

LTSHE

Learning and teaching space in higher education



Co-funded by the
Erasmus+ Programme
of the European Union

KEY ACTION

Cooperation for innovation and the exchange of good practices

ACTION TYPE

Strategic Partnerships for higher education

WEB INFORMATION

<https://ec.europa.eu/programmes/erasmus-plus/projects/eplu-project-details/#project/2019-1-UK01-KA203-061968>
<https://www.evalag.de/ltshe>



Exploration of Policy and Practice: Learning and Teaching Space in Austrian Higher Education

“National Report” by WU Vienna about policy and practice of designing L&T spaces in Austrian higher education including institutional levels

**Johanna Warm
Oliver Vettori
Marina Hülssiep**

18th January 2021

The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

For further information please contact:

Dr. James Williams
Project co-ordinator

Social Research and Evaluation Unit
Birmingham City University
B15 Bartholomew Row
Birmingham, United Kingdom
B5 5 JU

Tel: +441213315000 / +441213317602

james.williams@bcu.ac.uk

<https://www.bcu.ac.uk/social-sciences/about-us/staff/criminology-and-sociology/james-williams>

Table of contents

| | |
|--|-----------|
| Executive Summary | 5 |
| 1. Introduction | 7 |
| 2. Research discourse | 8 |
| 3. Methodology..... | 10 |
| 4.0 National policy and practice for the design and implementation of L&T space in Austrian higher education..... | 11 |
| 4.1 Legal prescriptions for and autonomy of the higher education institutions | 14 |
| 4.2 Digitalisation in higher education | 18 |
| 4.3 Importance and status of didactics, pedagogy and curriculum design in Austrian higher education | 20 |
| 4.4 Importance and status of physical L&T space in Austrian higher education | 22 |
| 5.0 University strategy and practice for the design and implementation of L&T space in Austrian higher education..... | 25 |
| 5.1 Strategic documents on the university level..... | 25 |
| 5.2 University didactics, pedagogy and curriculum design..... | 27 |
| 5.3 University digital structures..... | 28 |
| 5.4 Physical L&T spaces at Austrian universities | 31 |
| 6. Conclusions and recommendations | 34 |
| Bibliography | 36 |

Executive Summary

In the European Higher Education Area the design of learning and teaching (L&T) spaces and their impact is an important, yet often neglected area. The LTSHE project tries to overcome this neglect and thus, the first Intellectual Output (O1) of the WU Vienna explores the policy and practice of designing and implementing L&T spaces in Austria, by focussing on the national level as well as the practices implemented in Austrian higher education institutions (HEI).

As research shows, the design of teaching rooms has an impact on teaching style, student engagement and possibly also student performance. However, recommendations for the design of L&T spaces are missing in the Austrian context as are legally binding prescriptions. In the strategic plans of universities, L&T spaces are addressed only in relation to “infrastructure”, focusing on student numbers, room capacities, and office and teaching space. Didactical needs are not taken into account on this institutional level and the link to the strategic goals in the area of didactics or digitalisation has not been made so far.

The report shows, that the areas didactics, digital demands and infrastructure are usually placed in different departments. This institutional separation increases the difficulty of cooperating on subjects that affect several units and areas of (strategic) interest.

With regard to university didactics, the role L&T spaces play for the successful implementation of diverse course design is not systematically considered nor mentioned in the universities’ development plans, in contrast to the area of digitalisation which is well documented on the national level, in strategic plans, on homepages and in research. Due to being a core goal in the National Development Plan for Public Universities (GUEP) digitalisation demands and its reflections on infrastructure have found a way into the strategic plans as well as onto the higher education institutions’ homepages. Nevertheless, the provided digital infrastructure and its didactical implications need to be better linked.

This missing link to didactics also applies to physical L&T space. The analysis of all 22 public universities in Austria reveals that none provides publicly available information beyond technical details of their teaching rooms (capacity, room setting, digital infrastructure available). Information for teaching staff on didactical implications of certain room settings or recommendations are missing.

Despite these shortcomings, there are several good practices for innovative L&T spaces at the Austrian public universities. Making these available and accessible could be a step towards a more systematic approach in the design of L&T spaces.

Concluding, five recommendations with regard to L&T spaces at Austrian HEI can be given:

At national level:

- Recommendations for the diverse usage of newly built L&T spaces would be valuable. This would raise awareness of the importance of the design of L&T spaces and the implications it has on the teaching that occurs in the respective rooms.

At university level:

- In the planning process of L&T spaces it should be considered that the room setting allows for and fosters different didactical approaches, e.g. problem-based learning, self-directed learning or research-based learning.
- Demands of digital teaching should be taken into consideration whenever new L&T spaces are planned and implemented. Innovative approaches in digital teaching should be feasible in newly designed L&T spaces.
- All stakeholders should be involved in the planning and implementation process for L&T spaces.
- Competences on how to best use different room settings and digital infrastructural available needs to be communicated to teaching staff and should be integrated in the staff development programs at university level.

1. Introduction

This Intellectual Output (O1) of the LTSHE project explores the policy and practice of designing and implementing learning and teaching (L&T) spaces in Austria. We are going to look in detail into several areas which influence and might in turn as well be influenced by the design of L&T spaces. In the first part of our analysis we focus on the national level, examining the legal context for higher education institutions in Austria as well as the status of digitalisation, didactics and L&T space, while the second part of our analysis focusses on the practices implemented at Austrian higher education institutions (HEI). An important part of the analysis are the good practices in those areas of interest realised at Austrian public universities.

After this short introduction, chapter 2 lays out the general theoretical basis relevant for the design of L&T spaces while chapter 3 explains the methodological approach we used for our project.

In chapter 4, we give an overview of the legislations, policies and stakeholders, which are relevant for L&T spaces in the Austrian higher education context. We base this national report on document analysis and, wherever available, on research evidence regarding the Austrian context.

Chapter 5 provides an overview of the institutional policies and practice activities regarding the design of L&T spaces in Austria. Another aspect which gives an indication on the relevance of L&T spaces for the different institutions in Austria, is the representation of themes related to L&T spaces on the universities homepages. For this reason, a detailed analysis of the homepages of the 22 public universities in Austria was included in this part of the research.

The conclusions of our work as well as further recommendations will be summarized and presented in chapter 6.

2. Research discourse

Learning and teaching have gradually been gaining in relevance on the political agendas of national higher education systems during the past years and enhancing the quality and relevance of L&T has become one of the top priorities of European higher education institutions. This policy shift led to a stronger focus on student learning and on “teaching as a legitimate object of scrutiny and improvement” (Clegg and Smith, 2010, p. 116). In line with the policy changes, research has also more and more focused on ways to increase student engagement, self-directed learning, active learning and other formats besides the traditional lecture style (cf. Smith, 2017, p. 59).

Interestingly, in the discourse on active, self-directed and student-centred learning, the impact of the spaces where students learn, the architecture and design of lecture halls or seminar rooms as well as the role self-study areas play for students has not been addressed by research for a very long time (cf. Temple, 2008, p. 233). The same is true for the practical side: Systematic reports on how higher education institutions strategically approach the design of their L&T spaces are not available so far. It is this gap, that the intellectual output 1 of the LTSHE project aims to address.

Recently, systematic analyses regarding the impact of the design of spaces on learning and teaching have emerged (Beckers et al., 2016; Brooks, 2012; Chiu and Cheng, 2017; Ellis and Goodyear, 2016; Finkelstein et al., 2016; Granito and Santana, 2016; McArthur, 2015), with a new field of research developing, which focusses on the impact of space on instructor behaviour as well as on student engagement.

Most notably, recent studies show, that spaces can influence the teaching style: Active learning classrooms, i.e. spaces with modular seating arrangements, a diversity of technology and additionally low-tech tools such as whiteboards, are likely to impact the instructors’ behaviour as well as their perception of student learning and engagement (Sawers et al., 2016, p. 30). While the traditional lecture setting (i.e. students facing the teacher) reinforces the transmission mode that is inherent to lectures, settings without a traditional “front” identifiable (such as multiple tables in the classroom, where students face each other) rather discourage lectures, because it is hard for the teacher to find a focal point where all the attention is directed to her/him (cf. Smith, 2017, p. 64).

Research in the field led to the development of five important principles that should be followed when L&T spaces are redesigned, which focus on the following areas:

| Area | Principle |
|---------------------------------|--|
| Academic Challenge | Learning spaces should allow students to actively engage with content and include a range of technologies that support multiple modes of teaching and learning |
| Learning with peers | Learning spaces should provide features that permit students to work both individually and in collaboration with one another |
| Experiences with faculty | Learning spaces should facilitate communication and interaction between students and faculty |

| | |
|------------------------------|---|
| Campus environment | Learning spaces should be consistent with the university's culture and priorities as reflected in the campus Master plan, follow university design standards, and be designed with future flexibility in mind |
| High-Impact Practices | Learning spaces exist within a larger campus context; there should be an ease of transition between spaces so as to better support high-impact practices inside and outside the classroom |

Table 1: Principles for (Re)designing L&T spaces (Finkelstein at al., 2016, p. 26).

