed based on the project work of students and feedback is given by the teachers online or in class. Students acquire key competencies of the 21st century, declared by the World Economic Forum (online 1), such as (see Module 3, Chapter 2 of the cBook):

- Critical thinking/problem-solving
- Creativity
- Communication
- Collaboration

"The teaching based on projects or integrated tasks is the best didactic guarantee for an effective development of key skills while also acquiring the knowledge of the curriculum's content. In its essence, PBL allows students to acquire key knowledge and skills through the development of projects that respond to real-life problems." (online 2)

Source: https://www.tes.com/lessons/Lo6VJtZgYLTBlg/project-based-learning
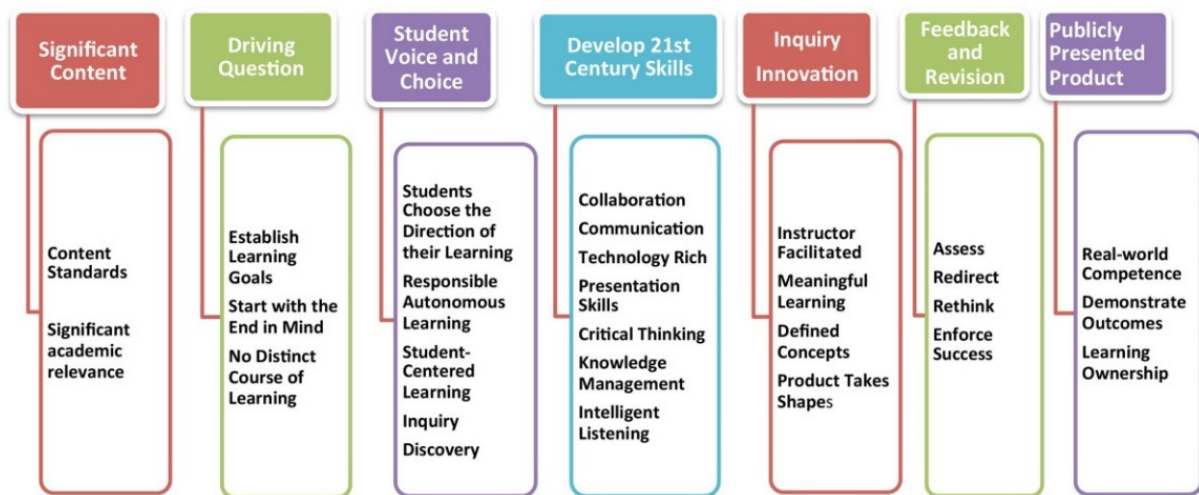
Design Thinking. Design Thinking stems from industrial designers and their unique method to solve problems and satisfy the needs of their clients. Service design, originally developed by the University of Stanford, "is the application of established design process skills to the development of services. It is a creative and practical way to improve existing services and innovate new ones" (Life/Work, in: Stickdorn 2015, p. 33). The method focuses on the experience of clients or customers when purchasing goods or using a service.

At the university level, the customers are represented by the students, sitting in class and experiencing teaching processes, representing the customer experience. This interdisciplinary approach combines various methods and tools. "Service design helps to innovate or improve services to make them more useful, usable, desirable for clients and efficient as well as effective for organizations." (Moritz, in: Stickdorn, 2015, p. 31) When it comes to teaching, we can redefine the quote as follows: "Service design helps to innovate

or improve teaching processes to make learning more useful, usable, desirable for students and efficient as well as effective for universities." Following the **five stages** of service design, the course Teaching2030 aims to set the stage for teaching experiences in classrooms in the year 2030 with students in the centre of the exploration.

1. Develop empathy and understand the needs of people.
2. Define problems and opportunities for designing solutions.
3. Generate and visualise creative ideas.
4. Develop prototypes.
5. Test solutions and seek feedback.

