Module 1
Unit 3

Unit 3 – Digital disruption in higher education

Module 1: DIGITAL EDUCATION DISRUPTION – THE ROLE OF ONLINE LEARNING AND DIGITAL TECHNOLOGIES

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Unit 3: Digital disruption in higher education

Module 1: Digital education disruption – the role of online learning and digital technologies

1. The use of digital technologies in online teaching and learning
2. The role of online teaching and learning in a globalized digital economy
3. **Digital disruption in higher education**

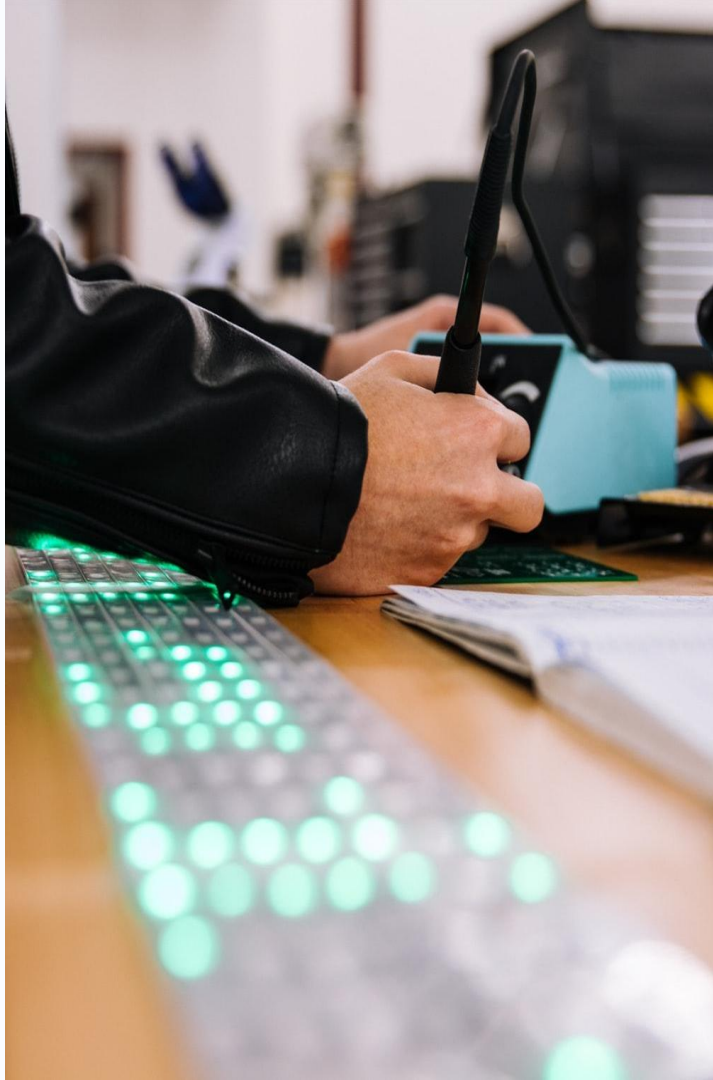
The objectives of this Unit are:

- To get familiar with digital education disruption
- To get acquainted with specific ways to overcome digital education disruption
- To acknowledge specific ways of managing the digital disruption in higher education institutions (HEIs)
- To understand the role of disruptive education technologies in higher education
- To understand how digital technologies are enabling new educational opportunities
- To identify key characteristics of disruptive innovations

Contents

1.1. What is digital (education) disruption?

- Digital disruption is being frequently entailed through the radical digital innovation and its wider systemic effects.
- Since digitalization is a multidimensional concept, digital disruption emerges as a credential generally denoted like a feather of turbulence induced by digital innovations that generate the erosion of previous boundaries and old approaches, and adds new value in various fields (Skog et al. 2018; Karimi and Walter 2015; Weill and Woerner 2015; Rauch et al. 2016).
- According to Skog et al. (2018, p. 431), the most common view of digital disruption in literature is as a "major cause of fundamental creative destruction processes" that may severely impact "the core of every industry" (Bonnet et al. 2015), as well as the educational system (Kosasi, 2020), and induce "short fuse, big bang" situations capable of threatening entire sectors (Farrall et al. 2012).



