

Learning and Teaching in Higher Education in Post-Covid Times: A Digital Transformation

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Abstract:

Learning and teaching in higher education can help to face the rapidly changing demands and transformations in social, professional, and individual life. «Digitalisation is not only an additional challenge but also an effective means to address key challenges for higher education in the 21st century» (Rampelt et al. 2019, 6). Digital practices in Higher Education forced by the Covid-19 disruption are challenging educational processes at every level. Digitization is here no longer just about the question of the technical dimension, but, about the structural interweaving and relational co-constitution of the digital with the social, the cultural, and the individual. Here the INTALL@home vision of learning international comparison without being physically mobile – theoretically framed and elaborated in this paper – starts.

Keywords: Digitalization; Digitization; Higher Education; Online Learning; Transformation

1. Transformation, Digitization and Digitalization in Education

In a very general and everyday meaning, *transformation* can be first of all understood as a synonym for *dynamics or movements*. Our daily experiences are characterised by rapid changes, not always as progressions, but with deep effects on the individual subject centrally. Going beyond this natural understanding of transformation «[t]he clarification of the concept of transformation» can trace secondly «a ‘continuity in change’» (Müller et al. 2002, in Schäffter 2020, 289). Central paradigms for transformation are its radical accelerative dynamic (Rosa 2013), its omnipresence and ubiquity (none and nothing excluded), its non-linear but multi-complex movements (Schmidt-Lauff 2012; von Felden and Schmidt-Lauff 2015, 12), and, the contingencies, unpredictable side-effects or incalculable consequences (world, society, individual; Beck 1986). From a relation-theoretical point of view, *transformations* are a marker of our human being: the human life course itself might be understood as an interlocking, reciprocal set of conditions of interfering developments or changes, which follow an obstinate course logically, but at the same time are resonantly related to each other (Schäffter 2020).

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The concept of interference within transformation means both: the possibility of an interacting amplification and its mutual neutralisation.

To understand transformation better, its difference from just ‘movement’ or ‘(step by step) change’ is important in our modernity. Schäffter is talking about an «existential drama» (2020, 288), which is «structured around open experience thresholds» (Giddens 2010 [1991], 148). Accordingly, *digitization* is hereby an interfering factor: it mirrors the global potential to virtual move or connect worldwide and interconnect from time, space, or local presence. It is about the technical ability to dissolve or replace body-bound communication. The self-identity and the individual lifespan «becomes separated from the externalities of place, while place itself is undermined by expansion of disembedding mechanism» (Giddens 2010 [1991], 146), as Giddens almost stated more than twenty years ago.

Digital Transformation affects all social spheres: our social relationships, forms of communication, and interaction are permeated by them, as are our spatiotemporal worlds of movement (life), cultural practices, and the systems of economy, politics, work, and education involved in them. *Digitization* in a broad understanding «is the conversion of analog to digital, whereas *digitalization* is the use of digital technologies and digitized data to impact» work, life, education, etc. (Chapco-Wade 2018). Accordingly, digitalization creates new revenue streams. The education sector (currently mostly for school and higher education, not so much for the sector of adult education till today) was discussed and critically reflected under the term ‘EdTech’.

In its original meaning, the term *digitization* describes the transformation of analog values into a digitally usable format – from the invention of the electric telegraph in the 19th century to the first digital circuit in the 1930s and the first hypertext systems in the 1960s to today’s World Wide Web.

With increasing computing power, the networking of systems and (mobile) devices, and access to data and information independent of time and place, digital media and tools are changing the way people communicate, inform themselves, work, and learn. Likewise, ways and modalities of opinion formation, participation in political decision-making processes, and social and cultural participation are changing.

This also fundamentally changes the framework conditions and opportunities for education (Autorengruppe Bildungsberichterstattung 2020, 231)¹.

