A Handbook of e-Inclusion

Building Capacity for Inclusive Higher Education in Digital Environments

Marieke Slootman, Tisja Korthals Altes, Ewa Domagała-Zyśk,
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e-Inclusion
Building capacity for inclusive education in digital environments

Impressum

The Handbook of e-inclusion supports educators in developing expertise in inclusive education and digital learning, to provide equitable education opportunities for every student in online, blended, and hybrid learning environments.

This handbook has been written in the context of the EU-funded project 'e-Inclusion. Building Capacity for Inclusive Education in Digital Environments' (project number 2020-1-NL01-KA226-HE-083100), co-funded by the Erasmus+ Programme of the European Commission.

The knowledge developed in this project is also distributed through **e-learning modules for teachers**, an **Awareness Raising Tool,** and the **e-Inclusion course**, piloted at the Universitat Oberta de Catalunya in 2022. For additional information, the modules, the tool, and an open-access course outline, see the project website: https://einclusion.net.

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E-inclusion consortium

In this project, four universities and two policy-focused organisations with leading expertise in inclusion policy and online learning, collaborated on inclusion in digital education. Participating partners are Expertise Centrum Diversiteitsbeleid ECHO, Knowledge Innovation Centre Malta, Katolicki Uniwersytet Lubelski Jana Pawła II, Universitat Oberta de Catalunya, Universiteit Hasselt, and Vrije University Amsterdam (project leader).

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Table of Content

e-Inclusion
Building capacity for inclusive education in digital environments

e-inclusion: Toward Inclusive Education in Digital Environments

Knowledge and guidelines for teachers about how they can create inclusive digital education in their blended, hybrid, or fully online courses.

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What is our aim?

Inclusive digital education = education, making use of digital tools, that is accessible, engaging and enriching for everybody, regardless of one's identity, background or body (See Fig.1)

How to practice e-Inclusion?

Opportunities of digital education for equity:

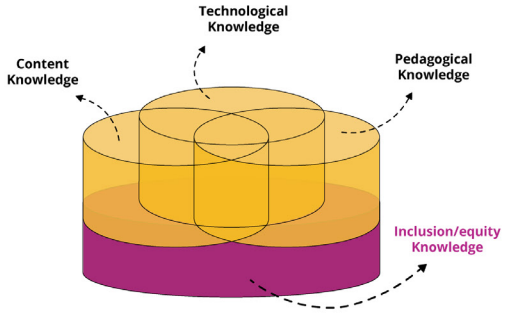
- Many possibilities for **diversification** in form (text, audio, video, languages, subtitles)
- **Flexibility** in time & space
- Many possibilities to enhance **student agency**, activation and co-creation (also anonymous)

Challenges of digital education for equity:

- Establishing **Social Presence** and an **inclusive climate requires** extra attention
- **Digital barriers** hamper accessibility for students with less digital knowledge and/or deficient technical equipment

Different ethical & organisational considerations

i-TPACK model: Be aware of how digital context, content and pedagogical approach impact equity.



We need **4 interrelated knowledge dimensions** to create inclusive digital education. The inclusion/equity knowledge layer underlies the 3 TPACK dimensions (Technological, Pedagogical, Content knowledge)

**See for our handbook, e-learning modules, Awareness Raising Tool and Course Outline: www.einclusion.net*

Check with your institution which digital tools are facilitated

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e-Inclusion
Building capacity for inclusive education in digital environments

Guideline 1:
Develop awareness & reflection

Develop awareness on inclusive digital education and practice self-reflection in relation to your own position and role.

Be aware of how digital context, content choices and pedagogical approach impact equity in your course. Digital tools provide great means to quickly collect (anonymous) feedback of the students.

- Inform yourself & self-reflect
- Continuously monitor the course

Guideline 2:
Know your students

Get to know the students (digitally) and adapt to their needs, including their digital needs.

Digital tools provide excellent opportuni-ties to collect anonymous information, or information in different forms (video; image of an object, etc.)

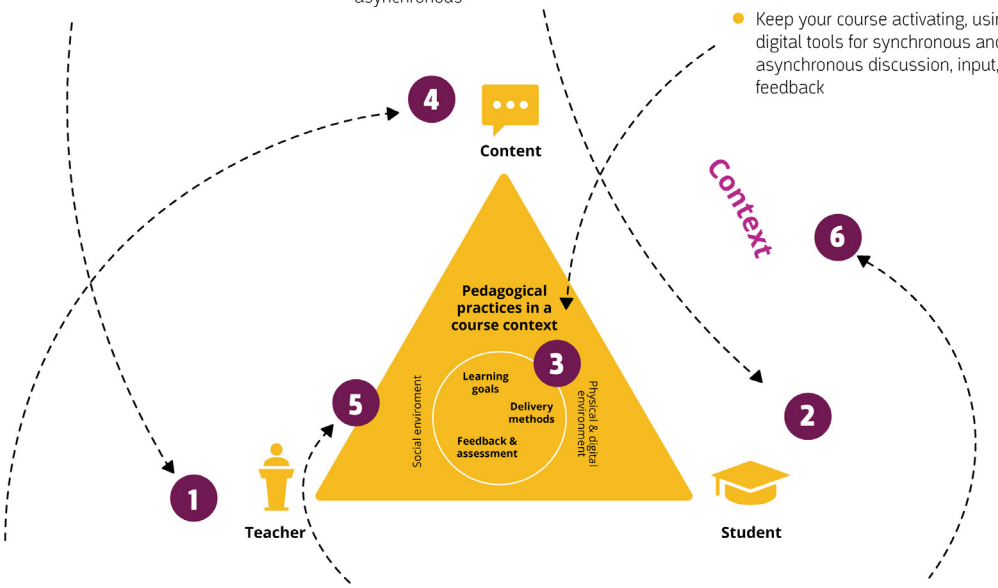
- Have students introduce themselves using various media/platforms
- Share personal experiences yourself
- Inventorize skills, needs, and ambitions; anonymous and asynchronous

Guideline 3:
Diversify teaching practices

Diversify pedagogical practices (delivery methods. learning goals, assessments), seizing opportunities that technology offers.

Use multiple forms (textual, verbal, audio, video, languages, subtitles).

- Reduce barriers for access (e.g. good sound, image)
- Offer clear technical instructions, option for testing and asking questions
- In hybrid classes: also keep the online students involved
- Keep your course activating, using digital tools for synchronous and asynchronous discussion, input, feedback



Guideline 4:
Diversify content

Diversify content outside the mainstream canon (in terms of region, language, format, etc.), involving the input of students to further extend the realm.

Digital tools increase access to non-mainstream knowledge (e.g. different languages and forms) and enable the active contribution of students (bringing in new materials/ approaches).