1.1. What is digital education disruption?

Defining digital disruption

The general notion of disruption commonly frames digital disruption as a type of digital technology-induced environmental turbulence capable of producing system upheaval.

As specific manifestations of digital disruption, digitization and digital platforms have generally been highlighted as processes leading to dissolution of core industry conditions for upward capture of value (El Sawy et al. 2010; Karimi and Walter 2015; Tan et al. 2015; Berghaus and Back 2016; Rauch et al. 2016).

Skog et al. (2018, p. 432) defines digital disruption as „The rapidly unfolding processes through which digital innovation comes to fundamentally alter historically sustainable logics for value creation and capture by unbundling and recombining linkages among resources or generating new ones".

1.1. What is digital education disruption?

- **Digital education disruption** embeds technological developments as forces providing myriad opportunities for educators and learners.
- It therefore changes the educational process, particularly in higher education, allowing students to develop digital skills and to imbue values for continuous learning through digital means.
- Disruption can be considered as an enabler for the transformation of any activity sector from the retail to the computers, through education.

1.1. What is digital education disruption?

- In education, the problem of disruption is more complex, being grounded on the use of disruptive technologies as educational instruments (lectures, lessons, homework, tests, projects etc.) to shape the role of educators.

- Therefore, a set of paths are provided to educators to overcome resistance to change and create a disruption in the teaching-learning process, namely:
  - ➢ the possibility of having customized curricula,
  - ➢ introducing technologies that enable Learning Analytics and Adaptive Learning,
  - ➢ the use of technology and artificial intelligence techniques to provide an experiential personalized learning experience.

Reflection

Debate

What do you understand by digital education disruption?

Is there another way through which you could define this concept?

How do your perceive digital disruption in your own institution/university and within the society at large?

What challenges do you think digital education disruption poses to both educators and learners?

Think about and share several strategies on how to cope wih digital education disruption and enhance its positive outcomes in universities

1.2. Disruptive education technologies

- In the 21st century, the change to a knowledge society has been consolidated, involving the use of disruptive technologies in various fields, particularly in education.

Notable disruptive education technologies encompass:

- First generation of massive open online courses – **cMOOCs**
- The second generation of MOOCs – **xMOOCs**
- New model of MOOCs that does not require sophisticated technological solutions and recovers the initial disruptive sense of MOOCs – **ahMOOC** (García-Peñalvo et al. 2018)
- **Virtual Reality (VR)** - offers a personalized learning approach and access to the Internet and brings an excellent experience of complete immersion in the educational process
- **Augmented Reality (AR)** - another disruptive technology less adopted in education but with and enormous potential (e.g. Google Glass)
- **Artificial Intelligence (AI)** - embeds algorithms that provide a personalized learning experience for students.
- **Collaboration Platforms** - videos, presentations and forums integrate education materials from different sources in different formats. This makes learning easier and social.

1.2. Disruptive education technologies

Disruptive Classroom Technologies

- Anthony J. "Sonny" Magana – **T3 framework (translational, transformational, transcendent)** – new framework for how educators should think about leveraging technology in the classroom (Disruptive Classroom Technologies, https://doi.org/10.1093/acrefore/9780190264093.013.423, Oxford University's Research Encyclopedia for Education), but also on how to use technology to perform tasks more rapidly and effective they are already doing in a traditional way, such as reporting, testing, grading and storing documents.
- Using **OneNote** and **OneNote Notebooks** students can collaborate regardless of their location and share their knowledge by taking, organizing and sharing notes with other students; the use of technology in this perspective redefines how tasks are performed and create new opportunities for students by allowing them to develop new capabilities at the same time.