On top of, the ongoing scenario of the COVID-pandemic emergency occurred as *sand in the world gears*². It generates today’s and future upheavals which are not yet foreseeable. Learning and Teaching in Higher Education may help to face these changing demands as transformations, and opens for critical reflections as well. Like Schäfer and Ebersbach resume «[...] the relevance of new

¹ Unless otherwise stated, translations are by the author.

² Arte TV-Documentation. n.d. <<https://www.youtube.com/watch?v=InvqZbfcSEE>> (2023-03-15).

media in educational processes and the relevance of digitization for a sustainable society» seem to be clear: «Digitization is the backbone, the material and at the same time the informational basis of the knowledge society. No one can get around it. So as many analog processes as possible must be digitized», but on the second glance, our reality «and thus the subject matter of science, is more complex. Digitization changes perception» (2021, 8).

Digitization is no longer just about the question of the technical dimension (e.g. EdTech, programmed algorithms), but about the structural interweaving and relational co-constitution of technical with social, cultural and individual. Algorithms intervene in everyday life by suggesting certain decision options to users, and in return excluding non-preprogrammed decisions. Thus, algorithms themselves become constitutive or regulating factors for individual and social action. Klinge empirically shows how the use of everyday life learning apps is controlled by (teaching-)algorithms: «Apps are not pedagogically neutral [...] they frame the learning activities in a certain (mainly playful-behavioristic) way and thus generate certain ways of thinking and acting in the first place» (2020, 67).

For education, teaching, and learning the structural interweaving of the digital with the social and individual is relevant in many ways. Recent studies on teaching staff show that a positive basic attitude towards new media correlates positively with self-efficacy expectations and use in the mediation process (Gegenfurter et al. 2020). Others point out; that and how digital competencies (digital literacy) become necessary as learning competencies in higher education. Digital practices in Higher and Adult Education forced by the Corona pandemic are changing both the teachers and the learner's settings, as well as the learning and educational processes or styles of teaching and learning, the means of interaction as well as communication and relationships. The educational landscape as a whole is confronted with a digital continuation of traditional inequalities and at the same time with *new* types of inequality lines.

2. (European) Framing Actions for Digital Learning

One of the largest and currently most powerful Mega-Projects focuses on «a **strategic dialogue with Member States** in order to prepare a possible proposal for a Council Recommendation by 2022 on the enabling factors for successful digital education»³ (EU COM 2020, 11). This «**Council Recommendation on online and distance learning**» offers a proposal in a first step «**for primary and secondary education**», but, focus on «an EU-wide common understanding of how to make distance, online and blended learning effective, inclusive and engaging» (EU COM 2020, 11, 6).

The aim of «resetting education and training for the digital age» is enhancing digital skills and competencies, literally for «the digital transformation» (EU

³ <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0624>> (2023-03-15).

COM 2020, 2). Digital literacy, digital skills, and competencies from an early age also include the knowledge and awareness of «fighting disinformation» (EU COM 2020, 2). The European strategy sets on offering «computing education», «good knowledge and understanding of data-intensive technologies, such as artificial intelligence» and «**advanced digital skills**, which produce more digital specialists and also ensure that girls and young women are equally represented in digital studies and careers» (EU COM 2020, 2).

This is framed by a consultation of 42 EU partner organisations within and based on empirical data about the necessity. The following figure illustrates, why action is needed:

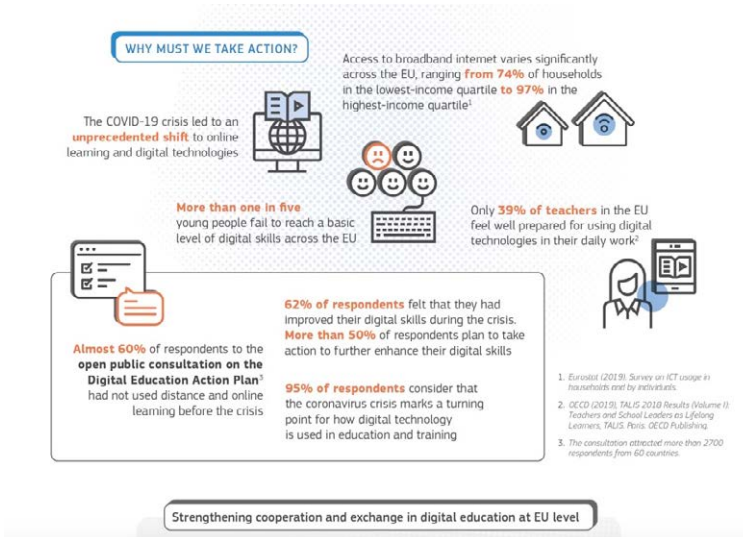


Figure 1 – Why action is needed? Source: <https://ec.europa.eu/education/sites/default/files/document-library-docs/deap-factsheet-sept2020_en.pdf> (2023-03-15).

The factsheets in Fig. 1 show that still, many low-income homes have no access to computers and broadband access varies widely across the EU depending on household income. Additionally, UNESCO estimations showed that, at the end of 2020, 90% of the world’s students are currently out of school, and «[o]ne year into the COVID-19 pandemic, close to half the world’s students are still affected by partial or full school closures» (UNESCO 2021)⁴.

On the other hand, «more than one in five young people fail to reach a basic level of digital skills across the EU» and «only 39% of teachers in the EU feel well prepared for using digital technologies in their daily work» (see Fig. 1). The picture also points out that the COVID-19 crisis leads to an unprecedented shift to online learning and the use of digital technologies (UNESCO 2021).

⁴ <<https://en.unesco.org/covid19/educationresponse>> (2023-03-15).

Studies show that, unlike in schools, campus- (87%) and learning-management systems (85%) were almost universally implemented prior to COVID-19, so that teachers and students in higher education have access to a generally good technical infrastructure (Schmid et al. 2017). The fact that during the COVID-19 lockdown higher education institutions – not least in comparison with schools – were able to switch relatively quickly and easily to almost fully digitized teaching (Dreyer 2020) is due to this previously mentioned status quo. However, the extent to which students are prepared for such a comprehensive digitalization of working in their learning, both in terms of technology and infrastructure and in terms of competencies, has not yet been sufficiently investigated. Studies in the USA on digital literacy confirm: «exposure does not equal understanding concerning students’ daily interaction with digital technologies» (Murray and Pérez 2014, 95). Even for the generation of digital natives, a self-determined, creative, or even reflective use of digital media in studies cannot be assumed per se, and the «private use of digital media» in both hardware and software «does not necessarily translate into everyday university life» (Persike and Friedrich 2016, 7). This calls for an expansion and acquisition of digital competencies for students as well as for teachers in higher education. In particular, the public EU consultation results from September 2020 shed more light on some issues (refer to Fig. 1), which are later on relevant for INTALL@home (see Chapter 3):

- almost 60% of the respondents had not used distance and online learning before the crisis;
- respondents say that online learning resources and content need to be more relevant, interactive, and easy to use;
- over 60% felt that they had improved their digital skills during the crisis and more than 50% of respondents want to do more;
- 95% consider that the COVID-19 crisis marks a point of no return for how technology is used in education and training.

Especially the last aspect – ‘point of no return’ – is important for this paper. Although we cannot predict the future, we can reflect on earlier digital developments like blended learning studying programmes or OERs (Open Educational Resources like INTALL@home). The digitalization of learning and higher education is not new, and how many already established instruments might play out in ‘Post-COVID-times’?

3. INTALL@home: One Tool within the Digital Transformation in Higher Education

Online Education or online learning generally

[...] implies that students are physically distant from the instructors and require a delivery method [...]. The interaction between students and teachers is mediated by technology, and the design of learning environments can have a considerable influence on learning outcomes [...]. Online education has been studied for decades and effective online teaching is the result of careful instructional design and planning [...] (Aguilera-Hermida 2020).