- Include 'diverse' (non-mainstream) perspectives and examples
- Invite diverging experiences, worldviews, approaches
- Explore and explain why mainstream knowledge is mainstream
- Value personal experiences

Guideline 5:
Create an inclusive learning climate

Create and nurture a learning climate based on social presence, dialogue and student agency, and inclusive language, using the digital possibilities for student participation and co-construction.

- See students as knowledgeable participants, encourage dialogue
- Avoid microaggressions
- Balance intellectual discomfort & dignity safety
- Turn friction (Hot Moments) into learning opportunities
- Make students co-constructors of the course (through peer-to-peer initiatives, peer feedback, dynamic course design)

Guideline 6:
Collaborate with allies

- **Teachers:** find, mobilize and collaborate with allies, for your personal well-being, task-sharing, alignment in the programme, as well as institutional anchorage
- **Institutions:** Encourage and support endeavours for inclusion. Supporting teachers, and teacher teams with time, knowledge, practical (digital) support, acknowledgment, and protection. Anchor the pursuit of inclusion in policy & practice

Check with your institution which digital tools are facilitated

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General introduction to e-inclusion

The relative novelty of digital education for most higher education institutions, and the exacerbated inequalities in the wake of the COVID-19 lockdowns, underscores the need for expanded knowledge: that of how digital tools and online learning impact on the accessibility and engagingness of higher education. Knowledge on *e-inclusion*.

We, as educators, envision higher education institutions to offer excellent education for everyone, so that every student can actively participate and thrive in higher education, regardless of one's identity, background, or body.

Inclusion or equity in digital educational contexts requires a purposeful design that makes the most of the opportunities and overcomes potential challenges associated with the use of technology, paying particular attention to the challenges affecting underserved students. This requires a new pedagogy.

With the e-Inclusion project, we contribute to building equitable education in online, blended, and hybrid learning environments, by empowering teachers with skills for inclusive digital education.

Acknowledgements

We like to thank all consulted experts, including those from the European Access Network and the GAPS network (Global Access to Postsecondary Education) who participated in our expert meetings. Our gratitude also extends to all researchers and participants in the studies that informed our project. Without your expertise, dedication, and frankness, we could not have developed this handbook!

Relevance

> **Today more than ever, ensuring inclusive and quality education and training that responds to the lifelong learning need to develop the competences necessary for future life and employment requires that education and training institutions use digital technologies in a critical, purposeful, and effective way.**
>
> **-European Commission (2020, p. 3)**

As educators, we are all familiar with the transformative potential that higher education can have on lives. This is where the importance of **inclusive education** reveals itself, urging us to consider the manners in which education can fully benefit students from all walks of life. The urgency of this call also resonates on a European level. It is for a good reason that diversity, equity, and inclusion are important core values for the European Union (EU).

Inequity persists all throughout higher education. Who you are, influences your chances in education (OECD, 2018; UNESCO, 2020). The increasing diversity in society in combination with unequal opportunities and systematic exclusion urges higher education institutions, local authorities, and supranational institutions to promote and develop inclusive policies and practices, and to move towards **inclusive excellence** through organisational transformation. Despite the opportunities that digital technologies provide for inclusion, the global switch to online education during the COVID-19 pandemic appeared to have only exacerbated inequalities (Blaskó & Schnepf, 2020).

The EU underscores the sense of urgency to increase equitable opportunities to high-quality education (European Commission, 2016) and to provide 'high-quality, inclusive and accessible digital education' (the Digital Education Action Plan 2021-2027), European Commission, 2022). Promoting equity, social cohesion and active citizenship is one of the main objectives of the strategic framework for European cooperation in education and training (European Commission, 2021).

This project is funded by the EU within the call for *Digital education readiness*, which supports projects in education to enhance online, distance and blended learning. The call aims to support teachers and safeguard the inclusive nature of digital learning opportunities. (European Commission, 2020).

e-inclusion

In the context of higher education, we conceive e-inclusion as a practice. It refers to a continuous process of making education, supported by digital means, inclusive.

Like in offline, physical classrooms, the question of how to make education more inclusive in online settings is pressing. Digital learning environments bring with them their own unique set of opportunities, demands and challenges in relation to diversity and inclusion. On the one hand, technology use provides numerous opportunities for diversification of teaching methods and content, flexibility, student's agency, and participation. On the other hand, the sometimes-perceived anonymity and lack of social presence in online education

settings might hamper the sense of belonging and the creation of learning environments in which students feel both safe and brave enough to participate. Furthermore, digital barriers, such as failing technology or inadequate digital skills, can reduce accessibility and engagement online.

Although these challenges affect all students, they can have more detrimental effects for underserved students – who are less connected with the educational system because their talents are less acknowledged, their views are less represented, or their special needs are not met. Digital education is not necessarily inclusive, as the accelerated move of in-person higher education institutions towards online education during the COVID-19 pandemic has underscored. Developing inclusive online education is not only a pressing issue, but also requires new ways of thinking.

There are many commentaries and reports concerning inclusive education and on digital education, but the issue of inclusive digital education is still largely unexplored. With the e-Inclusion project, we seek to fill this gap by developing a new pedagogy that helps teachers and higher education institutions build capacities for inclusive education within digital environments. This pedagogy is based on the interplay of knowledge on pedagogy, content, and technology in the light of inclusion and we suggest a new conceptual model, which we have coined I-TPACK. By doing so, we aim to achieve the following goals:

- to support educators and higher education institutions in implementing inclusive practices of digital education in fully online, hybrid and blended learning environments;
- to assure that the accelerated transition to digital education prompted by the COVID-19 lockdowns does not exclude groups from participation in higher education or exacerbate existing inequalities; and
- to leverage the opportunities of digitisation to reduce barriers for inclusion.

In the e-Inclusion project, we integrate and offer knowledge to teachers and higher education institutions about what inclusive education means in the relatively new contexts of online, blended or hybrid higher education. This is based on literature, our combined experiences in online education, input from experts, the pilot online e-Inclusion course,[1] and fieldwork conducted for this project – consisting of qualitative interviews with students and teachers, participant observation and focus groups (e.g., Domagała-Zyśk, 2020, 2021a; Korthals Altes, 2021). Furthermore, we provide guidelines for teachers to create and prac-

[1] The pilot online course e-Inclusion: *Moving from diversity to inclusion in online higher education environments* was offered at Universitat Oberta de Catalunya between October and December 2022. For those who want to teach the course, the course design is accessible at our website https://einclusion.net/project-outputs/digital-inclusion-course/

tice inclusive digital education (hereinafter e-inclusion) in their courses. The knowledge and guidelines are made accessible in various forms, which include this handbook, e-learning modules for teachers, an awareness raising tool and an online course – all available on the project's website (https://einclusion.net).