These research-informed principles can rather easily be translated into practice and might be used as an orientation for higher education institutions which aim at (re)designing their L&T spaces. Focussing on the practical and governance side, it would also be interesting to include principles how learning environments could be made a priority within the university's mission and strategy. From a practical point of view, principles regarding the implementation processes and practices at diverse higher education institutions would also be a valuable addition.

Within the LTSHE project, the aim is to develop an extensive manual regarding the design and implementation of L&T spaces. The results from the literature summarized in this short review can be used as a starting point and will be backed up by the national reports of the partner universities within the project consortium. With regard to the situation in Austria, the literature informed the choice of the good practices which will be presented in section 5 of this report.

3. Methodology

We approached our desktop research for this first Intellectual Output in the LTSHE project via an analysis of the available documents on the legislation, policy and strategy regarding L&T spaces in the Austrian Higher Education context. Furthermore, we included published and grey literature as well as documentations of practice available on the subject of L&T spaces.

For the description regarding the national level in chapter 4 of this report, legislative documents and the respective national data bases were the most relevant source. Since the Federal Ministry of Education, Science and Research (BMBWF) is responsible for all matters regarding education in Austria, its homepage and the official documentation available there was one of the most important sources to describe the Austrian context. In order to make sure not to overlook further relevant sources for the description of the national level, we also interviewed a representative of the Ministry, focussing on university infrastructure in Austria. Unfortunately, our research revealed that official documentation is scarce and that to date no systematic surveys regarding L&T spaces in Austria have been published.

For the general search we used a range of search terms in German and English to identify relevant information. Among them were “Learning and teaching in Austrian higher education”, “Teaching rooms in Austria”, “Didactics in higher education”, “L&T at Austrian universities”, “Learning spaces in Austria”, “Self-study areas in higher education” and “Designing learning spaces”.

Regarding the national level and the exploration of the practices at the 22 public universities, we discovered that documentation as well as university strategy documents regarding L&T spaces are equally rare. In order to provide a detailed picture of the current practice at Austrian public universities, we systematically searched the official university homepages for the available information on the respective university’s organisation, information on didactics, pedagogy and curriculum design, the digital structures as well as the physical L&T spaces which led to a good overview of the situation. Of course, in order to gain a really comprehensive picture, further insights from university representatives, staff and faculty would be required.

Summing up, although we took into consideration all available documentation and written data regarding the subject, this report can only present a limited overview of the situation in Austria. In order to gain a complete picture, personal interviews with university representatives would be indispensable. Nevertheless, our analysis allows for several conclusions and recommendations which will be presented at the end of this report.

4.0 National policy and practice for the design and implementation of L&T space in Austrian higher education

In this chapter we aim at providing a comprehensive picture of the Austrian higher education context, focussing on legislations, policies and stakeholders, which are relevant for L&T spaces. This regards the legal context that provides the framework for building and designing L&T spaces, but also includes an overview of policies and initiatives in place which regard the areas of didactics and digitalization. Finally, we will also put the spotlight on available information regarding physical L&T spaces in Austrian higher education.

4.1 Legal framework of the national higher education system

Austria's Higher Education System has four sectors. The largest one is the public sector, with Austria's 22 **public universities** (Austrian Federal Ministry of Education, Science and Research, no date a). With the University of Vienna as one of the oldest (established in 1365) and largest (approx. 90,000 students) universities in Europe, public universities in Austria build on a longstanding tradition. Since the vast majority of the Austrian university students (approx. 75 %) study at public universities, this sector will be at the focus of our analysis in the second part of this report.

In comparison to the public universities, **universities of applied sciences** are still relatively young. The first universities of applied sciences were launched in the 1994/95 academic year and the sector has demonstrated rapid, impressive growth since then. In contrast to the public universities, the universities of applied sciences explicitly focus on professional education at higher education level and are hence geared towards professional practice. In 2020, there are 21 universities of applied sciences in Austria (cf. Austrian Federal Ministry of Education, Science and Research, no date b).

Private universities have become established as the third pillar in the Austrian higher education system, and are growing dynamically. In 1999, the necessary legal basis for this was established. The number of private universities and their student numbers have grown continuously ever since, although compared to the public sector and the universities of applied sciences, the private sector still only addresses a minority of the Austrian students. Currently, Austria has 16 accredited private universities (cf. Austrian Federal Ministry of Education, Science and Research, no date c).

Austria's **university colleges of teacher education** provide scientifically-based vocational continuing education and training in all areas of teaching, specifically for teachers. In total, there are 14 university colleges of teacher education at which it is currently possible to take teacher training courses with the option to focus on and specialise in different areas Austrian Federal (Ministry of Education, Science and Research, no date d).

| Public universities in Austria | Universities of Applied Sciences | Private Universities | University Colleges of Teacher Education |
|--|---|--|--|
| University of Vienna | University of Applied Sciences of Bfi Vienna | Anton Bruckner Private University for Music, Drama and Dance - Upper Austria | University College of Teacher Education Vienna |
| University of Graz | University of Applied Sciences Technikum Wien | Bertha von Suttner Privatuniversität | University College of Teacher Education Lower Austria |
| University of Innsbruck | University of Applied Sciences Campus Wien | Central European University | Private University College of Teacher Education Vienna/Krems |
| Vienna Medical University | University of Applied Sciences Vorarlberg | Danube Private University | University College for Agrarian and Environmental Pedagogy |
| Graz Medical University | University of Applied Sciences Carinthia | Gustav Mahler Privatuniversität für Musik | University College of Teacher Education Styria |
| Medical University of Innsbruck | University of Applied Sciences Wiener Neustadt GmbH | JAM MUSIC LAB Private University for Jazz and Popular Music Vienna | University College of Teacher Education Carinthia |
| University of Salzburg | University of Applied Sciences St. Pölten | Karl Landsteiner Private University of Health Sciences | Private University College of Teacher Education Burgenland |
| Vienna University of Technology | IMC University of Applied Sciences Krems | Katholische Privatuniversität Linz | Private University College of Teacher Education Diocese of Graz-Seckau |
| Graz University of Technology | University of Applied Sciences Salzburg | Music and Arts University of the City of Vienna | University College of Teacher Education Upper Austria |
| Leoben University Mining and Metallurgy | University of Applied Sciences Kufstein Tyrol | MODUL Vienna University - Private University | University College of Teacher Education Salzburg |
| University of Natural Resources and Applied Life Sciences Vienna | CAMPUS 02 University of Applied Sciences Graz | Paracelsus Medical University Salzburg | Private University College of Teacher Education Diocese of Linz |
| University of Veterinary Medicine Vienna | University of Applied Sciences Joanneum Graz | UMIT Tirol - The Tyrolean Private University | University College of Teacher Education Tyrol |
| Vienna University of Economics and Business | University of Applied Sciences Upper Austria | New Design University St. Pölten | University College of Teacher Education Vorarlberg |

| | | | |
|---|--|------------------------------------|---|
| Johannes Kepler University Linz | University of Applied Sciences Burgenland | Private University Schloss Seeburg | Private University College of Teacher Education Edith Stein |
| University of Klagenfurt | MCI Management Center Innsbruck | Sigmund Freud University Vienna | |
| University of Applied Arts in Vienna | University of Applied Sciences for Management and Communication Vienna | Webster Vienna Private University | |
| University of Music and Performing Arts in Vienna | Lauder Business School | | |
| University Mozarteum Salzburg | University of Applied Sciences for Health Tyrol | | |
| University of Music and Performing Arts Graz | Ferdinand Porsche FernFH | | |
| University of Art and Industrial Design in Linz | Ministry of Defence (Sustainer of the course of studies „Austrian armed forces“) | | |
| Academy of Fine Arts in Vienna | University of Applied Sciences for Health Professions Upper Austria | | |
| Danube University Krems | | | |

Table 2: Institutions of higher education in Austria

Across the four sectors, there is a lot of variation regarding the legal basis (see section 4.1) as well as the respective funding systems. Quality assurance mechanisms also differ across the sectors: While public universities and established universities of applied sciences have to go through audits, which regularly assess the institutional quality systems in place and thus contribute to the development of the universities, regular accreditation procedures are required for private universities and their programmes. The introduction of new degree programmes at universities of applied sciences and the establishment of new universities of applied sciences also require an accreditation. AQ Austria (<https://www.aq.ac.at/en/>), an independent body for external quality assurance in the higher education sector, is mainly responsible for conducting accreditation procedures and audits in Austria but other internationally recognised and independent agencies may also carry out audits (Austrian Federal Ministry of Education, Science and Research, no date e).