Design Thinking is an ideal method for teaching, as it is per se student-centred. It is an iterative process for finding solutions where certain steps within the process may be repeated. It is less structured, which some students may find irritating at the start, but perfectly reflects the complex problem-solving strategies they will be confronted with in their future jobs.

Example

Module on Entrepreneurship, Based on Service Design

Within the lecture on innovation management, Business Master students are developing ideas for new services or products based on the method of Service Design. They have to create, budget and present their ideas (prototypes) to a consortium of professionals who evaluate their ideas according to their feasibility. This evaluation is the main part of the grading.

3.3 Implications for teaching

Applying student-centred methods in class based on technology naturally means a loss of hierarchy in favour of more equally based communication. The teachers' authority relies on knowledge, experience and counselling abilities, combined with excellent communication skills. These are required for feedback processes, either on the students' work or their own reflection on the chosen tasks. Less hierarchical and ex-cathedra teaching forces students to take control over their learning success. Although many of them still want to be "spoon-fed", the lecturer has to overcome the temptation to meet these expectations. Students will not be done a favour by feeding them with information they can gain through various other sources.

What is more essential is the fact that educators have to frame the learning process, to give direction and to support students in self-study periods via the role of a guide. Lecturers do

not have to be available 24/7, but have to make very clear through which communication channels they are willing to interact with students for giving recommendations and support. This role also goes along with the ability to structure the entire learning process very clearly to give students orientation and meaning. The responsibility for learning (and at least for the final grades) is in hands of the students, not the teacher! Students, not only teachers, also have to change the way that they take on the responsibility for their learning process, as teachers have the responsibility to "chart the course" and support students the best way possible.

Activity: Students' guidance

- ✓ Choose one of your students' project ideas in your course
- ✓ Select one of the student-centred methods for the project management.
- ✓ Plan the guidance of your students in detail. Which steps within the process need which kind of guidance?
- ✓ Draw a time-plan of the different guidance methods and collect the specific tools for the methods as well.
- ✓ At the end of the project, ask your students for feedback about your guidance.

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Online 2: What is project-based learning? URL: https://www.pblworks.org/what-is-pbl (last visit: 2020-02-13)

Stickdorn, M; Schneider, J. (ed.) (5th ed. 2015). *This is Service Design Thinking. Basics – Tools – Cases*, Amsterdam: BIS Publishers

Recommended sources

Five Keys to Rigorous Project-Based Learning – video: https://www.youtube.com/watch?v=hnzCGNnU_WM

Design thinking for education: https://www.elesapiens.com/blog/design-thinking-for-education/)

Guide to Design Thinking: https://www.makersempire.com/what-is-design-thinking-a-handy-guide-for-classroom-teachers/)

Video on the Design Thinking Process: https://www.youtube.com/watch?v=_r0VX-aU_T8

4. Creating learning environments

The famous introductory quote of Star Trek, spoken by William Shatner, was the guiding spirit for the development of new learning spaces in education: "Space: the final frontier. These are the voyages of the Starship *Enterprise*. Its five-year mission: to explore strange new worlds. To seek out new life and new civilizations. To boldly go where no man has gone before!" (online 1). The quote fosters the necessity for exploration without knowing where to land and having the courage to face this endeavour. One must not forget that the "Enterprise" is a research vessel!

4.1. Learning environments in Teaching2030

Within Teaching2030, this exploration turns traditional classrooms into new learning spaces, providing skills and competencies to master future developments in education.

- **Module 1** focuses on how the professional teaching role has changed to encompass new horizons, which means developing a new way of thinking.
- **Module 2** concentrates on personalised and student-centred learning in on-campus classes, turning classrooms into experimental learning spaces.
- **Module 3** focuses on the combination of technological and physical learning environments.
- **Module 4** elaborates on the creation and use of e-learning materials such as videos, virtual reality and MOOCs.
- **Module 5** expands upon this topic as collaborating within online spaces such as social networks will be inevitable in the future.
- **Module 6** deals with writing skills for the web including topics such as web ethics.
- **Module 7** demonstrates teaching in virtual classrooms
- **Module 8** combines all competencies and skills to implement a creative blended-learning space. Table 1 demonstrates which modules are related to the four spaces: roles, labs, social media and virtual worlds.