The structure of the handbook

As the actual shape of education – and of inclusion – depends on time, place, discipline, teacher, and students, inclusive education is in a continuous state of evolvement. Therefore, there is no one-size-fits-all solution, nor a checklist for e-inclusion. Nevertheless, we can offer knowledge and guidelines for reflection and change, and give concrete examples that can be a source of inspiration.

The handbook can be read chronologically, which will most strongly strengthen the reader's understanding and awareness of processes of e-inclusion, and of their own role in shaping e-inclusion. Chapter 3, which zooms in on the how the use of technology in education shapes equity, forms the core of the handbook. The guidelines in Chapter 4 can also be read standalone, for readers who want to spend less time or who (initially) only seek practical suggestions for practicing e-inclusion.

In this introductory section, we have briefly presented e-inclusion, and we will conceptually delimitate relevant key terms.

In Chapter 1, entitled *Why e-inclusion*, we further explain why inclusive digital education matters and why a specific pedagogical framework for digital inclusive higher education is needed.

In Chapter 2, *How to understand e-inclusion: the I-TPACK model,* we depict the main components of inclusive digital higher education. Based on the pedagogical triangle and the TPACK model, we propose a novel conceptual model for inclusive pedagogies in digital environments which we call I-TPACK. Teacher's knowledge on Technology, Pedagogy and Content needs to be extended by knowledge about Inclusion. Chapter 3 zooms in on the I*nclusive Technological Knowledge (or I-TK): how technology use shapes equity*, explaining the specific opportunities and challenges in digital education in terms of inclusion.

In Chapter 4, *What to do: equity knowledge applied in six guidelines for e-inclusion*, we propose six guidelines for teachers and higher education institutions to put e-inclusion into practice. These six guidelines build on the principles of Chapter 1 and integrate the knowledge presented in Chapter 2 and 3. These guidelines are:

- Guideline 1: develop awareness on inclusive digital education and practice self-reflection in relation to your own position and role.
- Guideline 2: get to know the students and adapt to their needs, including their digital needs.
- Guideline 3: diversify pedagogical practices (delivery methods, learning goals and assessments), seizing the many opportunities that technology offers to do so.
- Guideline 4: diversify content, using the online possibilities to find and access resources outside the mainstream canon (in terms of region, language, format, etc.), involving the input of students to further extend the realm.
- Guideline 5: create an inclusive digital learning climate, based on social presence, dialogue and student agency, and inclusive language, using the digital possibilities for student participation and co-construction.
- Guideline 6: build organisational alliances for encouragement, knowledge, and organisational impact for e-inclusion.

Who is the handbook for?

In the first place, this handbook is written for **teachers** in higher education who want to make their digital education more inclusive or who want to use digital educational tools to (further) strengthen inclusion. In addition, we believe that the knowledge and guidelines provided are also relevant for teachers outside of the higher education context.

As we consider the creation of inclusive digital education as an integral endeavour, the second audience, **educational leadership and management**, is equally important. After all, teachers are cogs in a larger machine. When departments and institutions do not transform, all endeavours of individual teachers to make digital education more inclusive remain isolated initiatives. Without emotional and practical support (in terms of knowledge and time) teachers burn out. This particularly applies to teachers who experience exclusion. We hope with this handbook to also contribute to awareness of educational leadership and management, and to strengthen leadership's motivation and persistence to invest in e-inclusion.

Defining the terms

e-inclusion refers to the process of making education, supported by digital means, inclusive.

The concept of e-inclusion is closely tied to other concepts, which are related to either inclusive education or to digital education. Due to their relevance, we describe various concepts in the following subsections.

Concepts related to inclusive education

Inclusion is a state in which all individuals, regardless of their identities, backgrounds or needs, can actively participate, and belong, in a setting. Rather than integrating individuals into the existing system, working towards inclusion requires a systematic change that adapts the mechanisms that (re)produce inequalities. As inclusion gets shape through systems and actions in everyday settings, we see inclusion as work-in-progress, not as a definite phenomenon.[2]

Inclusive education refers to equitable and high-quality education, which is accessible and engaging for every student, regardless of their social background, identities, or disabilities. This implies that every student is engaged in a cognitive, emotional, and behavioural way, without any barriers for access or engagement, and that every student is acknowledged, stimulated, and supported in their talents and needs. Inclusive education gets shape in the setting of a particular moment and should thus be seen as an ongoing process. As inclusive education is influenced by the physical, digital, cultural, and social contexts affecting every participant, no checklists can be offered – only guidelines and ideas for inspiration.

Equity. We understand equity as the situation in which all individuals have access to the resources they need to achieve similar outcomes regardless of their identity or background. Equity refers to a deliberate approach, which is sensitive to societal mechanisms of exclusion and to the specificities of individual contexts. In contrast with the term equality, equity is not based on offering similar treatments to everybody, but on equality in the outcomes achieved by people.

[2] We actually prefer the term *equity* to inclusion because inclusion is easily understood as *helping minorities to adapt to the current system* and as *providing equal opportunities* instead of striving for equal outcomes and compensating for unequal preparation and resources. However, hoping that our ideas resonate as broadly as possible, we align with terminology that is common in educational policies and adopt the term *inclusion*. We use it as a synonym to equity, referring to the changes that are needed in educational institutions to make them more equitable.

Sense of belonging. A sense of belonging refers to the experience when individuals feel that they are acknowledged as full-fledged members of a community. In education, belonging is related to having good and constructive relationships with teachers and student peers, to feeling valued and acknowledged as a person and to feel connected to the course content. Belonging is positively associated with study success (see section 2.2.1).

Social presence. Social presence is the individual's ability to establish social and emotional connections, and to present oneself as a *real* person to group members in online contexts. In a virtual education environment, social presence is related to the degree to which students feel emotionally connected to other community members and their willingness to help and contribute to the group (see section 3.2).

Underserved students. Under-served students diverge from the students that traditionally have made up the majority of the student population – because of their identity, background or special needs – and experience exclusion because the system is less well tailored to their situation or their educational needs. They are often underrepresented in the student population. We use the term *underserved* to stress that their position is not a consequence of their abilities, but because the system fails to meet their needs.

Holistic approach. In the context of inclusion, a holistic approach considers individuals as a *whole*; as multifaceted individuals within their specific context. The aim of this perspective is to avoid thinking in categories, stereotypes and narrow foci that reduce people to only a single characteristic and to stand-alone entities that are detached from their environment.