As of winter semester 2018, a total of over 350.000 students registered to study in Austria. The vast majority of the students (297,974) is enrolled at one of the 22 public universities (cf. Austrian Federal Ministry of Education, Science and Research, 2020a).

| Public universities in Austria | Number of students (winter semester 2019/20; data from Unidata) |
|--|---|
| University of Vienna | 84,774 |
| University of Graz | 28,535 |
| University of Innsbruck | 26,585 |
| Vienna Medical University | 6,999 |
| Graz Medical University | 3,877 |
| Medical University of Innsbruck | 3,298 |
| University of Salzburg | 14,985 |
| Vienna University of Technology | 25,550 |
| Graz University of Technology | 15,909 |
| Leoben University Mining and Metallurgy | 3,658 |
| University of Natural Resources and Applied Life Sciences Vienna | 10,611 |
| University of Veterinary Medicine Vienna | 2,337 |
| Vienna University of Economics and Business | 20,130 |
| Johannes Kepler University Linz | 21,089 |
| University of Klagenfurt | 10,817 |
| University of Applied Arts in Vienna | 1,588 |
| University of Music and Performing Arts in Vienna | 2,571 |
| University Mozarteum Salzburg | 1,695 |
| University of Music and Performing Arts Graz | 1,899 |
| University of Art and Industrial Design in Linz | 1,337 |
| Academy of Fine Arts in Vienna | 1,493 |
| Danube University Krems | 8,237 |
| Total | 297,974 |

Table 3: Number of students at Austria's public universities

4.1 Legal prescriptions for and autonomy of the higher education institutions

The Bologna Process has been playing a major role in shaping the modern Austrian higher education system for almost two decades now. Corresponding to European developments, the three-cycle system with Bachelor, Master, and Doctoral degree programs was adopted. Vienna University of Business and Economics (WU Vienna) was the first Austrian university to implement the three-tiered system with the other public universities following.

Public Universities

More than 75 % of all degree programme students currently study at one of the 22 public universities. For this and other reasons, it can be considered the core of tertiary education in Austria. Article 81c of the Federal Constitutional Law (B-VG) guarantees each university its autonomy (Austrian Federal Ministry of Education, Science and Research, no date a).

The Universities Act (UG) came into effect in 2002 and was implemented simultaneously in all public universities in 2004. It forms a modern legal basis on which the public universities are established as independent legal entities. This means that to date the universities have largely managed themselves, even though they have been publicly financed to a large degree. The UG 2002 granted Austrian public universities full institutional autonomy, which includes:

- Organizational autonomy: Concentration of the decision-making powers and the responsibility for university organization in three bodies (Rector's Council, Senate, and University Board). Universities can define their own structures and processes for managing teaching and research.
- Financial autonomy: Introduction of three-year lump-sum budgets based on performance agreements made between the university and the Federal Ministry.
- Personnel autonomy: Autonomous hiring of faculty and staff; Full professors are appointed by the Rector based on a short-list developed by the internal Search Committee.
- Program autonomy: Independent development and implementation of new academic programs. A Senate Subcommittee decides on curricula. The Committee's decisions require the approval of the Senate. Resources are decided by the Rector's Council.

Regarding infrastructure, the vast majority of the Austrian public universities do not own their buildings, but rent them from the Bundesimmobiliengesellschaft (BIG; „Federal Real Estate Company“) or (in rare cases) third parties. The UG 2002 contains a section on properties, buildings and rooms, which focuses on tenancy rights in respect of these properties and also states that the Federal Minister has to maintain a national development plan for buildings. This plan contains all building projects of universities (new buildings, modifications, etc.). The universities have to communicate their building projects to the Federal Minister who then decides on the inclusion of the projects in the development plan (cf. UG 2002, part VI).

The only legislations which are binding for university buildings, are those regarding public buildings, which means that there are minimum regulations regarding aspects like barrier-free access to the buildings, minimum surface required for offices etc. Moreover, in the case of the public universities, where buildings are usually publicly financed as well, the Ministry also has a say regarding the design and structure of the buildings (office spaces, teaching rooms, learning spaces; E. K., 2020).

Private Universities

The legal basis for the private universities is provided by the Private Universities Act (PUG) which came into effect in 2011. Private universities are recognised by the state through accreditation in accordance with the provisions of the Higher Education Quality Assurance Act (“Hochschul-Qualitätssicherungsgesetz“) and they have to submit annual reports to the Agency for Quality Assurance and Accreditation Austria.

In contrast to the public universities in Austria, private universities may not receive financial support by the Federal Government, as stated in the PUG. Federal provinces or municipalities are free to finance private universities but financing also comes from other sources such as tuition fees, grants and contributions from the providers of the private universities, third-party funds, donations, etc.. The only exception to this rule states that the federal government can conclude contracts with private universities in case a supplementation of the range of courses offered by public universities is needed.

Each private university has to enact the rules of procedure in the form of a statute. Among others, the statute has to contain regulations regarding the tasks of the private university, its

bodies, regulations governing the degree programs (admission, examination regulations, heads of studies) (cf. PUG 2011 § 4). This means that private universities are responsible for their own access regulations and also for the amount of tuition fees.

Regarding the infrastructure of private universities, the PUG does not give any indication or regulation.

Universities of Applied Sciences

The legal basis for the Universities of Applied Sciences is the Federal Act on University of Applied Sciences Studies Act (“Fachhochschulstudiengesetz”; FhStg.) which came into effect in 1993. The universities of applied sciences are mainly funded by the federal government and by other public bodies. Legal entities under private law may also fund universities of applied sciences.

The federal government finances universities of applied sciences by allocating contributions per study place and covers about 90 % of the annual standard costs of the study places (cf. EACEA, 2021).

The remaining costs are carried by the provider, i.e. for example provincial governments, regional and supra-regional authorities, etc., which are entitled to collect tuition fees from the students up to the amount of EUR 363.63 per semester (i.e. the same amount the public universities can collect from the students). (cf. EACEA, 2021) The exact proportions of the funding provided by municipalities, provinces, the economy or other sources are unknown, because the universities of applied sciences are organised under private law. Universities of applied sciences have complete autonomy over their public funding vis-à-vis the federal government, as the entire financial responsibility lies with the provider (EACEA, 2021).

What is especially relevant for the focus of this report, is the fact that infrastructure is not funded by the federal government.

Regarding the governance structures, the FhStg requires each provider to establish a university of applied sciences board, responsible for the implementation and organisation of teaching and examinations. Apart from the coordination of the content of all teaching and examinations, the board is also responsible for modifying the accredited degree programs (in consultation with the provider) or submitting proposals for the appointment and dismissal of staff to the provider (FhStg, §10). Moreover, the board is also responsible for adopting rules of procedure and a statute – both in consultation with the provider. A programme director is appointed as head of the board.

Similarly to the GUEP, there is a development and funding plan for the universities of Applied Sciences, which coordinates the strategic goals for the universities of applied sciences at national level.

University Colleges of Teacher Education

There are nine public university colleges of teacher education, which are administered and financed by the federal government. In contrast to the universities of applied sciences, they have only limited legal capacity and are therefore closely bound to the requirements of the federal government.

The five private university colleges of teacher education are run by foundations established by the Catholic Church and therefore have greater autonomy. At private university colleges of teacher education, the federal government funds the entire costs of the teaching staff and thus the majority of expenditure (EACEA, 2021).

The legal basis for public as well as for private university colleges of teacher education is the Act on the organisation of university colleges of teacher education and their study programs (HG, 2005).

Stakeholders relevant for L&T spaces

Federal Ministry of Education, Science and Research

The Federal Ministry of Education, Science and Research (BMBWF) is responsible for the entire education system in Austria, from early childhood education and primary schools to the Matura (secondary school leaving exam), university colleges of teacher education and adult education. With regard to the higher education sector, one of the tasks of the BMBWF is to define strategic targets. The strategic framework for the public universities is outlined in the National Development Plan for Public Universities (GUEP). A similar strategic plan exists for the Universities of Applied Sciences (Fachhochschulentwicklungs- und Finanzierungsplan).

The BMBWF also negotiates performance agreements with the public universities every three years. These include specific targets, for example for examination activity, targets for student-teacher ratios or in relation to the academic staff (basic research output). The standards set out in Section 12 UG on university funding form the legal basis for this. Universities of applied sciences are funded according to the number of student places they offer. Private universities do not receive their standard budget from the Republic of Austria. With regard to the focus of our report, the BMBWF is also responsible for the planning of building projects of the Austrian public universities.