For INTALL@home the vision to ‘understand international comparison’ and ‘learn about international comparative education’ *without* being physically mobile is the center point for its instructional design. Our vision of a digital-supported studying approach at home was to provide all interested learners and teachers international comparison in ALE (adult learning and education) with an open (digital) architecture. As OER it contains three different ‘content boxes’ (a. Sustainable Development Goals, b. Professionalisation, c. Employability⁵) with a collection of materials, commented texts, online tutorials, and a quiz to reflect upon the individual learning outcome – all fully open access.

3.1 The Vision of International Comparison Without Being Physically Mobile

INTALL@home was developed as one intellectual output and part of the whole INTALL-concept and blended learning framework within the ERASMUS+ strategic partnership INTALL (2018-2021 *International and Comparative Studies for Students and Practitioners in Adult Education and Lifelong Learning*⁶). We started nearly two years before the world faced the health crisis COVID-19.

The idea of studying international comparison without being physically mobile roots in the needs of non-traditional students in ALE and practitioners: non-traditional university student enrolment in Higher Education is growing globally, partly driven by the growing number of students in employment (OECD 2017). This is especially true for those students, who frequently come from a lower socio-economic background and are frequently the first in their families to go to university⁷.

Especially in Ireland – one INTALL-partner –, many of those who are interested in studying and researching adult education are themselves adult learners, who returned to study later in life and have significant work and/or caring responsibilities. In Ireland and other partner countries, there is a policy commitment to social inclusion, widening access to higher education for students from socio-economically disadvantaged backgrounds. However, Eurostudent data clearly show that more socially privileged students most likely tend to benefit from traditional mobility programmes (DZHW 2018).

The obstacles to mobility are especially strong for the target group of practitioners in adult education, which are the second addressed target group of our ERASMUS+ project INTALL. This was the rationale for a high need at all partner organisations to offer study opportunities for physically non-mobile students as well.

⁵ <<https://www.hw.uni-wuerzburg.de/intall/intallhome/>> (2023-03-15).

⁶ <<https://www.hw.uni-wuerzburg.de/intall/home>> (2023-03-15).

⁷ Cf. INTALL Application KA2 - Cooperation for Innovation and the Exchange of Good Practices; KA203 - Strategic Partnerships for Higher Education.

3.2 Instructional Design and Digital Tools

An instructional design, in short, describes the «systematic planning of learning units and learning environments» (Zawacki-Richter 2016, 16). More in detail:

As a process, the instructional design aims at the creation of learning environments, including experts' knowledge on individual conditions of learning, specific situational requirements, resources, and related systems. As a product, the instructional design includes the learning environment *following didactical principles* as well as unfold the structure of the included *learning topics and activities* (Zawacki-Richter 2016, 16).

INTALL@home is embedded as a stand-alone unit in INTALL's blended-learning environment. The chart unfolds the digital learning environment and visualises how existing⁸ and new materials were included and arranged as didactical elements with three different learning topics:

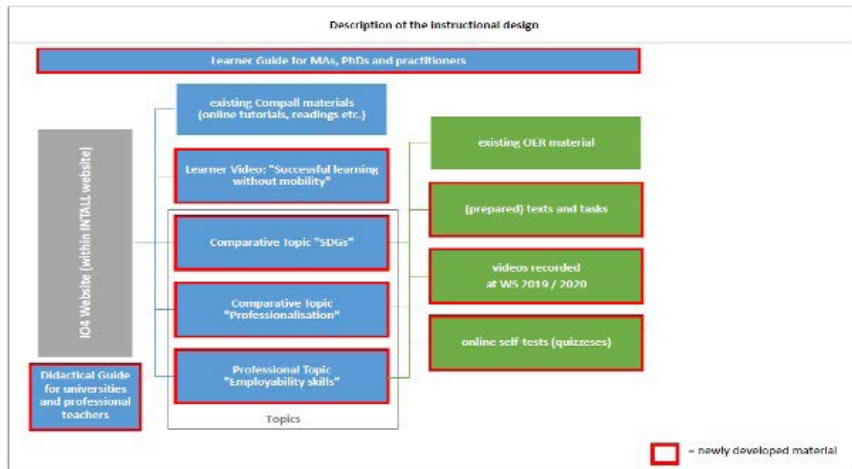


Figure 2 – INTALL@home instructional design.