Source: [17]

1.2. Disruptive education technologies

Disruptive Classroom Technologies

- Students can use **Microsoft Applications** like **Microsoft PowerPoint** and **Microsoft Sway** to develop presentations, solicit feedback from other students and even poll students about their presentations/projects/homework; the use of technology focuses here on moving students from thinking their own projects and engage in (online) collaboration with their colleagues, professors and the extended community.
- Using **Skype, Microsoft Teams, Zoom, Google Meet** in the Classroom allows students to connect with other students from around the world ("joining classrooms across borders") where they can collaborate on projects and learn from each other.
- **Microsoft Office Lens** represents another important feature designed to automatically enhance pictures of whiteboards and documents to make the content easily readable.

Did you know...

Innovative tools for students

Nepris or Educurious are innovative tools through which students can meet online, in a videoconference, a neurosurgeon or an engineer or another specialist in various professions on the other side of the country.

Student Success Agency is a platform where students can access a personal 'agent', a role that is often played by a college student, to receive personalized, on-demand college and career guidance around the clock.

Granny Cloud is a platform through which students, particularly those with limited access to formal education, can access unconditional support and encouragement from a community of caring adults.

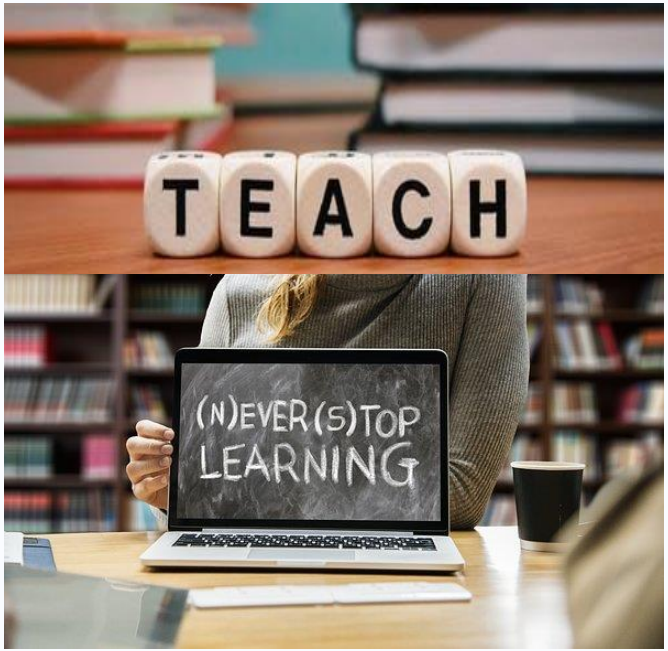
Source: [7]

1.3. Managing the disruption of higher education

Digital disruption in higher education – acknowledgement, digital skills, strategies

Considering the important digital transformations deployed recently in the globalized modern economy, universities (HEIs) play an important role in providing essential knowledge to equip students with the necessary digital skills needed to advance on the labour market, and to cover the digital skills gaps in matching the needs of and opportunities offered by the labour market, tailored to professional profiles. This role is far more important nowadays in pandemic and post-pandemic times.

Universities are focused on modernizing the teaching and learning process to provide personalized learning experiences, by investing in modern equipment and technologies and implementing solutions to ease the development of lectures and assesment/ exams in an online setting.



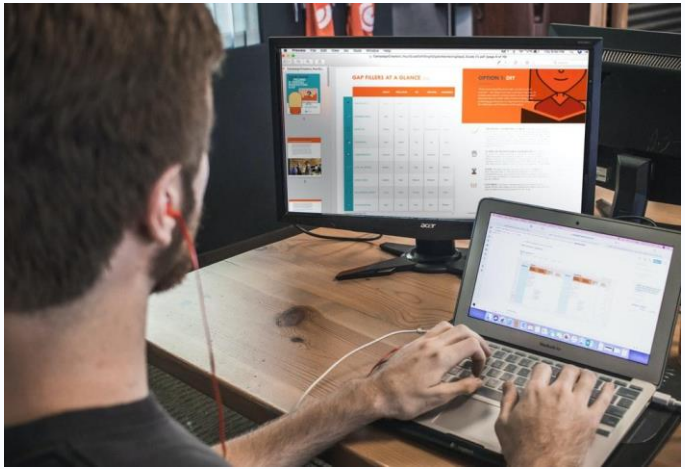
1.3. Managing the disruption of higher education