Colour-brave approach. In a colour-brave approach, race is not ignored, like in colour-blind approaches. Rather, it is acknowledged, understood, and embraced that we are all racial beings, which shapes our position and experiences (Tuitt et al., 2018). Addressing social identities instead of rendering them invisible (which strengthens inequity) can also be applied to other identities.

Concepts related to digital education

Digital education lets individuals accomplish their educational needs by way of a broad range of digital technology-supported services and learning resources – including digital tools, platforms, systems, and applications (Rodríguez-Ardura & Meseguer-Artola, 2016), in a **digital learning environment**. Digital education allows for distance education mediated by digital technology. The use of **asynchronous** ways of teaching and learning enables education to take place when the teacher and the students are separated in both time and distance. This contrasts with the more conventional education that is largely conducted

in offline or in-person settings, where teacher and students are physically present at the same time in the same place (synchronous teaching and learning).

Digital education is not uniform; many variations of the concept have emerged:

Fully online education. Also known as online learning, e-learning, virtual education and planned online learning, fully online education is a modality of distance education that is ran through digital technologies – typically via the internet and learning management systems (like Blackboard, Canvas, or Google Classroom). In most purely online education that is designed as such, the teacher delivers an online course that is planned and designed in advance, usually with instructional design support, and which is mainly asynchronous. Ideally, the course integrates a range of online learning strategies and educational technologies that let students dynamically interact with fellow classmates, the teacher and online learning resources while building knowledge self-directly and with flexibility. As evidence shows, there is no significant difference in learning outcomes achieved by university students in fully online education settings and students in off-line contexts (for a review, see Skledar Matijevic, 2022).

Hybrid education. This is an education mode increasingly adopted by conventional education institutions that translates into a dual-channel organisational strategy: while an in-person education channel is offered to students – so they can follow the course in physical settings – an online education channel is also deployed, often in the form of videoconference live broadcasting, so some other students can take the course remotely.

Blended education. Blended education is a mode of education that combines digital and in-person educational elements. It often refers to education that takes place largely offline, through synchronous in-person means, embracing some digital elements – e.g., while in a physical classroom, students are asked to perform some learning activities online.

Emergency remote teaching. Emergency remote teaching emerges in in-person education settings in response to emergencies that abruptly inhibit or interrupt offline education (e.g., a pandemic, a snowstorm, or a war). As a result, teaching activities are merely moved from in-person classes to online settings, deploying the same educational strategies, methods, and assessments the teacher uses in offline education, yet now in the digital context. Therefore, emergency remote teaching lacks a deliberate online course design, based on the specific possibilities and challenges of online teaching environments. This is what frequently happened during the COVID-19 pandemic (Hodges et al., 2020; Knopik & Domagała-Zyśk, 2022).

Chapter 1. Why e-inclusion

Building inclusive higher education in digital environments starts with understanding why education systems *in general* fail to deal with the growing diversity and increasing inequities in society (paragraph 1.1). As explained, this knowledge however is insufficient to create inclusive higher education in digital environments. We need new, inclusive digital pedagogies (see section 1.2).

1.1 The need for inclusive pedagogies in general

Higher education institutions are not inclusive. Inequities in higher education are reflected in the underrepresentation of many groups of students in tertiary education, and in structural gaps in educational outcomes (Dolmage, 2017; Sánchez-Gelabert, 2020; Taylor et al., 2020; Wekker et al., 2016). Furthermore, underrepresented students experience lower levels of belonging. This is double worrying, as feelings of belonging influence study success. Clearly, many students are underserved (OECD, 2018; UNESCO, 2020).

The current educational systems fail to cater to the specific needs of many university students. For instance, many underserved students experience barriers to entry because of the associated financial costs or the lack of flexibility offered to combine their study with other obligations, such as work or care tasks. Some (prospective) students lack the financial, cultural, and social capital that smoothens the path to and through higher education. Similarly, educational spaces are often poorly equipped to provide for the needs of students with special physical or mental abilities – turning these differences into impairments.

Furthermore, for many students, educational settings are socially unsafe environments, due to the presence of various explicit and implicit forms of discrimination and/or micro-aggressions. As racism, sexism, hetero-sexism, and ableism are present in society, they are also present in our higher education institutions. These societal inequalities are also reflected in the curricula, which are often tailored to the students who are the traditional majority (often white, middle-class heterosexual, able-bodied men) – mirroring their images, interests, ambitions, communication styles and experiences. This means that the course content is less engaging and less affirmative for underserved students.

These exclusionary mechanisms not only affect students, but also faculty members from underrepresented groups: they are underserved and regularly encounter instances of exclusion based on their skin colour, migration background, religion, gender, or disability (Ladson-Billings, 1996; Taylor et al., 2020; Tuitt et al., 2009; Wekker et al., 2016).

Making higher education more inclusive is a matter of providing chances for equal outcome, and the presence of diversity in people, perspectives, and approaches. As not every student has the same starting points and conditions, **equity** (i.e., the achievement of equal outcomes) is actually a better goal than equality, which is often understood as providing equal treatment.

Inclusive, or equitable, education is good-quality education for everybody. It is education that is accessible and engaging for everybody as it taps into a wide range of talents and meets diverging needs and interests. This results in education that is enriching and edifying to every student.

Underlying inclusive education is the need for every student to feel represented, valued, acknowledged, and have a sense of belonging; and also, their need for self-actualisation (i.e., realizing one's full potential). But none of this is achieved by merely integrating underserved students into the established education system, as this system is not attuned to every student to the same extent. Therefore, making higher education inclusive involves **institutional transformation towards inclusive excellence**, which is academic excellence for every student.

Inclusion starts with awareness and student agency

The mechanisms that reproduce inequality are hard to change because they are deeply engrained in the system, as it happens, for example, when most senior-professor-role-models in an institution are white men. Changes require high levels of awareness of one's own position, biases, and interactions and of how power relations have shaped our knowledge production and teaching (Salazar et al., 2010).

Added to this, **inclusive pedagogies** are needed to make our educational institutions more equitable; pedagogies that are critical towards the exclusionary mechanisms present in society (which are reflected in the educational system) and that counter these processes. These critical, engaged, or inclusive pedagogies are built upon a critical awareness about mechanisms of exclusion and power imbalances between groups and between teacher and students (Danowitz & Tuitt, 2011; Freire, 1996; hooks, 1994; Tuitt, 2016).

Because of these implicit norms and power hierarchies, student agency is crucial to inclusive education, as well as a vulnerable and personal stance of the teacher (see hooks, 1994). Well-being, affirmation, and self-actualisation are at least as important as the transfer of chunks of knowledge.