For the redesign (Wannemacher and Bodmann 2021), new online material e.g. videos, guides, tasks, and self-tests were produced. Already available online learning elements from the partner consortium's past EU projects were integrated. The instructional design additionally focuses on easy accessibility to and efficient use of OERs and tries to balance the outlines for the development of self-directed new didactical elements and the integration of existing ones from

⁸ INTALL@home integrated or further developed the COMPALL **joint module** (COMPALL - Comparative Studies in Adult and Lifelong Learning), which offers online tutorials, information sheets, and several materials.

previous projects. Moreover, new digital material by INTALL (e.g. ePortfolios, digital employment stories) is cross-linked. INTALL@home is fully based on open accessible resources to create a sustainable environment (independent from its ‘mother-project’).

At this point, the complexity that has arisen may need to be critically marked. Accordingly, the interim evaluation with students and practitioners showed that some learners need more patience to go through all the pages to find a topic and content they like to work on. On the other hand, no one criticised the fact that you could be really ‘lost in space’ due to the framing information. I will try to elaborate this further and invite you to explore INTALL@home by reading⁹.

3.3 Exploring INTALL@home

One traditional and core pedagogical principle is about the interaction with the learner: deep and meaningful learning experiences are best supported by actively engaged learners. To support this, INTALL@home follows the idea of *pre-structured* but *self-directed* learning pathways. The overall question is: how can ICT support intense, varied, and motivated engagement in learning processes in our case? Accordingly, the landing page starts with an infographic about ‘How to work on this page in 4 steps’.

Additionally, the landing page offers an introduction video about ‘Successful learning in comparison without mobility’ which elaborates, what is meant by ‘successful’ and our definition of online learning:

[...] INTALL presents you with options and possibilities in international comparative analysis, but there is not the ONE way – you have to build your own pathway through self-directed inquiry but with all the support from this web space!¹⁰

Moreover, a *digital didactical guide* elaborates «[w]hat are the key benefits of comparative analysis in adult education, and how can you get started?». Together with international experts and colleagues «we look at why comparative research is at the heart of what science is today, and how it can support adult education as a field» by eight short clips in .mp4 format for easy streaming:

⁹ Or trying out: <<https://www.hw.uni-wuerzburg.de/intall/intallhome/>> (2023-03-15).

¹⁰ <<https://www.hw.uni-wuerzburg.de/intall/intallhome/>> (2023-03-15).

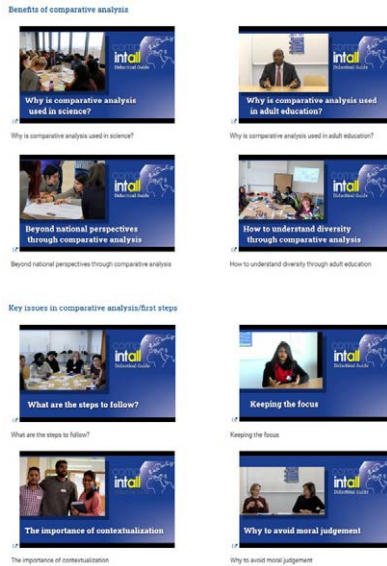


Figure 3 – Didactical (online) guide (<<https://www.hw.uni-wuerzburg.de/intall/intallhome/>>).