Matching the spaces with the three types of mental, physical and virtual environments, the table shows the distribution of the modules throughout the spaces and types.

Mental, real and virtual learning spaces in Teaching2030

type	Space 1: Roles	Space 2: Labs	Space 3: Social media	Space 4: Virtual worlds
Mental	Module 1	Module 1	Module 1	Module 1
Physical		Module 2 Module 3		
Virtual			Module 5 Module 6	Module 4 Module 7 Module 8

4.2. Four future environments

Space 1: Changing roles in flexible environments. The traditional classroom is obsolete and a relic of the past: 21st century teachers can't stand in front of the chalkboard while students are seated in rows of desks. When becoming a guide to students, working with technology and implementing new methods in class, the entire environment has to change. Learning environments should be flexible to meet different teaching strategies as the student is in the centre of the learning process and needs a personalised approach. Thus, when designing future teaching, new forms of "classrooms" have to be considered. As the learning experience will be a holistic one, the architecture has to change as well. The teachers as arrangers of the learning environment have to implement and adapt the respective activities in class. What the students might perceive subconsciously can have a profound impact on their learning experience. (Stickdorn, 2015, p. 44) It is advantageous to promote a "teaching mindset" within the organisation as it can increase the motivation of the students as well as the teachers.

Space 2: Working in study labs. What is it that inspires and motivates students to make them come to class or follow online teaching? On campus, teachers can influence learning experiences by arranging classroom equipment flexibly for student-centred activities or by creating stimulating learning spaces through light, sound, music and physical activities. As a huge part of the information will be delivered via online courses, MOOCs, etc., huge lecture halls can therefore be dismissed in favour of smaller groups who meet in person in the study lab. Traditional classrooms will therefore turn into study labs for work productivity: "The lab allows a number of arrangements, using various elements like flexible partition walls, diverse light for creating a specific learning atmosphere and furniture for concentration as well as

relaxation. Access to computers, internet and electronic media go without saying" (Hauptfeld, 2016, p. 12). Considering the aforementioned topics, the lab has to guarantee the utmost flexibility in order to meet the learning outcomes. Moreover, learning environments should foster critical and creative thinking within a technological environment.

Space 3: Using social networking platforms. The paradigm shift in the role of a 21st century teacher has changed teachers' job descriptions. Key skills in this area cover knowledge such as how to use social media for communication and teaching purposes and how to collaborate and write within social networks. We talk about "web space" when we refer to our website or blog as a metaphor for the space we use for the ideas we would like to present and communicate. Teachers and educators can make use of this "web space", specifically within social media, for their teaching, assuming that they know the netiquette and rules of the web. For teachers, understanding the students' world means using at least one medium such as Facebook, Twitter or Instagram in class. Teachers as networkers have to open social media spaces to connect students regardless of time and space. They enhance intercultural work throughout the globe and enable the active inclusion of students with reduced mobility. They may support proper blended-learning courses and engage part-time students in a more active way; "Social networks enrich traditional learning environments as they offer a wide range of possibilities for structuring the learning process." (Loncaric, 2019)

Space 4: Teaching in virtual worlds. Becoming familiar with technology is one of the main challenges of the 21st century. Technology plays an essential role in all spheres of our lives, and education is no exception to the rule. A teacher needs to unlock and leverage the potential of technology for enhancing the quality of all aspects of education. Especially virtual rooms have to be considered alongside classroom teaching. Virtual conferencing software is often used in companies to reduce costs but has also made its way into education. Virtual classrooms offer many advantages: teaching can be done easily beyond time and space thus VCs make the classroom global (distance learning). Nevertheless, teachers are in synchronous contact with their students so personalised feedback is more efficient due to one-to-one attention. An instructional topic, learned through a MOOC for instance, can be easily checked via feedback and debriefing in a VC. Moreover, VCs are easily integrated in blended-learning courses. Teachers have to ensure that students are kept on track and give everyone the chance for active participation by creating an inspiring learning environment, choosing student-centred learning approaches/activities, interconnecting digital technology with classroom experience and blending online teaching and on-campus teaching.