Digital transformations and disruption in higher education – strategies

Advanced technological shifts enable new educational and operating models in HEIs, while transforming their strategic directions, and value proposition.

These strategies include as main credentials:

- ❑ Digital Integration
- ❑ Student-Centric Digital Higher Education
- ❑ Student Retention and Completion
- ❑ Improved Enrollment
- ❑ Administrative Simplification
- ❑ Information Security Strategy



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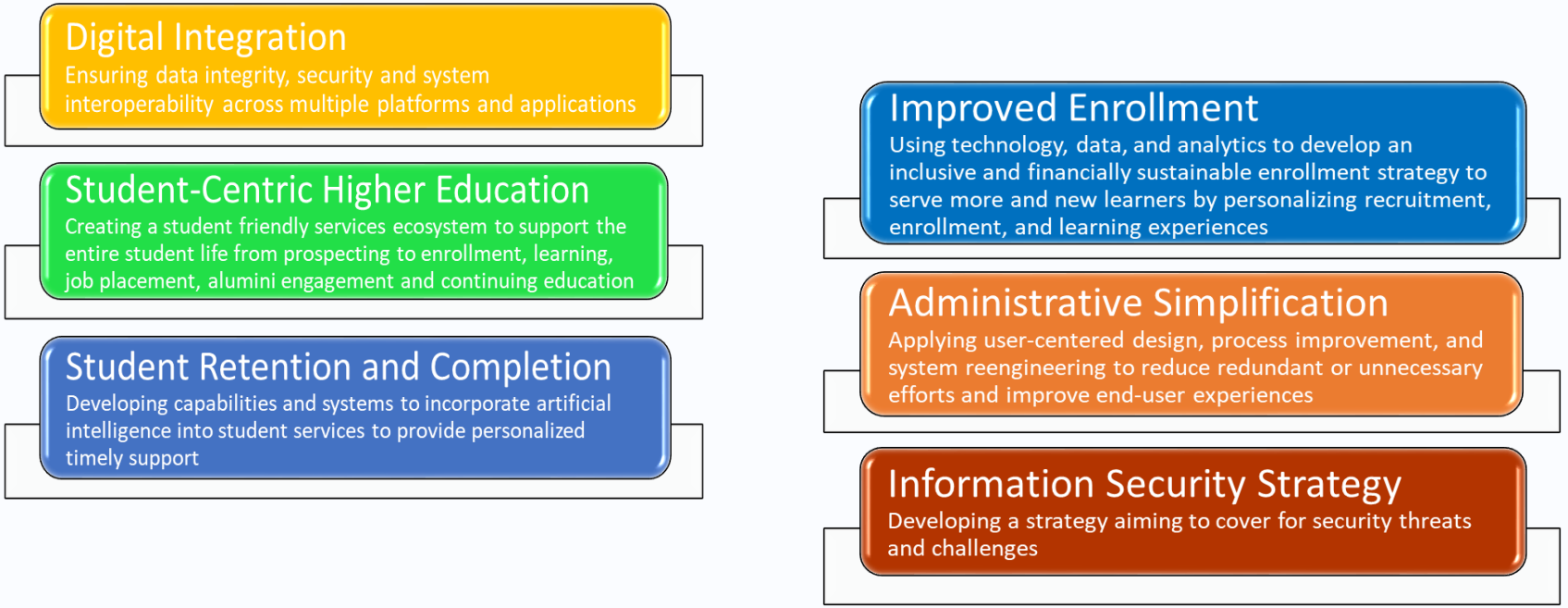
1.3. Managing the disruption of higher education



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Reflection

How does your university manage digital education disruption?