The *-isms*, such as racism, sexism, hetero-sexism, and ableism, refer to historically shaped, deeply rooted (often implicit and unconscious) norms and presumptions about who is seen as a full-fledged, deserving, multifaceted individual and who is regarded inferior. Norms are reflected in expectations, assumptions, attitudes, practices, and sometimes in physical, financial, and legal barriers. In many societies and institutions, people of colour, women, people with a non-binary gender identity, people with non-heterosexual orientation, people with diverging religions, and people with disabilities, are regarded as inferior. A lack of role models in position of authority strengthens this inequality.

Many people are unaware of inequality mechanisms because they lack awareness about exclusion. They do not recognize how the implicit norms shape exclusion. This can result in **microaggressions**, which are everyday actions or utterances that exclude some individuals on a daily basis and that are hard to address because they are not perceived as offensive by the senders – sometimes they appear in the form of *everyday sexism, everyday racism, everyday ableism*, and *everyday heterosexism* (Essed, 1984; Sue, 2010). There are numerous acts of microaggression, mostly taking place unconsciously; like not being ready to share the same space (sitting a bit more far away than usual; ignoring someone's chat-contribution while responding to others'), giving the other slightly less time for answering a question, making subtle unpleasant gestures or mimics (like rolling eyes or frowning eyebrows), etcetera. Jokes that use stereotypes are hurtful and are hard to counter without being regarded as a whiner. Even well-intended compliments or questions out of interest can be forms of microaggressions – this is the case of routine remarks such as "you are so good at maths, for a woman!" or "your English is very good, for a hard of hearing student", and tokenism like "can you, as a Muslim, explain what Muslims think about Muslim politics?" When we want to make higher education inclusive online – and establish an educational system that is geared towards the needs of every online student and has a broader representation of people, perspectives, and approaches – we need awareness and knowledge of inclusive education.

When we seek to avoid and counter inequality, it is not effective to ignore mechanisms of exclusion, as is the case in colour-blind approaches, where people avoid articulating differences between people, in this case, in relation to race – typically expressing ideas such as

"I don't see skin colour, for me everybody is equal." Although this might be based on good intentions, for example out of fear to activate stereotypes, ignoring inequality strengthens it because inequality is rendered invisible and can therefore not be challenged.

To address and counter racism, we need to acknowledge, understand, and embrace that we are all racial beings (Tuitt et al., 2018). Instead of colour-blind approach, that avoids race as a theme, we need a **colour-brave** approach and have conversations about race, with honesty, understanding and courage (Hobson, 2014). As this can be difficult, it is constructive to become comfortable with being uncomfortable. Colour-brave is an approach to the subject of race and ethnicity, but one that can also be applied to other elements of our identity.

Inclusion involves balancing between holistic and focussed approaches

Making education inclusive requires a sometimes-complicated balance between a holistic approach and focussed strategies. Under a **holistic approach**, individuals are seen as a *whole* within their specific context: avoiding categories, stereotypes and narrow foci that reduce them to only a single characteristic and to stand-alone entities that are detached from their environment. This is also why we prefer to speak of making education inclusive to *every student* instead of to *all students* – as the latter implies a uniformity that hides the enormous diversity among students (Domagała-Zyśk, 2018).

The acknowledgement that individuals are not defined by one single aspect of their identity (e.g., for being black), should be accompanied by the awareness that individuals have multiple identities that intersect and shape each other (e.g., being a black, heterosexual working mom of two children). In other words, there is a need for an intersectional lens that pays attention to how different structures and hierarchies work together.

At the same time, to avoid the reproduction and strengthening of inequality – in line with the colour-brave thinking – higher education institutions and teachers need to employ **intentional and focussed strategies** that help understand the positions of particular underserved groups of students.

Making education inclusive requires adopting a holistic approach while paying attention for specifics. Teachers should make their teaching broadly accessible and engaging to include every student but also to adapt to the needs of particular individual students (mainly underserved students), for all students to benefit. Clearly, this is not easy and requires a lot of introspection and change on part of the educational institutions and teachers themselves.

Inclusion is a joint endeavour

However, there are many internal and external barriers that educators experience to implement inclusive practices (see Salazar et al. 2010, pp. 209-210). Teachers sometimes feel incompetent to implement inclusion or deal with conflict, or they fear the unknown; they encounter oblivious students or resistance. They worry that they contribute to isolation and tokenism when they pay attention to diversity. They feel unsupported and large classroom sizes inhibit constructive dialogues. Some educators are concerned that they are labelled as radicals when they promote inclusion.

We can imagine that technology use in online educational contexts adds to these barriers for many educators, as many might feel they lack digital skills or cannot trust technological equipment to function well, and that online environments make it harder to get to know the students.

Put differently, the shift towards realising inclusive excellence goes far beyond the recognition of diversity in the classroom and requires a reformulation of quality and a change of the entire institution – including into "recruiting, admissions, and hiring; into the curriculum (...); and into administrative structures and practices" (AAC&U, 2005, p. ix), including the attitudes of the students. This requires changing the existing structures that implicitly or explicitly exclude some people more than others; it entitles a transformation of the mechanisms of everyday racism, sexism, hetero-sexism, and ableism within our higher education institutions.

We consider the creation of inclusive digital education as an **integral endeavour:** inclusion is not seen as connected with a certain type of population with hidden, unrecognised, special or additional needs, but is understood as involving all participants in the online learning process – teachers, students, and management. Hence, digital inclusion is only practiced if every person engaged in the educational process feels welcomed and respected and takes their responsibility in creating an inclusive online environment.

Teachers need to be willing to let go some of their authority and be more vulnerable in online environments, so students can feel more in control of their own learning experiences. One point of relief to deal with diversity might be that creating inclusive (digital) education is more about the ongoing process than about achieving set goals.

1.2 From emergency remote teaching to inclusive digital pedagogies

Although we will describe the opportunities and challenges of digital education in more detail in Chapter 3, in this section we shine a light on experiences during the COVID-19 pandemic. The sudden worldwide switch from in-person to online education, for many teachers and students in in-person institutions marked their first experiences with digital education and educational technologies. These experiences were partly positive and partly negative.

We stress that these experiences should not be taken as best practices of digital education. The instant online education during the COVID-19 lockdowns was often not based on a deliberate online teaching approach, but was a form of **emergency remote teaching**, in which in-person education was transferred to the online context, using the same educational concepts, working methods, and assessments of analogue education. (Hodges et al., 2020; Knopik & Domagała-Zyśk, 2022). Of course, no one is to blame here, as entire societies found themselves in an emergency, in which all traditional higher education institutions and teachers had to instantly switch to approaches that were often new to them. This was a survival situation with little room for careful reflection.