4.3. Changing learning environments

Physical learning environments will change in future in order to replace traditional classrooms. Creative and active classrooms do not just look different, they *feel* different. They provide an environment where students are more likely to express their ideas, think outside the box, challenge problems with innovative solutions and, most importantly, learn more easily and more effectively. New environments have to enhance personalised learning processes and student-centred learning. Chris Kobza (online video) from the Computer Engineering Department at Oklahoma University gives **five recommendations** for active learning space design in his video. According to him, it is essential to clarify space design for the future:

- Should more technology or more flexibility be provided as technological requirements reduce flexible arrangements (e.g. screen in front)?
- What should the space be especially used for?
- Does the teacher need writing surfaces or electronic display?
- Is the space enough for the entire group to move around?
- Can the space design be used in a sustainable way?

With our society changing, future students will have different attitudes, motivation, social competences and technological knowledge. Taking this into account, teachers have to diversify their teaching approaches and enhance skills-focused learning. It is evident that traditional classrooms are no longer suitable. The four competencies of the World Economic Forum will require learning spaces different to existing ones. Communication and critical thinking need a space where students feel accepted and motivated to engage and participate. Creativity needs a flexible space arrangement to encourage free thinking, communication needs a space where students can work together and share their ideas and documents easily and without restrictions.

A well-thought-out learning environment can foster these core competencies to a huge extent. The seating layout should facilitate individual work as well as promote interaction and discussion in groups, the light should enhance concentration and well-being, sound and/or music can stimulate concentration and creativity, the furniture should be attractive, functional and allow flexible arrangements. Flexible and functional equipment should also be provided by the university to set up a number of learning settings and to apply methods in practice. Technology should facilitate the learning process by providing easy visualisation of certain aspects of a topic by using videos, virtual reality tools or interactive whiteboards.

Story

Lucia: Marko, I am convinced you know the concept of formal informal and non-formal learning? I had a very interesting experience in my last class: I gave students the task to think of a learning environment outside their educational setting and to answer the following reflective questions – we got really insightful results!

1. If you think about this situation, did you have the feeling of learning? Why? Why not?
2. When did you realise that you had learnt something in this situation?
3. How did the environment contribute to your learning?
4. What did you like/not like?
5. What does this mean for your learning experiences at the university?

Activities and resources

The following links can help you to plan your ideal learning environment:

Classroom Architect:
Here you can play with different classroom designs and plan your own classroom:
http://classroom.4teachers.org/

School Box Concept:
In the website https://kurani.us/ there are really radically different learning spaces. You can find projects, blog, videos and publications about classroom environment design.

100 Tips & Insights for Opening Great New Schools:
This online document provides you a wide range of good practices, ideas and suggestions, and presents this topic not only in written form but with pictures, videos and additional links, too.
https://www.gettingsmart.com/wp-content/uploads/2016/08/GreatNewSchools-Aug2016-1.pdf

"Phygital" classroom
This article shows you the "classroom of the future": the new "phygital" space. What does it mean? Check the following site:
https://eu-acerforeducation.acer.com/innovative-technologies/the-classroom-of-the-future-a-new-phygital-space/

NEO Blog:
"The website NEO Blog (below) discusses everything about educational technology, e-learning, and 21st century learning in schools and universities. There is a separate topic "Learning spaces" that provides you helping ideas, for example" (quote from the blog):
https://blog.neolms.com/tag/learning-spaces/

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(online video) Kobza, Ch. *Five tips for active learning space design*. Video URL: https://www.youtube.com/watch?v=KXDTxEeLLD8

5. Teachers as social media networkers

Within the role shift of teachers from traditional broadcasters of knowledge to guides, social media also play an essential role in this process. They foster equal communication between students and teachers where hierarchy is dismissed in favour of exchange and networking. Social media therefore represent new learning spaces; assuming that we use them for the right purposes and do not overestimate them in teaching. The Faculty of Tourism and Hospitality Management in Opatija will expand on this topic in Module 5 of the cBook, working with social media and networks in class.