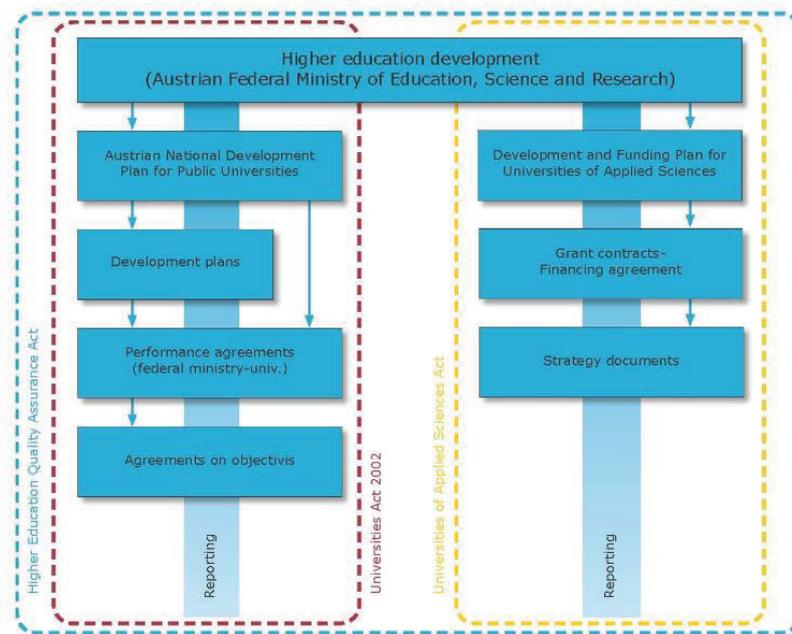


Figure 1: Illustration of the essential control mechanisms between universities and the federal government as well as between universities of applied sciences and the federal government (cf. Austrian Federal Ministry of Education, Science and Research, no date f)

Bundesimmobiliengesellschaft (BIG; „Federal Real Estate Company“)

Large parts of the Austrian federal infrastructure are managed by the BIG and most of the buildings of Austria’s universities’ buildings are owned by the BIG. The Federal Real Estate Company is one of the biggest companies in the area of building custody und construction and owned by the Republic of Austria. The BIG owns 2,012 properties with a fair value of almost 13 billion Euros, mostly educational buildings such as schools and universities, but also offices and residential buildings. More than 200 university buildings in Austria are owned by the BIG, adding up to a surface of 2,1 million square meters (cf. [BIG](#), 2021). The BMBWF, the Austrian universities and the Ministry for Internal Affairs and Justice are the biggest tenants.

Providers of the Universities of Applied Sciences

Since infrastructural costs are not covered by the federal government in the case of the universities of applied sciences, the providers (e.g. municipalities, provinces, but also associations like the Austrian Chamber of Commerce etc.) are responsible for the infrastructural demands of the universities of applied sciences.

4.2 Digitalisation in higher education

Although digitalisation is a current “burning” theme in Austrian higher education, so far there is no singular national policy document dedicated to digitalisation. Nevertheless, the importance of digitalisation is highlighted by the fact that it was for the first time one of the focal points in the performance agreements for 2019 – 2021. Furthermore, until 2021, all public universities have to submit institutional strategies for digitalisation. One of the active players regarding

digitalisation in the Austrian higher education context is the association Forum Neue Medien in der Lehre Austria (Forum New Media in Teaching & Learning Austria [translation JW]; official abbreviation: fnma). Their initiatives will also be outlined in the next section.

Digitalisation in the Austrian National Development Plan for the Public Universities

The “Austrian National Development Plan for the Public Universities” includes several goals related to digitalisation. They are subsumed under objective 3 “Improve the quality of university teaching” and explicitly mentioned in objective 8 “Social responsibility of universities: gender equality, diversity and social inclusion, responsible science, sustainability and digital transformation”. These objectives form the basis for the performance agreements between the Ministry and the universities.

Objective 3: Improve teaching (didactic method) and organisation of courses, including with respect to:

- Digitalisation, student-centred teaching, examinations
- Develop new digital teaching methods (student-centred and accessible)
- Use of open educational resources in order to improve competencies of self-learning and to allow ubiquitous and non-restricted access to knowledge
- Use of learning analytics

(cf. Austrian Federal Ministry of Education, Science and Research, no date f, p. 18)

Objective 8:

The main issues relate to:

- Processes for handling data – from usage, sharing, exploitation and analysis, through to issues involving data protection and personal rights;
- Teaching digital abilities, skills and cultural techniques for the use and understanding of these technologies, and critical reflection about them;
- Developing new information technologies and systems;
- Shaping social structures for co-existence with respect to the use of information technology and learning systems.

(cf. Austrian Federal Ministry of Education, Science and Research, no date f, p. 40 ff.)

The importance of digitalisation for the Ministry of Education, Science and Research was also stressed by a recent call to all public universities, asking for projects in the digitalisation area. The call “Digital and Social Transformation” deliberately focused on projects to improve digital learning and teaching, the development of MOOCs and Learning Analytics. With regard to the focus of the LTSHE project, it is particularly interesting that digital or physical infrastructure to support blended learning was not funded within the call.

The third edition of the GUEP, reaching from 2022 to 2027, will focus even more strongly on digital transformation tackling issues such as artificial intelligence, robotics, cloud computing and the blockchain technology (Austrian Federal Ministry of Education, Science and Research, 2020b).

Verein Forum Neue Medien in der Lehre Austria (fnma)

“Verein Forum Neue Medien in der Lehre Austria“ (Forum New Media in Teaching & Learning Austria [translation JW]; official abbreviation: fnma) is an association which works as a representative body for the higher education sector regarding digitalisation. It was founded in 2000 and its mission is to provide a network for the development and implementation of strategies and initiatives in the area of digital educational resources. The association provides regular networking meetings for all its members and coordinates working groups focusing on relevant subjects in the area of teaching and learning with technologies. Moreover, the association provides online resources and interactive meetings for its members ([cf. FNMA, 2020](#)).

In 2019, 19 of the 22 Austrian public universities were members of fnma, as well as 9 out of 14 teacher training colleges, 17 out of 21 universities of applied sciences and 2 out of 16 private universities ([cf. FNMA, 2020](#)).

In the field of representation of interest of its members, fnma regularly organizes inter-institutional working groups on highly up-to-date and relevant subjects. The outcomes of the working groups are then published in the form of whitepapers available on the website. The most recent whitepapers focus on “Open Educational Resources” (FNMA, 2016) and “Learning Analytics” (FNMA, 2019) and are also an important resource for the strategic goals mentioned in the GUEP. In 2016, a comprehensive study on the status of e-learning at Austrian higher education institutions was published. The results of this study will feed into parts of section 5.3 of this report.

An important pillar of the networking activities within the association is the support of events in relation to digital teaching at member institutions. Expert talks (“fnma talks”) via livestream and/or provided in the form of recordings on the website are another important service of the association. Another function of fnma is the financial support of projects regarding the use of learning technologies. In 2019 two projects were funded: The University of Graz performs an explorative study on the possible use of artificial intelligence (i.e. social bots, digital assistants etc.) at higher education institutions and the university of Applied Sciences FH Wien der WKW will develop an online course on academic writing, which will be published in video format.

Finally, with “Zeitschrift für Hochschulentwicklung” (ZFHE), fnma also has an academic outlet: an open-access-journal which focusses on diverse aspects of university development, but not on digitalisation exclusively. In 2012, ZfHE published a special issue with the title “Cooperation in higher education institutions – learning spaces, buildings and campus planning” ([cf. ZfHE, 2012](#)). Unfortunately it only included one publication focussing on the Austrian situation.

4.3 Importance and status of didactics, pedagogy and curriculum design in Austrian higher education

Similar to the area of digitalisation, there is no strategic document at the national level focussing exclusively on pedagogy or didactics. Again, the GUEP can be consulted for this area of development: One of the goals in the GUEP explicitly refers to the improvement of teaching. University teaching is considered to rely on the important pillars of the connection between research and teaching, the plurality of scientific theories and methods teaching relies on and the

importance of a theoretical and methodical toolkit for BA students which empowers them for life-long learning and strengthens employability.

The GUEP also mentions the importance of making teaching more relevant for academic careers and of learning outcomes based approaches as an international quality standard in the design of curricula.

A focus of the GUEP lies on the *Studierbarkeit* of the programmes at the Austrian universities, i.e. on the study conditions within a study programme and whether these conditions allow the students to finish their studies in the intended time frame.

Objective 3: Improve teaching (didactic method) and organisation of courses, including with respect to:

- Take didactic skills into consideration appropriately when qualifying and appointing teachers as well as in education and training for university staff
- Studierbarkeit (study feasibility)

(cf. Austrian Federal Ministry of Education, Science and Research, no date f, p. 18)

Consequently, the improvement of the study conditions as well as the improvement of the teaching quality itself are priorities in the performance agreements for the period between 2019 to 2021. Important foci are the faculty/student ratio, as well as student activity. The measures the public universities in Austria take, range from improvements in the organisation and administration of the study programs, to enhancing exam conditions or improvements in student orientation phases and personal counselling for the students.

Other important areas in the GUEP include access to higher education, supporting students in their first year and increasing flexibility for students who work part time (by using technology).

So far, an association which focusses on strategic aspects or general support in the field of didactics, with a role similar to the one fnma takes for digital aspects of teaching, is missing in Austria. Nevertheless, there is a network for the development of teaching and learning in Austria, the “Plattform Lehr- und Lernentwicklung” founded by WU Vienna in cooperation with the University of Vienna. Regular network meetings allow the participants to exchange good practices and cooperate on policy work regarding didactics and pedagogic.

The Ministry of Education, Science and Research has launched several initiatives to promote good teaching in recent years, i.e. the prestigious national teaching award “Ars Docendi” which was launched in 2013. Since 2014, the BMBWF presents the award together with Universities Austria (uniko), the Association of Austrian Universities of Applied Sciences (FHK), the Association of Austrian Private Universities (ÖPUK), and the Austrian Students’ Union (ÖH). The Ars Docendi awards are presented in five categories: 1) Learning Outcome oriented approaches in teaching, 2) Digital transformation in teaching, 3) Cooperative forms of learning and teaching, 4) Research-oriented teaching and 5) Quality improvement of teaching. The nominations are evaluated by an international jury of experts and all submitted proposals can later on be found on the homepage of the “atlas of good teaching” (<https://www.gutelehre.at/>), a project that was created explicitly to foster the promotion of excellent teaching at Austrian universities.