Now thatthe emergency has waned in many places, we can reflect on these experiences and learn from them. They underscore the need for a purposeful design of digital education, and for digital educational pedagogies that fit the chosen educational mode (either blended, hybrid, or fully online).

Educational experiences during the COVID-19 Emergency Remote Teaching

On the positive side, we observed that the sudden introduction to online teaching during the COVID-19 pandemic partially led to positive experiences, such as “We can do it! It is actually quite efficient”, “I feel more comfortable in class, when I participate from the safety of my home”, and “Considering my disability, I now have more autonomy and flexibility.” The emergency remote teaching during the COVID-19 pandemic made higher education institutions, teachers and students practice with digital approaches that have the potential to increase the quality and inclusiveness of education (see Chapter 3).

However, negative experiences piled up. Most of all, the lack of social connection severely impacted students’ motivation and engagement.

In the interviews conducted for this project about students' educational experiences during the emergency remote teaching, many students indicated that they felt like an **anonymous crowd** to the teacher and to fellow students. They had the impression that they were not acknowledged as individuals and not valued for their individual input. It makes a difference when, in-physical classes "the teacher looks at you and asks things directly at you. (...) [Then] you feel way more present" (Korthals Altes, 2021, p. 27). They missed informal talks, and the brief personal questions such as "How are you today?". Students also felt they did not get to know their fellow students in the same way they were used to at their in-person campuses. On-site education means not only classes – but also time before and after them, when students gather in front of the classroom and chat, commute together, use crowded cafeterias, lecture rooms and social spaces. All these social situations allow for students to get to know one another. This was missed in emergency remote teaching, when students were expected to log into their classes and participate in formal teaching moments, with no time and (virtual) space for informal interaction.

These feelings of anonymity reduced the students' motivation, their sense of belonging, and their active participation. Subsequently, the reduced engagement inhibited them from feeling like *a student*. As one student expressed:

> **(...) you can never really... people can never know what you look like or who you are. You don't have to even say anything. (...) You just kind of feel like you're there to do what you have to do. But as a person, you don't matter much because you're not going to interact.**
>
> **-Korthals Altes (2021, p.24)**

They **refrained from active participation**, and sometimes switched off their cameras, because they were unsure of what was expected of them and found it hard to anticipate how their contributions would be received by the teacher and their fellow students. They lacked the trust that at least someone in class would support their argument, which they had experienced in their in-person classes. Students felt they did not know each other and that the teachers did not know them, nor recognised their abilities. In addition, students felt insecure about the codes of conduct online, for example, how to pose a question (speak up, raise a hand on camera, raise a virtual hand or use the chat-function), which made them hesitant to contribute (Grygierzec, 2021). They expressed little awareness about having a shared responsibility for the group dynamics and for contributing to an effective educational environment.

Many teachers struggled with the lack of visible engagement from their students in their online courses. In interviews, conducted at VU and Hasselt University during the COVID-19 lockdown, teachers expressed they indeed felt they did not know their students to the same levels as they did in their conventional in-person classes, and that they and struggled with the severely reduced student participation. They missed the interaction with students and often spoke to entirely black screens when students participated with their cameras switched off.

Although these demotivating factors affected all students who shifted into emergency remote teaching during the COVID-19 lockdowns, many **underserved students were affected disproportionately** (Slootman, 2020; see also Domagała-Zysk, 2020, 2021a; Korach, 2021; Lewandowska, 2021; Skoczyńska, 2021). For those students who already experienced barriers before the COVID-19 pandemic, obstacles increased and accumulated. Some of them had insufficient access to good technical facilities (e.g., they did not have good internet connection or a high-tech laptop).

Others lacked a quiet study place because they lived in homes with many family members and had to share their study space with others, or experienced financial stress because of study delays or because their income dropped. Many saw a reduction of social connections in the academic context – which might have already been weak before the pandemic. And when students did not attend classrooms and visit the university campus in-person it further complicated the deciphering of the academic codes and norms, which is more urgent and complex for students who are raised in migrant families or are first-generation university students. Altogether, the switch to emergency remote teaching exacerbated social inequities and increased the risk of exclusion precisely for those groups that were already struggling.

Although online education potentially offers many advantages for **students with special needs** (as we will explain in Chapter 3), the experiences of students with special needs showed that in the emergency remote teaching, these opportunities were not seized. Instead, even more than before, the special needs of numerous students were neglected (Domagała-Zyśk, 2020). Services like teaching assistants or technical assistants sometimes stopped being offered (Gulati, 2020). Often, teaching materials were delivered in non-accessible formats (Lewandowska, 2021). Deaf and hard of hearing persons found that many classes, in remote teaching modes, were not equipped with subtitling service and the quality of broadcasts made it difficult to lip-read (Skoczyńska, 2021). When classroom participants communicated with their cameras switched off, this created a serious barrier for these students to lip-read efficiently. Hour-long *teaching sprees*, poor time-management and poor digital skills of teachers affected all students, but this particularly impacted on

the well-being of students with extra challenges in participation and adjustment. Teachers and other professionals tended to take care of *the class* rather than of the individual students. As one of the students concluded: "The lack of my accommodations being ignored (...) is equally poor online and in-person' (interview in Skoczyńska, 2021, p.271).

> **(...) technology specialists speak widely that IT is to help students with disabilities – but online classes now are a complete failure. I have problems with my hands and I cannot type quickly and use keyboard quickly. I have a computer and internet connection – and then what? I have to operate it quickly in online classes – and I cannot do it quickly. When the internet connection fails, I have to repeat it. I am so tired.**
>
> **- Korach (2021, p. 254)**

Besides the disregard of special needs, for many students their special needs also intensified the negative effects on confidence and participation:

> **Not speaking face to face causes a certain amount of tension and lack of motivation and confidence to speak up, I have an anxiety disorder and low self-esteem, so when I had to answer or give a presentation I got terribly stressed. In live classes this stress was less.**
>
> **- Skoczyńska (2021, p. 271)**

Paradoxically, in synchronous online classrooms, the anonymity goes hand in hand with **hypervisibility**, particularly when students actively participate with their cameras switched on. Names are visible all the time, chat contributions are tagged, and in conference tools the active speaker pops to a central place on the screen (which can give students the feeling that they suddenly stand prominently in front of the class when just asking a question or making a remark). The possibility that others record camera images or contributions and make them public scares many students (and teachers) and make some refrain from switching their cameras on and visibly participate. This can be particularly frightening for students with psychological difficulties like social anxiety or depression (Grygierzec, 2021) or students who already feel different. In her research among university students, Grygierzec (2021) found various factors that can frighten students: looking not the way they usually look when in public space; having their image recorded on a *crazy* moment and uploaded online on social sites for a joke; showing their private space and sharing *home-noises*, like voices of family members; interrupting other people when starting speaking; being recorded when discussing their views on sensitive topics; and more. In Korach's research (2020), students with motor impairment expressed the concern that their speech

disorders or motor dysfunctions might be recorded or negatively commented upon by the group. It needs pedagogical skills to manage these fears, understand them, and to create a safe space in online education where every person feels welcomed and respected.