5.1. Social media as working and writing platforms

Communities of Practice. Social media establish Communities of Practice (CoPs) inside and outside class, connecting formal, non-formal and informal learning. CoPs are self-organised working teams that build up knowledge on a specific topic. So it is this topic that brings students together. A moderator is still required but this role can also be taken on by a student. CoPs are an ideal space for engaging with and sharing topics that are of common interest and for making use of technological resources worldwide. CoPs can easily be linked with companies, students and employees working together on a specific topic or problem. Due to their flexible time/space dimension, they can bridge the gap between university and business environments by creating a common learning space.

It is the community (CoP) which constitutes the web through the content it creates. It is an active process where teachers have to consider the information the CoP gives, the shares, likes and comments and the duty to correct fake news. Several Codes of Conduct have therefore been developed, suggesting ethical norms for the web, such as truth of information (fairness, balanced opinions, completeness), accountability (taking responsibility for the results), minimising harm towards third parties and correct attribution of copyright/intellectual property.

User generated contents. Managing the online space of user-generated content (UGC) will be one of the biggest challenges for universities in the 21st century. It is the task of teachers to make sure students know how to produce high-quality and engaging content and how to evaluate content produced by others. In order to equip teachers with the competencies to guide students through this process, Module 6 of the cBook, developed by the University of

Applied Sciences Burgenland deals with an issue not even discussed yet at universities: writing skills for the web. Reading and writing processes in the future will definitely shift from paper to web, which means greater collaboration and user activity, not only between students, but also between teachers and students.

Online writing. We need to rethink communication within virtual spaces and consider web rules, netiquette and the protection of privacy: "Teachers have to be equipped with reading and writing skills for the web as they serve as a role model for their students. Both academic groups have to be aware of the fact that writing on the web always means public writing, regardless of whether the information given is private or work-related. This includes a critical approach towards information, interpretation and commenting on the web, especially within the increasing fake news debate." (Hauptfeld, 2019) Teachers have to be aware of these processes as they represent models when working with social media.

5.2. Applying social media in research and teaching

Teachers who are networking experts via social media can meet the needs and understand the attitudes of this generation. Sharing ideas and access to information count more than possessions and personal belongings. Therefore, the use of social media will be a part of the instructional process. Generation Z is characterised by profiling and self-expression within web 2.0, so educators will have to know and convey the styles of self-presentation and writing skills in the internet, including its dangers (shitstorms) and opportunities (self-profiling). Moreover, students will become international, so teachers will have to develop intercultural competence as well. Teachers will need a pool of international experts and colleagues to work with and invite them to their lectures e.g. via Skype. Social media represent interconnectivity and permanent exchange and teachers should be in the centre of this process to strengthen their own up-to-date knowledge.

Teachers may also benefit from social media regarding international research. Talking about "Science 2.0" or "open science", it is essential for them to take part in the scientific discourse in their field. Providing students with recent research findings, inviting international experts to the class e.g. via virtual conference tools or connecting students with them require online communication and networking skills. Teachers and scientists are constantly sharing their ideas and findings.

"The World Wide Web was discovered by a scientist, to be more exact it was virtually single-handedly developed by the English computer scientist Tim Berners-Lee (born 1955), while he was working for CERN in the 1980s. The web originates from science and was originally designed for scientists; however, since its conception the internet has not only changed the field of science but also that of the entire world. The key processes of scientific research all involve computers and digital tools are utilised at every phase of a research project." (Huter, 2016).