So far initiatives connecting L&T spaces with didactic principles and recommendations are missing in Austria.

4.4 Importance and status of physical L&T space in Austrian higher education

In Austria, most of the public universities are not housed on a campus, but in several buildings distributed in the city. The reason for this lies in the history of the institutions, with universities developing and growing in the respective cities and acquiring spaces to accommodate growing numbers of students and/or faculties. The largest university in Austria, the University of Vienna, has about 60 buildings throughout the city. The buildings vary from the main historical building right in the centre of Vienna to other premises across the city and single offices leased in different buildings.

More recently established universities are more likely to have a campus with several buildings in one area, where students and staff work, as for example the University of Linz (est. 1966) or Klagenfurt (1970 founded as a university for Pedagogy, 1993 renamed as University of Klagenfurt). WU Vienna has moved to a newly built campus in 2013, which now bundles all the departments that had been housed in different buildings before. Student housing on the campus, provided by the university, is not a common concept in Austria, although student housing can be found near the new campuses in Linz, Vienna and Klagenfurt.

The following table shows the distribution of Campus and Non-Campus-Universities in Austria

| Campus | Non-Campus |
|---|--|
| University of Linz | University of Vienna |
| University of Klagenfurt | University of Graz |
| Technical University of Graz | University of Innsbruck |
| University of Veterinary Medicine Vienna | University of Salzburg |
| University Mozarteum Salzburg | University of Leoben |
| Danube University Krems | Medical University of Vienna |
| Vienna University of Economics and Business | Medical University of Graz |
| | Medical University of Innsbruck |
| | Technical University of Vienna |
| | University of Natural Resources and Applied Life Sciences Vienna |
| | University of Applied Arts in Vienna |
| | University of Music and Performing Arts in Vienna |
| | University of Music and Performing Arts Graz |
| | University of Art and Industrial Design in Linz |
| | Academy of Fine Arts in Vienna |

Table 4: Campus and Non-Campus-Universities in Austria

As stated before, the Ministry of Education, Science and Research (BMBWF) is responsible for the strategic planning of new buildings, additions to buildings and renovation of buildings. Since the public universities are funded by the Republic of Austria, their infrastructural projects are mostly funded in accordance with the Federal Minister. Smaller infrastructural projects might also be financed by the universities themselves (E. K., 2020).

The legislative foundation for infrastructural projects of the universities is laid out in the 2015 amendment of the Universities Act 2002 (UG) in §§ 118a and 118b. The amendment states that the realisation and funding of building projects has to be agreed upon by the federal minister and the respective university and then enter the National Development Plan for Buildings

(Bauleitplan). Furthermore, all public universities have to follow the process described in the Decree on the Planning Procedure and Realisation of Building Projects of Universities (Uni-ImmoV). (cf. Austrian Federal Ministry of Education, Science and Research, 2018).

The national “Bauleitplan” summarizes the infrastructural projects of the Austrian public universities and is agreed with the Federal Minister. In order to prioritize building projects, representatives of the universities (usually Vice Rectors for Infrastructure and/or the relevant university service units) meet in three regional boards to discuss and prioritize all infrastructural projects that are planned in the respective region.

The regions are (cf. Austrian Federal Ministry of Education, Science and Research, no date g):

- East (all nine universities in Vienna)¹
- West (six universities in Innsbruck, Salzburg and Linz)
- South (six universities in Graz, Leoben and Klagenfurt)

After reaching a consensus, the infrastructural projects are accorded with the Ministry and enter the national *Bauleitplan*.

Once a building project is accorded with the federal minister, the universities start the planning of the building in accordance with the Ministry. The universities submit several documents (feasibility studies, budget plan, functional room concept, etc.) and calculate the floor space required for teaching rooms, learning spaces and office spaces. The documentation is then evaluated at the Ministry, cross-checking with other relevant units within the Ministry in order to be able to evaluate the needs of the university correctly.

Once a consensus is reached between Ministry and university, the universities can start the architectural planning, usually involving the Federal Real Estate Company, which owns the vast majority of the university buildings in Austria.

Regarding the design of university buildings, there are neither policy or strategy documents, nor recommendations issued by any official body, let alone guidelines touching upon the setup in teaching and learning rooms or self-study areas. The only guidelines which apply are the general ones of the OIB (Österreichisches Institut für Bautechnik), i.e. regulations on how to make buildings barrier-free, specific regulations for office spaces as well as for rooms which can be used for events with more than 120 persons. Sustainability needs are not legally anchored, so if universities are awarded external certifications for sustainability efforts (i.e. WU Vienna, University of Salzburg among others) it is on their own initiative (E. K., 2020).

¹ Donau-Universität-Krems is an exception regarding these processes, because their building projects are completely funded by the federal state.

(In)formal networks regarding infrastructure:

Alliance of sustainable universities in Austria:

The Alliance of Sustainable Universities in Austria was founded in 2012 as an informal network of universities that aims at **promoting sustainability issues in Austrian universities** and thus to **contribute to a more sustainable society**. Currently 15 Austrian universities are members of the network (March 2019) (Alliance of Sustainable Universities in Austria, 2021).

Within the alliance there is a sub-group which focusses on sustainable buildings (Alliance of Sustainable Universities in Austria, 2021b). Their aim is an Austrian-wide exchange of experience, the creation of sustainability standards for the planning and the building of university infrastructure. The working group meets regularly (around three times per year) to facilitate stakeholder dialogue.

In January 2020, the alliance published a position paper regarding sustainable building (Alliance of Sustainable Universities in Austria, 2020).

Working group “Infrastructure” within UNIKO (Universities Austria; “Österreichische Universitätenkonferenz”)

UNIKO is a representative body of the Austrian public universities, where the Rectors of the Universities meet regularly. Within UNIKO there is a working group dedicated to university infrastructure, but so far no publications are available.

Our analysis has shown, that so far, there are no legally binding prescriptions regarding the design of the learning environment in university buildings in Austria. What is even more surprising is that recommendations are also missing.

5.0 University strategy and practice for the design and implementation of L&T space in Austrian higher education

In the following sections we present the results of our analysis on the strategy and practice regarding L&T spaces at the public universities in Austria. For our analysis, we performed a search for institutional strategy documents, published academic articles focussing on the Austrian context as well as documentation available on the university homepages. Unfortunately, to date there are no systematic studies available regarding the Austrian higher education context that connect the areas of university didactics and pedagogy with physical L&T spaces. With regard to the digital structures at Austrian higher education institutions, the results of a comprehensive study on the technology, learning management systems and digital infrastructure was published rather recently. Insights from this study will be reported in section 5.3.

5.1 Strategic documents on the university level

As we already outlined in chapter 4, there aren't any national legislations, policies, guidelines or recommendations on the design of L&T spaces in Austria. Consequently, the design of buildings, teaching rooms and learning spaces remains in the responsibility of the individual universities.

The strategic plans of the Austrian public universities outline the context as well as strategic orientations and goals of the individual public university. They are established by the rector's councils of the respective university and provide an outlook on the period of the next six years. The strategic plan has to be approved by the university board and follows a rather standardized structure, prescribed by the Ministry. Apart from the university's research foci, personnel strategy, internationalization, quality assurance processes and goals regarding teaching and learning each strategic plan also contains a section on infrastructure.

This section focuses mostly on building projects of the respective university. The development plan of the University of Vienna (University of Vienna, 2017) can be considered prototypic in how infrastructural plans are addressed in this kind of document: Finished building projects as well as infrastructural needs are presented. Requirements regarding teaching and learning (spaces) are only addressed in a rather vague way as the citations show:

[...] the required steps are taken in time to ensure that students and academics enjoy good conditions for studies, research and teaching with lasting effect (p. 65)

In building projects and building renovations, attention is still paid to installing multifunctional service and communication areas for the students. The establishment of additional 'student spaces' enhances the University of Vienna as a 'living space' with the addition of places of learning and communication. (p. 67)

The other public universities' strategic plans show a similar structure and wording, which means that concrete descriptions of teaching rooms or self-study zones, strategic goals with regard to teaching & learning facilities (apart from the mere mentioning of building projects) are missing.

With regard to the governance structure concerning L&T spaces, our complementary analysis of the University homepages showed that the predominant model at the public universities in Austria is a Vice Rector for Infrastructure (often in conjunction with the function of Vice Rector

for Finances) and in his/her resort a service unit called “room and resource management”, “campus management”, “buildings and infrastructure” or similarly. These are usually also the university representatives who are invited to the negotiations with the Federal Ministry regarding the building plan for universities (E. K., 2020).

The structure is much less clear and transparent when it comes to the responsibilities for the L&T facilities. With the exception of two universities (Medical University of Vienna, Technical University of Graz), teaching and learning facilities are not mentioned explicitly in the responsibilities of the different service units of the university homepages. This might be due to the fact that all responsibilities regarding L&T usually reside with the Vice-Rector for L&T/Teaching and Student Affairs/Academic Affairs.