> **I know there is a possibility to record the meetings. I have some problems with speaking and I am really afraid to take part in the discussions. I feel insecure knowing it may be recorded and people might laugh at me.**
>
> **- Korach (2020, p.54)**

The need for a pedagogical framework for e-inclusion

These experiences, however, should not make us dismiss digital education as ineffective and inaccessible, since emergency remote teaching is not representative for the possibilities of online learning. Digital education, as it happened in many in-person higher education institutions during the COVID-19 pandemic, resulted from a sudden change from brick-and-mortar contexts to distance teaching modes and consisted of merely moving the classes online. In that period, in many institutions, including many of our own institutions, in-person lectures were often replaced by synchronous lectures and tutorials using conference software such as Zoom or Teams.

This contrasts with open distance education models that are designed as such from the outset, such as that of the Universitat Oberta de Catalunya (the Open University of Catalonia or UOC). The UOC model is based on online communication that is mainly asynchronous, yet continuous, dynamic, and immersive. Both teachers and students are encouraged to communicate intensively via different online communicators. For example, students use a forum platform where they can express their reflections on the learning resources and comment on their peers' reflections. It functions as a discussion platform for sharing formal content, which is enriched with personal experiences. Some of the tasks include audio or video recording of teachers and students' entries, which personalize the learning process even more. Such strategies make the most of educational technologies and learning strategies to create accessible and engaging education.

These experiences in emergency remote education modes reveal the need for careful consideration of what inclusive digital education is. Even now much of the conventional higher education has moved back to offline physical spaces, digital teaching elements have been increasingly integrated.

Just like in-person education, digital education can enable immersive learning experiences that are accessible, and are cognitively, emotionally, and socially engaging to every student. Yet, the understanding of these experiences requires a shift in approach: to recognise that traditional pedagogic practices are not readily transferable to digital education environments, and to adopt an integrative view that highlights the specificities of the individual learning experiences elicited by digital technology (Delahunty et al., 2014). The contrast of emergency remote teaching with open, fully online education that is carefully designed as such is stark.

To purposefully design inclusive digital education, we need to take into consideration a digital pedagogical framework, fully adapted to digital education environments. This focal framework should consider the opportunities and challenges of technology use and online learning strategies in relation to equity.

Chapter 2. How to understand e-inclusion: the I-TPACK model

We invite teachers to *practice* e-inclusion, not to achieve e-inclusion. In line with others (see e.g., EASNIE, 2015, 2017; UNESCO, 2003, 2008, 2009), we see inclusive education as a continuous process, not as a definite phenomenon.

In the following two chapters, we offer the background knowledge that supports teachers in developing their own inclusive approaches in digital learning environments. To do so, in section 2.1, we first describe the TPACK, a well-known model that suggests that effective digital education requires the teacher to combine knowledge on technology, pedagogy, and content. We argue that for **effective inclusive digital education** – for e-inclusion – teachers also need to acquire knowledge about equity, and how equity is interrelated with the other knowledge dimensions. The inclusion knowledge that contributes to teachers' awareness of equity and hidden inequalities in education in general (in relation to students, teachers, content, and the broader context) is explained in section 2.2. The interrelation of inclusion and technology use in education, the Inclusive-Technology Knowledge, is described in Chapter 3.

2.1 A novel framework of inclusive digital education

The TPACK model, designed by Punya Mishra and Matthew Koehler (2006), postulates that, for teachers to be effective in digital education environments, they need to possess various kinds of knowledge that helps them integrate educational technology in the course in effective ways (Mishra & Koehler, 2006). Developing effective digital education involves three **interrelated knowledge dimensions** of teaching and learning (see Figure 1), which are:

- Technological Knowledge (or TK): teacher's knowledge about technology and its possibilities.
- Pedagogical Knowledge (PK): teacher's knowledge about how to teach, including specific teaching methods.
- Content Knowledge (CK): teacher's specific knowledge about the course's subject.

The three knowledge dimensions of the TPACK model overlap in an area known as the **technological pedagogical content knowledge** (or TPACK), which refers to the teacher's knowledge about how the technology can support learning pedagogies in a specific course' content domain.

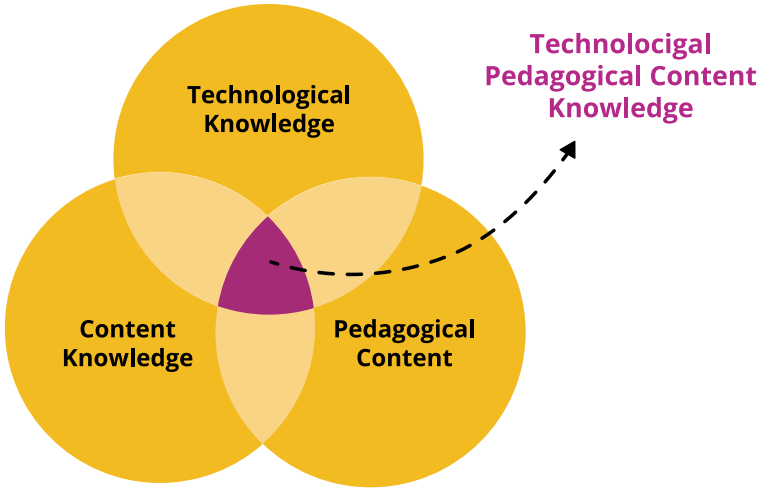

Figure 1: The TPACK model: three interrelated knowledge dimensions

Though at the beginning the TPACK model was used as an approach to support mainly the use of the educational technology in classroom, nowadays it is a powerful tool for education in general, as an equilibrium has to be found in any learning context between the content to be learned and the strategies to support the content learning, with pedagogical and technological tools.

Creating **inclusive digital education**, which requires the educational system to open up and become more accessible, meaningful, and engaging to a broader range of students, involves a new equilibrium. Teachers need to also gain knowledge about inequality and equity. They need to develop knowledge and awareness of how practices and approaches in education reproduce inequalities; in particular of how pedagogy, content, and technology impact equity.