The Utrecht University compiled a list of "101 Innovations in Scholarly Communication" that are used in research and teaching (https://101innovations.wordpress.com/):

- **Literature search**: Google Scholar, Web of Science, PubMed, Scopus, Mendeley
- **Access to literature**: about the institutions, ResearchGate, Open Access Button, E-mail the author
- **Notifications/recommendations**: Google Scholar, ResearchGate, Journal TOCs, Mendeley
- **Reading and evaluating literature**: Acrobat Reader
- **Data analysis**: Excel, R, SPSS, Matlab
- **Writing**: Word, GoogleDrive/Docs, LATEX, Overleaf, Scrivener
- **Reference management**: Mendeley, EndNote, Zotero, RefWorks, Papers, Citavi
- **Choice of journal**: Journal Citation Report (JCR), DOAJ, Scopus, Sherpa Romeo, SJR
- **Self-publishing and self-archiving**: ResearchGate, PubMed Central, arXiv.org
- **Date-archiving**: GitHub, Figshare
- **Archiving and sharing a poster/presentation**: Slideshare, F1000Posters, ScienceOpen Posters, Figshare
- **Popularisation**: Twitter, Wordpress, Wikipedia
- **Researcher profile**: Google Scholar Citations, ResearchGate, ORCID, Academia.edu, ResearcherID, institutional sites
- **Success monitoring**: Web of Science, Journal Impact Factor (JCR), Altemetric, Scopus, ImpactStory, PloS article level metrics

There is a wide range of social media and internet tools that facilitate research and instruction. They all serve a common purpose, namely to support educational processes and enhance collaborative work. Choosing the most appropriate ones that best fit the purpose

may be a good start for teachers. Hence, the next section provides diverse social media tools with which a teacher can build up their own social network.

The following links help you to plan your strategies according to the different teaching roles, and to build your social network as well. Please go to: *23 Excellent Professional Development Tools for Teachers*: https://www.educatorstechnology.com/2013/01/23-excellent-professional-development.html

5.3. Outlook to international project work

While social media are a handy tool in the classroom, they can be as beneficial outside. Social networking is also a powerful tool for teachers that can be used either for personal or professional reasons. On the professional front, social networking acts as an informal resume for self-promotion. Potential clients and employers can "check you out" and browse through your educational qualifications and experience. Another way to attract attention is to promote scientific work on a blog or a project website respectively or to upload an instructional video on YouTube.

It goes without saying that **international project** work involving teachers depends a lot on social media and internet tools. International research projects have become the norm in the consequence of research policies of the EU, like Horizon 2020 or Erasmus+, with teams from three to ten universities. This demands collaboration on various levels as teachers and researchers have become more independent from their home universities, pursuing research topics within an international team. This requires a variety of skills, like being well-versed in technology, having experience in project management and conflict resolution. When it comes to technical issues, especially the communication structure of a project has to be defined, such as:

- Which platform will be used for sharing the documents?
- Which conferencing tool will be used for virtual meetings?
- How will the marketing and dissemination take place online?
- How will a website look and who will host it?
- Should a facebook site and twitter account be integrated into the site?
- Should a professional site like LinkedIn be used to contact potential partners?

Teaching, instruction and project work in the year 2030 will integrate technology, social media tools and e-learning materials according to internationalisation processes, intercultural exchange and a globalised university environment. Hence, teachers and educators are well advised to make friends with technology ☺!

Activity: Social networking for my project

Think about launching an academic project with international partners. Plan the following points. Which electronic means and/or social media would you use in the five phases?

1. Searching for partners

2. Introducing the project plan

3. Keeping in touch with the partners

4. Conducting the research

5. Presentation and dissemination

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Keywords

- 21st century skills
- Student-centred learning
- Guidance/Guide
- Learning environment
- Social media

Image sources

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