At the Medical University of Vienna the responsibility for the teaching rooms lies with the teaching centre, which suggests a more straightforward connection of didactics and the design of the L&T spaces. Within the responsibilities of the service unit “Buildings and technical infrastructure” at the Technical University of Graz, the support of other units in the arrangement of teaching facilities is explicitly mentioned, which might also be an indication of a slightly different approach.

As the analysis of the university homepages has shown, the units which are responsible for infrastructure/facilities are usually not grouped in the same resort as the units responsible for teaching administration and teaching development. This means that at most universities the influence of didactical considerations regarding the design of L&T spaces is limited and the choice of furniture, technical equipment and also room design is often oriented at practical aspects more than at the implications for teaching and learning that follow from a certain room layout and equipment.

Good practice Example: WU Vienna

WU moved to an entirely new campus in 2013. Before the new campus was constructed, several units within the Teaching & Learning Support department cooperated with the infrastructure resort. The unit which is responsible for teaching scheduling was involved when it came to planning the ideal room capacities and Digital Teaching Services were consulted on the requirements of the teaching staff regarding technologies on the new campus. The Director of Programme Management and Teaching & Learning was appointed as the main liaison for the campus project team regarding all teaching and learning related matters. In all matters, teaching and learning experts were consulted and involved in the decision-making.

As a result, on the new campus all rooms – from small seminar rooms to the large lecture halls – are equipped with the same technology (two projection screens, interactive pen display, whiteboard). It was also made sure that the technology works in the same way in every room which makes it easier for the teaching staff to use the technology at hand and also increases the probability of the teachers choosing to use technology to support their teaching. Additionally, all rooms up to a capacity of 30 students are also equipped with interactive whiteboards.

In order to enable the faculty to make use of these facilities, a training room was established some time before the relocation and teaching staff was trained to work with the new technology.

Due to the positive experience, at WU Vienna, a multi-disciplinary team was set up to work on any new buildings which will be built in the course of the next years. The Vice-Rector for Infrastructure and Digitalisation is also working on a feasibility study, questioning students, teaching staff and members of the university administration with regard to their ideas for the new campus building.

5.2 University didactics, pedagogy and curriculum design

As we mentioned in section 4.3, there are several initiatives at national level which aim to promote didactics and pedagogy among the Austrian public universities. As one of the main goals within the performance agreements the public universities conclude with the Ministry, the goal to improve the teaching quality is also translated to the individual university level and reflected in the development plans of the Austrian public universities in diverse ways.

Especially during the past years, individual institutions also started to put a stronger focus on didactics and pedagogy. This becomes visible by the fact that several universities have implemented or increased the relevance of Centers for Teaching and Learning or similar units and structures which promote didactics and support the teaching staff at the university:

| University | Structure |
|--|--|
| University of Vienna | Center for Teaching and Learning |
| Medical University of Vienna | Teaching Center |
| University of Graz | Center for Teaching Competence |
| Faculty of Medicine at the University of Linz | Center for Medical Teaching |
| Technical University Vienna | Teaching Support Center |
| University of Natural Resources and Life Sciences Vienna | Teaching Development Unit |
| Technical University Graz | Higher Education and Program Development |
| Vienna University of Economics and Business | Teaching and Learning Development Unit |

Table 5: Centers for Teaching and Learning or similar units and structures at Austrian universities

The national teaching award *Ars Docendi*, which is awarded to excellent teachers annually (see section 4.4), also has its counterpart at the individual university level: Almost every public university presents their own teaching awards. The BMBWF is currently working on making these efforts visible on a national level too, by promoting the institutional teaching awards on their website (cf. Austrian Federal Ministry of Education, Science and Research, no date h). Many institutional teaching awards have a thematic focus which changes every year. As far as our analysis showed, so far there have not been any calls focussing on the connection between L&T spaces and didactics (with the slight exception of a call for the Innovative Teaching Award 2021 at WU Vienna with the focus on “Seamless learning: shaping learning environments” which aims at promoting innovative course designs providing a seamless transition between physical and digital learning environment).

Nevertheless, within all these efforts to promote university didactics, so far the role L&T spaces play for the successful implementation of diverse course designs, is not taken into consideration systematically and is also not mentioned in the respective sections regarding L&T in the

universities' development plans. Trends like the active learning classroom (Park and Choi, 2014) have not been taken up or implemented systematically within the Austrian universities.

The good practice example from the University of Vienna, its Learning Lab, describes an active learning classroom which allows teaching staff to experiment with diverse innovative course designs.

Good practice: Learning Lab, University of Vienna

As of 2017, teachers of the University of Vienna have the possibility to test and develop innovative teaching and learning sequences in a space specifically established for this purpose – the “Learning Lab”. Equipped with flexible tables, chairs on casters and numerous side tables, it follows the requirements of an “active learning classroom” (cf. Sawers et al., 2016). The Learning Lab facilitates quick and uncomplicated changes of the room setting, therefore allowing a variety of group constellations. A lounge and a “consultation space” further invite teachers to test settings with divided groups. Equipment for developing and presenting ideas and results is also available and includes a smartboard, a whiteboard, flipcharts, pinboards, notebooks and presentation materials. The Learning Lab is not only used for developing and testing prototypical teaching settings, but also for didactic courses and coaching.



Image 1-3: Learning Lab, University of Vienna

Source: <https://ctl.univie.ac.at/services-zur-qualitaet-von-studien/digitale-lehre/learning-lab/>

5.3 University digital structures

Since digitalisation has been made a priority in the last GUEP (see section 4.3), digital structures at the universities in Austria have further improved during the last period of the performance agreements. During the past three or four years, several universities introduced Vice-Rectors for

Digitalisation (WU Vienna, University of Vienna, University of Graz, Technical University of Vienna ...), which highlights the importance of this area of development.

Also, digital teaching awards or tracks within the “general” teaching awards’ calls, which focus on digital teaching have been introduced in most of the Austrian public universities. The same is true for service and support units which focus on digital teaching and learning:

| University | Structure |
|--|--|
| University of Vienna | Team Digital Teaching (within the Center for Teaching and Learning) |
| University of Graz | Center for Digital Teaching & Learning |
| Medical University of Graz | Lehre mit Medien (“Teaching with Technology”) |
| Technical University Vienna | Team Teaching Technologies (within the Teaching Support Center) |
| University of Natural Resources and Life Sciences Vienna | eLearning and didactics (within the Teaching Development Unit) |
| Technical University Graz | Educational Technologies and Services |
| Vienna University of Economics and Business | Digital Teaching Services (within Program Management & Teaching and Learning Department) |
| University of Innsbruck | Digital Media and Learning Technologies |
| University of Salzburg | Center for Flexible Learning |
| University of Klagenfurt | eLearning Service |
| University of Veterinary Medicine Vienna | E-Learning and New Media |
| Danube University Krems | Service Centre for Digital Teaching and Learning |

Table 6: service and support units for digital teaching and learning at Austrian universities

Several universities also offer funding for digital projects, e.g. University of Innsbruck (projects which foster digital competencies in research and teaching), Technical University of Vienna (30,000 EUR for max. 10 projects for distance learning in 2020), or WU Vienna (regular annual call which allows to hire e-learning staff to support courses with a focus on digital teaching, with an overall budget surpassing 300.000 EUR per year).

Learning Management Systems have been established at all public universities more than two decades ago. A 2016 study by the FNMA (see section 4.3) revealed that the public universities in Austria make use of six different learning management systems (cf. Bratengeyer et al. 2016). Moodle is used by eight public universities (e.g. University of Vienna, University of Linz) and also customized versions of Moodle are in use. Blackboard is used by two universities (e.g. University of Salzburg). The University of Innsbruck relies on OpenOLAT, the Technical University of Graz on WBT-master and the Medical University of Innsbruck on ILIAS. WU Vienna has a customized learning management system, which is developed and maintained in-house (LEARN).

While the 2016 study revealed that only two of the public universities relied on online assessment systems in more than 50 % of their exams, in the summer term of 2020 the pandemic has forced many of the Austrian universities to switch to distance examinations. The years to come will show if the emergency infrastructure that was put in place will be transferred to more stable solutions in the future.

With regard to the organisation of e-learning in the different universities, the study showed that eight universities have a centralized unit occupied with digital teaching issues. Two universities indicated that there is more than one central unit and five universities indicated the single specialized persons are responsible for e-learning at the institution.

In Austria, distance learning curricula or programmes are not very common, most of the digitally enhanced courses are delivered in a blended learning format. In 2016, 48 out of the 49 higher education institutions which were included in the study indicated that they use blended learning courses. Nevertheless, the digital content is very often understood more as an additional offer for the students than a real part of the content of the course.

With regard to the digital infrastructure in the teaching rooms, video projectors and computers as well as microphones and audio support are considered standard equipment across the public universities in Austria. Interactive whiteboards are highlighted on two university webpages (WU Vienna, University of Salzburg for one of the buildings), with only one university offering campus-wide coverage in smaller teaching rooms (WU Vienna). Information on streaming facilities, which can be used for blended learning scenarios, is available on four of the university homepages (University of Vienna, Technical University of Vienna, Donau Uni Krems, WU Vienna) and a central part in the new building project at the University of Leoben (E. K., 2020).