- Think about your own university
- What strategies are developed and implemented in order to cope with digital education disruption?
- How does your university embed technology within all aspects of its activities?
- How does your university enhance student's digital skills linked to various professions and tailored to the labour market needs?
- Write down and share several best practices

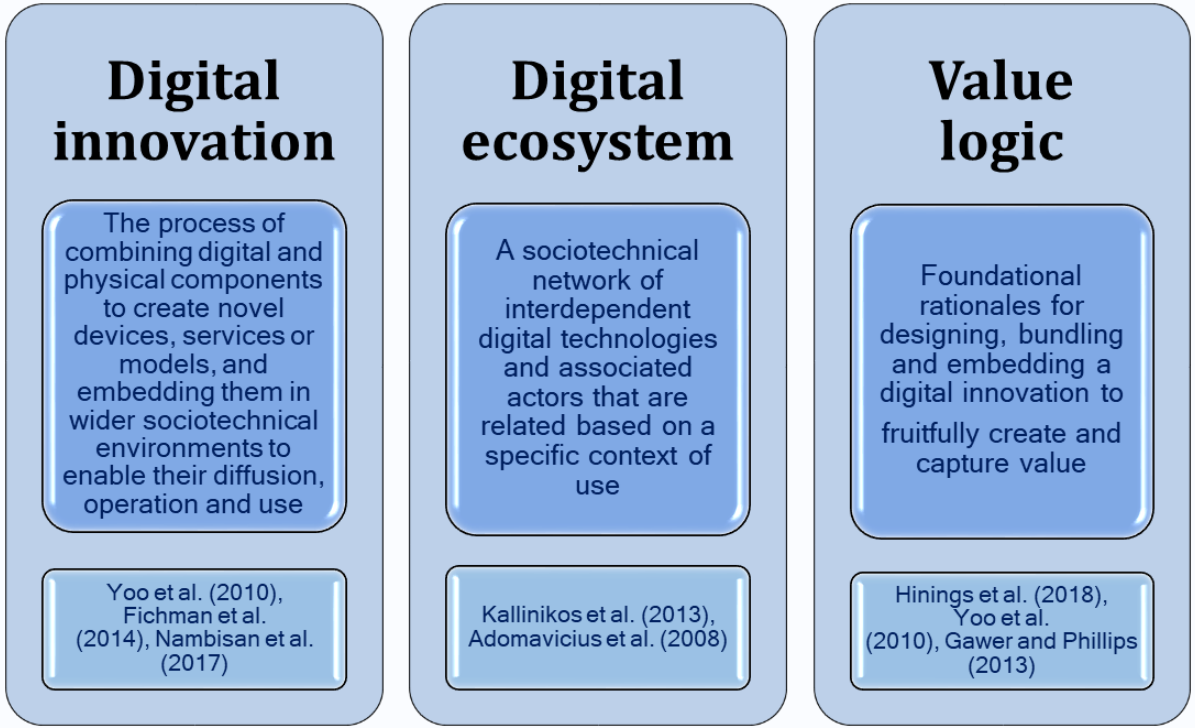
1.4. Key characteristics of disruptive innovations

- Skog et al. (2018) highlight three key constitutive elements of digital disruption:
  - digital innovation - Yoo et al. (2010, p. 725) refer to it as "the carrying out of new combinations of digital and physical components to produce novel products"
  - digital ecosystems - Selander et al. (2013, p. 184) emphasize organizational networks by defining it as "a collective of firms that is inter-linked by a common interest in the prosperity of a digital technology for materializing their own product or service innovation"
  - value logics - Hinings et al. (2018) note that digital innovations that become central in ecosystems may also become standard-setting and hence able to impose norms and values on others by coordinating, enabling and constraining their actions.