The above-mentioned ‘content boxes’ offer two comparative topics (a. Sustainable Development Goals, b. Professionalisation) and one professional topic (c. Employability). All topics are starting with the same style of a *digital advance organiser* to provide the user with a first piece of information and guiding pathway:

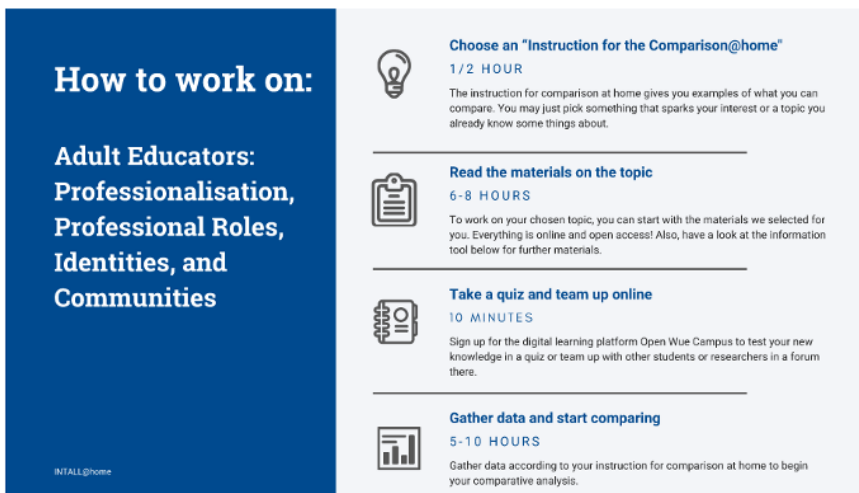


Figure 4 – Example Landing page ‘content-box Professionalisation’ (<<https://www.hw.uni-wuerzburg.de/intall/intallhome/professionalisation/>>).

Each content box and each *learning material* too can be used in combination or as a stand-alone unit. The pages provide again recommendations on how to work on the topic, links to online tutorials and didactical guiding short-videos, reading recommendations plus abstract, crosslinks to video material (e.g. from practice), online self-tests as well as networking options (e.g. links to interactive online groups for collaboration like LinkedIn; synchronic discussion via Adobe-Connect).

3.4 General Remarks

The learners and teachers as users can find *semantic signposts* on each INTALL@home page. These signposts can be understood as further didactical (online) guidelines. The *digital semantic signposts* differ from providing short information (e.g. abstract to a recommended text) to more complex guiding questions (e.g. what can be expected here). They are complemented by *diagrammatic signposts* containing 'pictorial knowledge', like Klinge (2020) states. The user will see the hand or an arrow to mark starting here the online tutorial or video:



Figure 5 – Digital diagrammatic signposts. Own source.

However, INTALL@home may be used and adapted by teachers in their courses and syllabus. Therefore, we would kindly invite colleagues, to try INTALL@home as a didactical methodology in their home universities or adult education associations for professionalization activities e.g. within blended-learning settings.

4. Conclusions

The instructional design (architecture) and the main objectives were developed during a time when COVID-19, the pandemic, and the health crisis were

far out of our thinking. Maybe examples like INTALL@home can mark the next step into a Post-COVID time. Giannini, UNESCO's Assistant Director-General for Education, states:

We need to come together not only to address the immediate educational consequences of this unprecedented crisis but to build up the longer-term resilience of education systems. (Huang et al. 2020, 4)

INTALL@home may hereby offer a fully open-access learning environment enabling learners as well as teachers to international and comparative studies in adult education and lifelong learning in a self-directed online format or via blended-learning settings. It, therefore, combines digital material and support with human encouragement, the same as voices in online tutorials or videos, given by students and international colleagues.

In addition, INTALL is expected to encourage the use of existing open access learning and reflection tools for capacity building in comparative adult education research in a globalized and digitized world. Moreover, we follow the European idea and hope and focus on the potential of social inclusion of non-mobile students and practitioners. INTALL@home counts on the learners' interest and potential to navigate through all the materials and digital options on INTALL@home. We – as creators – count on future visions, which enable a digital transformation and not just a digital adaptation.

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