Obviously the year 2020 has brought a boost in the digitalisation efforts of the Austrian public universities, with sensible aspects of digital teaching i.e. online examinations being introduced due to the pandemic.

A particularly interesting example for the development of innovative L&T spaces with a focus on digital teaching will be implemented at WU Vienna in the course of the next years.

Example WU Vienna: Flexible Learning Experience Space

The project „Flexible Learning Experience Space“ (Flex Space) will allow to apply up-to-date technology in the field of digital teaching in combination with student-centered didactic approaches and concepts of active learning. Learning architecture will be created which allows seamlessly linking virtual and physical learning environments These course formats bear potential for new forms of knowledge and skills transfer.

The Flex Space is thus going to work as a fundamental driver for the development of innovative teaching designs and will provide an experimental space for innovative video-based L&T formats as well as virtual-reality learning environments.

Teaching staff and e-learning experts will make use of the infrastructure and technology provided in order to develop and test new teaching scenarios and produce high quality teaching and learning materials. This will allow them to test their ideas in a “safe space” and will thus contribute to reduce the reservation vis-à-vis innovative technology that is still palpable with teaching staff within higher education. Successfully tested course designs will be made available within and outside the university in order to further the development of digital teaching in higher education. A learning materials production lab with special didactic support will also help

teaching staff to tailor their designs and materials to student needs. Aligned with WU's "seamless learning" approach, blending physical and online learning environments in the way of hybrid learning, is a key premise of the entire project.

5.4 Physical L&T spaces at Austrian universities

Since to date in Austria there are no recommendations regarding physical L&T space, for our analysis, we focused on the practice in the Austrian Higher Education Area. We consulted the homepages of the public universities in order to be able to provide a synthesis of the status of physical L&T space in Austria.

There are only a few universities which provide detailed information on the teaching facilities on their homepage. This information tends to be more detailed if the rooms in question can be booked for internal or external events. Information on regular teaching rooms usually includes information such as the room capacity or information on where to find the room, but typically descriptions of the room setting (and therefore also didactical implications which come with the setting) are missing with the exception of the following universities: WU Vienna, University of Graz, University of Salzburg and University of Vienna for parts of their teaching rooms.

None of the universities visibly provide information on didactical implications of certain room settings or recommendations for the teaching staff on which rooms to book for which purpose. The influence the physical space can have on teaching and learning is also not highlighted on the universities' homepages.

The University of Linz, University of Graz and WU Vienna provide detailed information on self-study zones on their homepage and the University of Graz and WU Vienna even provide a booking system for parts of the self-study areas.

The university homepages also reveal a tendency to describe special facilities (such as laboratories, teacher experimentation rooms, etc.) while leaving out the facilities perceived as more "standard".

Another interesting fact is that the information on the teaching rooms is usually not located within the T&L part of the university homepage, but the infrastructure pages. This reflects the responsibilities within the universities and might also explain why didactical implications of the room design are missing and the focus is on "technical" details, such as the room surface or capacity.

During the last 15 years, studying at the university libraries or spaces dedicated to students within the university buildings, has become more common in Austria. This led to innovative learning spaces dedicated to the students at several universities.

Good practice example 1: Learning Center, JKU

The newly built Learning Center at the Johannes Kepler University Linz is designed to provide a location to study, to conduct student research and to work in groups through providing a range of differently designed areas. An emphasis has been put on providing a space with a generous and relaxed atmosphere where students feel comfortable and meet good working conditions. E.g. group tables and flexible lounge areas facilitate the work on group assignments and projects,

shielded lounge chairs, work tables and large window fronts providing lots of natural light allow for concentrated studying and the relax area provides a space for students to communicate, relax and read.



Image 4-8: Learning Center, JKU

Source: <https://www.jku.at/bibliothek/learning-center/>

Good practice example 2: Learning and working areas at the Central Library, WU Vienna

The WU Vienna Central Library offers students a variety of different spaces adjusted to their specific needs. As group work is an integral part of many courses, WU students can book project rooms in advance to meet and work together in a quiet and productive environment on their

project. Next to these project rooms, students can find moveable desks in the Central Library and thus, adapt the space according to their group needs.

For those students that need to work on their master's or doctoral thesis, carrels are available that can be booked for one month. Thus, these students do not have to worry about occupied working spaces in the library. Students that do not have a pre-booked space in the library can check how crowded the library is or how many people are likely to be in the library later in the day using the occupancy tracking feature.

Students requiring a quiet atmosphere to concentrate can study in "offline rooms", where no laptops are allowed and thus, cannot be disturbed by other students' typing.

In the communication zone students can find a space to relax and communicate in comfortable chairs, beanbags and loungers, whilst enjoying a beautiful view over the Prater.



Image 9-11: Central Library, WU Vienna

Source: Photo archive, WU Vienna

Good practice example 3: Carrels for Master and Doctoral students, University of Natural Resources and Life Sciences

Students writing their diploma/master thesis or dissertation at the University of Natural Resources and Life Sciences have the chance to book a carrel in the main library for one semester. The carrel includes lockers to store books, working materials and private belongings, and disposes of lights and power sockets. Thus, students who are in the process of writing a thesis and require extensive working materials have the chance to store their utensils. Further, they have a guaranteed working space during opening hours of the library, which is especially helpful during examination weeks. As the carrels are located in a separated room, they provide a quiet and productive working environment.



Image 12: Carrels for Master and Doctoral students, University of Natural Resources and Life Sciences

Source: <https://boku.ac.at/en/bib/services/arbeitsplaetze-und-arbeitsraeume/arbeitskabinen-carrels>

6. Conclusions and recommendations

Our analysis has shown, that so far, the only legally binding prescriptions which exist regarding infrastructure in the higher education context in Austria are the very general rules which apply for all public buildings and are therefore more relevant for offices and event locations rather than learning and teaching spaces. Due to the diverse contexts in which higher education institutions in Austria work and the different infrastructural needs that result from those, it is not surprising that legally binding prescriptive norms are missing. Nevertheless, our research revealed that also recommendations for the design of L&T spaces are missing – although research has shown that the design of teaching rooms clearly has an impact on the teaching style, student engagement and possibly also student performance and is therefore an important variable when it comes to the realization of strategic goals in the field of L&T.

As the strategic plans of the universities show, at the institutional level, L&T spaces are addressed only in the lens of “infrastructure” which means that the focus is on student numbers and room capacities resulting from those, office and teaching spaces needed, but not on the didactical needs addressed by the L&T spaces. A link to the strategic goals in the area of didactics or digitalisation is also not made so far.

This situation is also mirrored by the university homepages which reveal a separation of the areas didactics, digital demands and infrastructure. Due to the governance structure in the Austrian public universities, the units concerned with those subjects are usually placed in different departments which of course makes it a lot harder to cooperate on subjects that affect several units and areas of (strategic) interest.

Notably, the area that is best documented throughout all dimensions – national level, strategic plans, homepages and research – is the area of digitalisation. Due to the focus on digitalisation as a core goal within the GUEP and the last performance agreements, a focus on digitalization demands and its reflections on infrastructure is visible in the strategic plans as well as on the university homepages. Nevertheless, the pandemic revealed that also in this field, the infrastructure provided and the didactics that are needed to profit adequately from the infrastructure are only scarcely linked. Hybrid settings, which allow students to participate remotely or in-class, are still difficult to realize – partly due to infrastructural demands (high-quality microphones, streaming facilities in the classrooms etc.) but even more due to didactic concepts which are missing (e.g. how to include students in class and those participating remotely at the same time etc.).

Regarding the dimension of physical L&T spaces, none of the public universities that were in the focus of our analysis provides publicly available information that goes beyond the technical details of the teaching rooms (capacity, room setting, digital infrastructure available). The didactical implications of certain room settings or recommendations for the teaching staff on which rooms to book for which purposes are missing.

We would like to conclude our report with recommendations arising from our analyses:

- At national level, recommendations for newly built L&T spaces according to the scopes the spaces should fulfil would be a valuable addition. This would raise awareness of the

importance of the design of L&T spaces and the implications it has on the teaching that occurs in the respective rooms.

- At university level, several conclusions can be drawn from our research:
 - Didactic and physical L&T space affordances should be linked more closely. In the planning process, it should be taken into account that different L&T settings, i.e. more student-centred approaches, can be fostered by different settings than traditional lecture-style adapted classrooms. Especially in universities where approaches like problem-based learning, self-directed learning or research-oriented learning are anchored strategically, this should also be reflected in the room settings.
 - The same is true for the connection of the demands of digital teaching that should be taken into consideration whenever new L&T spaces are planned and implemented. Ideally, considerations should go beyond the simple teaching infrastructure and allow for more innovative embedding of digital teaching in the physical classroom.
 - Regarding the planning and implementation processes for L&T spaces, all stakeholders should be involved in the process. This regards the cooperation between different service units at the respective university, but also the involvement of teaching staff from different disciplines as well as students.
 - The last recommendation refers to communication. The best equipped rooms are useless if the teaching staff does not know how to profit from the different settings. This means that competences on how to best use different room settings and the digital infrastructure available should be integrated in the staff development programs at university level.