- Main characteristics are revealed by setting digital innovation and disruption within a larger process of change, namely digital transformation, i.e. "the combined effects of several digital innovations bringing about novel actors (and actor constellations), structures, practices, values, and beliefs that change, threaten, replace or complement existing rules of the game within organizations, ecosystems, industries or fields" (Hinings et al. 2018, p. 53).

Source: [21]

1.4. Key characteristics of disruptive innovations



Source: [21]

Source: Skog et al. 2018, p. 435

Example

Several examples of disruptive innovations in education

- **Capaball**, a start-up company that has developed an Artificial Intelligence system that creates **training programs tailor made to match the student's profile.**
- **Hyper-classroom**, another disruptive concept as a type of learning aiming to create an innovative space characterized by three ideas unified by the prefix 'hyper':
  - ***hyperspace***, generously sized, open and flexible spaces that can be rearranged to cater for team or individual work;
  - ***hypermedia***, classrooms in which technology constitutes an environment in its own right and does not merely play a supporting role;
  - ***hyperreality***, the use of augmented, virtual, 3D or immersive reality with high teaching potential.

Source: [13]

1.5. Enabler of disruptive innovations

Disruptive technological innovations in education

- Google as a platform model (Classroom, Hangouts Meet, Jamboard, Forms, Ads, Music, YouTube, Search, Chromebooks, Chrome OS, etc.)
- Ease of publishing (e.g., blogs, social media, podcasting) to promote conversation and thinking around what's possible in education
- Video Streaming/Flipped Classroom/eLearning Trends
- Zoom, Skype, Webinars, live streaming - one of the most visible and common form of technological innovation in higher education
- Open curriculum (e.g. MIT's OpenCourseWare – MOOCs)
- Digital textbooks
- 3D Printing
- Use of data analytics

Source: [11]

1.5. Enabler of disruptive innovations

- New kinds of certification and degrees - could include those mashing STEM fields with the humanities, as well as 'nano-degrees' and the ability to 'update' the certification and degree over time
- New pedagogies - alternatives to lecture, including scenario-based learning, project-based learning, inquiry-based learning, competency-based learning, scenario-based learning, gamified learning etc.
- Voice search (e.g. Siri, Amazon's Alexa, and Google Home) - impact on curriculum knowledge demands
- Education documentaries on Netflix aiming to bring the "Ed reform" conversation to a broader audience
- Free Tuition (e.g. Stanford University)

Source: [11]

1.5. Enabler of disruptive innovations

ARK: The five platforms of disruptive innovation
https://www.youtube.com/watch?v=m4_AAmLpwR8

Investing in disruptive innovations
https://www.youtube.com/watch?v=J1YMQGrgiog

TOP 7 Emerging Technologies That Will Change Our World!
https://www.youtube.com/watch?v=TxRIdL2CDBk

Reflection

Try to think about the last digital (online) learning session you attended...

Did it involve the use of disruptive technological innovations?

What kind of learning models or new pedagogies were there applied ?

Did you find any of them innovative?

Now think about how you would enable the use of disruptive digital/technological innovations to improve the teaching and learning process in higher education institutions...

1.5. Enabler of disruptive innovations

The Future of Higher Education in the Age of Disruption
https://www.youtube.com/watch?v=vm4b-50YkmU

Key takeaways

- Digital disruption in higher education brings major transformations of the teaching and learning processes in universities through the use of modern technologies and innovations
- These allow HEIs to create new models with huge advantages for both educators and learners from taking the knowledge and expertise harbored in universities under the unique umbrella of digitalization and digital transformations.
- Higher education's prevailing digital educational models should be configured in line with the current educational needs of the population and the labor market
- Disruptive innovations reduce costs dramatically by providing simpler, less expensive teaching and learning solutions
- Despite the explosive growth of online learning, higher education has trapped many disruption-enabling technologies in complex settings, while disruptive technologies make higher education more affordable, accessible and effective

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