As this report has also shown, there are several good practices for innovative L&T spaces at the Austrian public universities. Making these good practices available and accessible for other HEI in the planning stages of new L&T spaces would be a first step towards a more systematic approach in the planning and implementation of L&T spaces. Since the scope of the project is to also add the good practices from the international partners in the LTSHE project, we believe that this intellectual output can be a valuable asset for the Austrian context.

Bibliography

Alliance of Sustainable Universities in Austria, 2020. *Positionspapier zur Errichtung von nachhaltigen Universitätsgebäuden*. Available at: http://nachhaltigeuniversitaeten.at/wp-content/uploads/2020/03/2020-01-23_Positionspapier_Nachhaltiges_Bauen.pdf [Accessed 7 January 2021].

Austrian Federal Ministry of Education, Science and Research, 2018. *University Report 2017. Executive Summary*.

Austrian Federal Ministry of Education, Science and Research, 2020b. *Digitale und soziale Transformation. Ausgewählte Digitalisierungsvorhaben an öffentlichen Universitäten 2020 bis 2024*. Available at: https://pubshop.bmbwf.gv.at/index.php?rex_media_type=pubshop_download&rex_media_file=digital_uni.pdf [Accessed 5 January 2021].

Beckers, R., van der Voordt, T. and Dewulf, G., 2016. 'Why do they study there? Diary research into students' learning space choices in higher education', *Higher Education Research & Development*, 35(1), pp. 142-157. doi: 10.1080/07294360.2015.1123230.

Bratengeyer et al., 2016. *Die österreichische Hochschul-E-Learning-Landschaft. Studie zur Erfassung des Status quo der E-Learning-Landschaft im tertiären Bildungsbereich hinsichtlich Strategie, Ressourcen, Organisation und Erfahrungen*.

Brooks, D. C., 2012. 'Space and consequences: The impact of different formal learning spaces on instructor and student behaviour', *Journal of Learning Spaces*, 1(2). Available at: <http://libjournal.uncg.edu/jls/article/view/285> [Accessed 5 January 2021].

Chiu, P. H. P. and Cheng, S. H., 2017. 'Effects of active learning classrooms on student learning: A two-year empirical investigation on student perceptions and academic performance', *Higher Education Research & Development*, 36(2), pp. 269-279. doi: 10.1080/07294360.2016.1196475.

Clegg, S. and Smith, K., 2010. 'Learning, teaching and assessment strategies in higher education: contradictions of genre and desiring', *Research Papers in Education*, 25(1), pp. 115–132. <https://doi.org/10.1080/02671520802584145>.

EACEA, 2021. *Higher Education Funding*. Available at: https://eacea.ec.europa.eu/national-policies/eurydice/content/higher-education-funding-1_bg?2nd-language=bg [Accessed 5 January 2021].

Ellis, R. A. and Goodyear, P., 2016. 'Models of learning space: Integrating research on space, place and learning in higher education', *Review of Education*, 4(2), pp. 149-191. doi: 10.1002/rev3.3056.

Finkelstein, A., Ferris, J., Weston, C. and Winer, L., 2016. 'Research-informed principles for (re)designing teaching and learning spaces', *Journal of Learning Spaces*, 5(1), pp. 26-40.

FNMA, 2016. *Empfehlungen für die Integration von Open Educational Resources an Hochschulen in Österreich*.

FNMA, 2019. *Learning Analytics: Einsatz an österreichischen Hochschulen*.

FNMA, 2020. Jahresbericht 2019. Available at <https://www.fnma.at/publikationen/jahresberichte> [Accessed 7 January 2021].

Granito, V. J. and Santana, M. E., 2016. 'Psychology of learning spaces: Impact on teaching and learning', *Journal of Learning Spaces*, 5(1), pp. 1-8. Available at: <http://libjournal.uncg.edu/jls/article/view/882> [Accessed 5 January 2021].

McArthur, J. A., 2015. 'Matching instructors and spaces of learning: The impact of space on behavioural, affective and cognitive learning', *Journal of Learning Spaces*, 4(1), pp. 1-16. Available at: <http://libjournal.uncg.edu/jls/article/view/766> [Accessed 5 January 2021].

Sawers, K.M., Wicks, D., Mvududu, N., Seeley, L. and Copeland, R., 2016. 'What Drives Student Engagement: Is it Learning Space, Instructor Behavior, or Teaching Philosophy?', *Journal of Learning Spaces*, 5 (2), pp. 26-38.

Smith, Charlie, 2017. 'The Influence of Hierarchy and Layout Geometry in the Design of Learning Spaces', *Journal of Learning Spaces*, 6 (3).

Temple, P., 2008. 'Learning spaces in higher education: an under-researched topic', *London Review of Education*, 6 (3), pp. 229–241.

University of Vienna, 2017. *University of Vienna 2025. Development Plan*. Available at: https://www.univie.ac.at/fileadmin/user_upload/startseite/Dokumente/Entwicklungsplan2025_EN.pdf [Accessed 4 January 2021].

Web pages

Alliance of Sustainable Universities in Austria, 2021a. *Alliance of Sustainable Universities in Austria*. Available at: <http://nachhaltigeuniversitaeten.at/english/> [Accessed 4 January 2021].

Alliance of Sustainable Universities in Austria, 2021b. *Nachhaltige Gebäude*. Available at: <http://nachhaltigeuniversitaeten.at/arbeitsgruppen/nachhaltige-gebaeude/> [Accessed 4 January 2021].

Austrian Federal Ministry of Education, Science and Research, no date a. *Universities*. Available at: <https://www.bmbwf.gv.at/en/Topics/Higher-education---universities/Higher-education-system/Universities.html> [Accessed 4 January 2021].

Austrian Federal Ministry of Education, Science and Research, no date b. *Universities of applied sciences*. Available at: <https://www.bmbwf.gv.at/en/Topics/Higher-education---universities/Higher-education-system/FHG.html> [Accessed 4 January 2021].

Austrian Federal Ministry of Education, Science and Research, no date c. *Private Universities*. Available at: <https://www.bmbwf.gv.at/en/Topics/Higher-education---universities/Higher-education-system/PrivUni.html> [Accessed 4 January 2021].

Austrian Federal Ministry of Education, Science and Research, no date d. *University colleges of teacher education*. Available at: <https://www.bmbwf.gv.at/en/Topics/school/teachers/ucte.html> [Accessed 4 January 2021].

Austrian Federal Ministry of Education, Science and Research, no date e. *Accreditation and quality assurance*. Available at: <https://www.bmbwf.gv.at/en/Topics/Higher-education---universities/Higher-education-system/HS-QSG.html> [Accessed 4 January 2021].

Austrian Federal Ministry of Education, Science and Research, no date f. *Gesamtösterreichischer Universitätsentwicklungsplan (GUEP)*. Available at: <https://www.bmbwf.gv.at/Themen/HS-Uni/Hochschulgovernance/Steuerungsinstrumente/GUEP.html> [Accessed 5 January 2021].

Austrian Federal Ministry of Education, Science and Research, no date g. *Universitäre Immobilienprojekte*. Available at: <https://www.bmbwf.gv.at/Themen/HS-Uni/Hochschulgovernance/Steuerungsinstrumente/UB.html> [Accessed 5 January 2021].

Austrian Federal Ministry of Education, Science and Research, 2020a. *unidata*. Available at: <https://unidata.gv.at/Pages/default.aspx> [Accessed 7 January 2021].

Austrian Federal Ministry of Education, Science and Research, no date h. *Atlas der guten Lehre. Hochschullehrpreise*. Available at: <https://gutelehre.at/hochschullehrpreise> [Accessed 8 January 2021].

BIG, 2021. *Portfolio*. Available at: <https://www.big.at/ueber-uns/portfolio/> [Accessed 5 January 2021].

Zeitschrift für Hochschulentwicklung (ZfHE), 2012. Available at: <https://zfhe.at/index.php/zfhe/issue/view/31> [Accessed 7 January 2021].

Legal documents

HG (Act on the organisation of university colleges of teacher education and their study programs), 2005. Available at: <https://www.ris.bka.gv.at/GeltendeFassung/Bundesnormen/20004626/HG%2c%20Fassung%20vom%2007.01.2021.pdf> [Accessed 5 January 2021].

University of Applied Sciences Studies Act (FhStG), 1993. Available at: <https://www.ris.bka.gv.at/Dokumente/Normenliste/NL00001663/NL00001663.pdf> [Accessed 5 January 2021].

Private Universities Act (PUG), 2002. Available at: https://www.ris.bka.gv.at/Dokumente/Erv/ERV_2011_1_74_a/ERV_2011_1_74_a.pdf [Accessed 5 January 2021].

Universities Act (UG), 2002. Available at: https://www.ris.bka.gv.at/Dokumente/Erv/ERV_2002_1_120/ERV_2002_1_120.pdf [Accessed 5 January 2021].

Interview

E. K., 2020. *Personal communication*. Interviewed by Warm, J.. Vienna, 4 September.