Accordingly, we suggest extending and adapting the TPACK model to the requirements for inclusive digital education and suggest a novel **I-TPACK model** that includes an 'I' element – which stands for an *inclusion* or equity knowledge domain (see Figure 2)[3] . The new inclusion domain is interrelated with the three other knowledges and functions as an added

[3] Although we prefer, for our model, using the term equity to inclusion, we adopt the 'I' of inclusion to avoid any confusion with the 'E' being associated with electronic.

layer. Overall, the I-TAPCK model reflects that making education inclusive requires from the teacher deep understanding of how pedagogical approaches (PK), technology use (TK), the selection and presentation of content (CK), couple together with equity knowledge (IK), shaping the learning processes and outcomes for a diversity of students in digital education environments.

1. **Inclusion Knowledge** (or IK): teacher's knowledge about how mechanisms of inclusion and exclusion work and how the teacher can create equitable education.

2. **Inclusive-Technological Knowledge** (or I-TK): teacher's knowledge about how to use technology to create equity for every student, so they experience cognitive, emotional, and social engagement.

3. **Inclusive-Pedagogical Knowledge** (I-PK): teacher's knowledge about how teaching can be implemented to promote inclusion and minimise the barriers to equity in education.

4. **Inclusive-Content Knowledge** (I-CK): teacher's knowledge about how to broaden the existing knowledge base on the course's subject and change power inequalities, by embracing marginalised perspectives and challenging the stance that has been traditionally taken by teachers in the discipline.

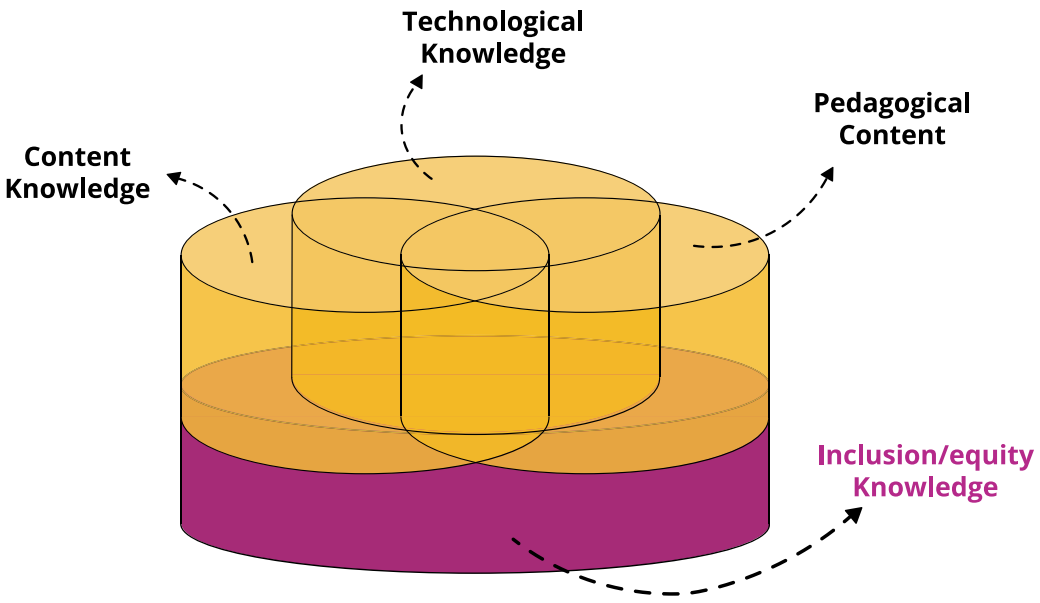

Figure 2: The I-TPACK model: with the added layer of inclusion/equity knowledge

As a result, we propose that teachers build knowledge in a new overlapping area where technological knowledge, pedagogical knowledge, content knowledge and inclusion knowledge interact. This novel inclusive-technological pedagogical content knowledge (or I-TPACK) refers to how to move towards inclusive education in a specific content domain by adopting adequate pedagogies in digital learning environments, while leveraging opportunities for equitable online learning – while offsetting possible downsides.

2.2 Inclusion Knowledge (or IK): enhancing awareness on diversity and equity

As the I-TPACK model suggests, practicing inclusion in digital education requires teacher's knowledge about equity in education. Awareness about equity is partially related to technology use (as is the dedicated theme of Chapter 3), but it starts with awareness about diversity and equity in education in general.

Although inclusive education is often seen as education that fits the various needs of a diverse student population, developing inclusive education should not only focus on the diversity amongst the students, since it requires the teacher's awareness of **diversity and equity in the entire pedagogical triangle** formed by the student, their teacher, and the course content (Kansanen, 1999), as well as the triangle's **surrounding context** (see Figure 3).

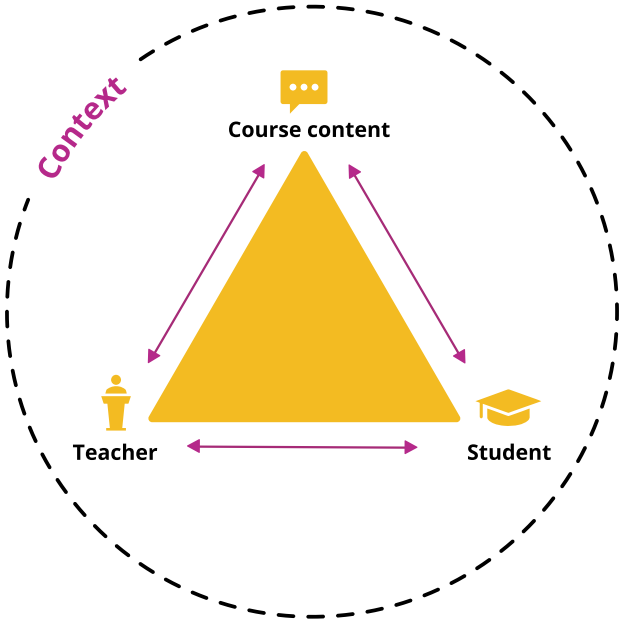

Figure 3: The pedagogical triangle in context

As seen in the pedagogical triangle, the student's learning process is influenced by the student, teacher, course content and context. This means that the student's learning outcomes are affected by the various **positionalities**. Teachers are not 'neutral', objective actors, nor are students. Personal values and perspectives, shaped by social identities and experiences, influence how a teacher or student perceives a situation and acts in that situation (see also Warf, 2010). Also, knowledge has a positionality. What is seen as the hegemonic canon in the discipline being taught is shaped by historical developments and power dynamics, as are the norms and organisational arrangements that are dominant in the broader context.

Unfortunately, in many educational environments, particularly in higher education, individuals' positionalities are ignored, so teaching, the teacher, and the course's subject are seen as *neutral, objective*, and *de-personalised* while they are not. Rather, diversity and inclusive education need to be examined through the various angles suggested by the pedagogical triangle (as summarised in Figure 4 and 5).

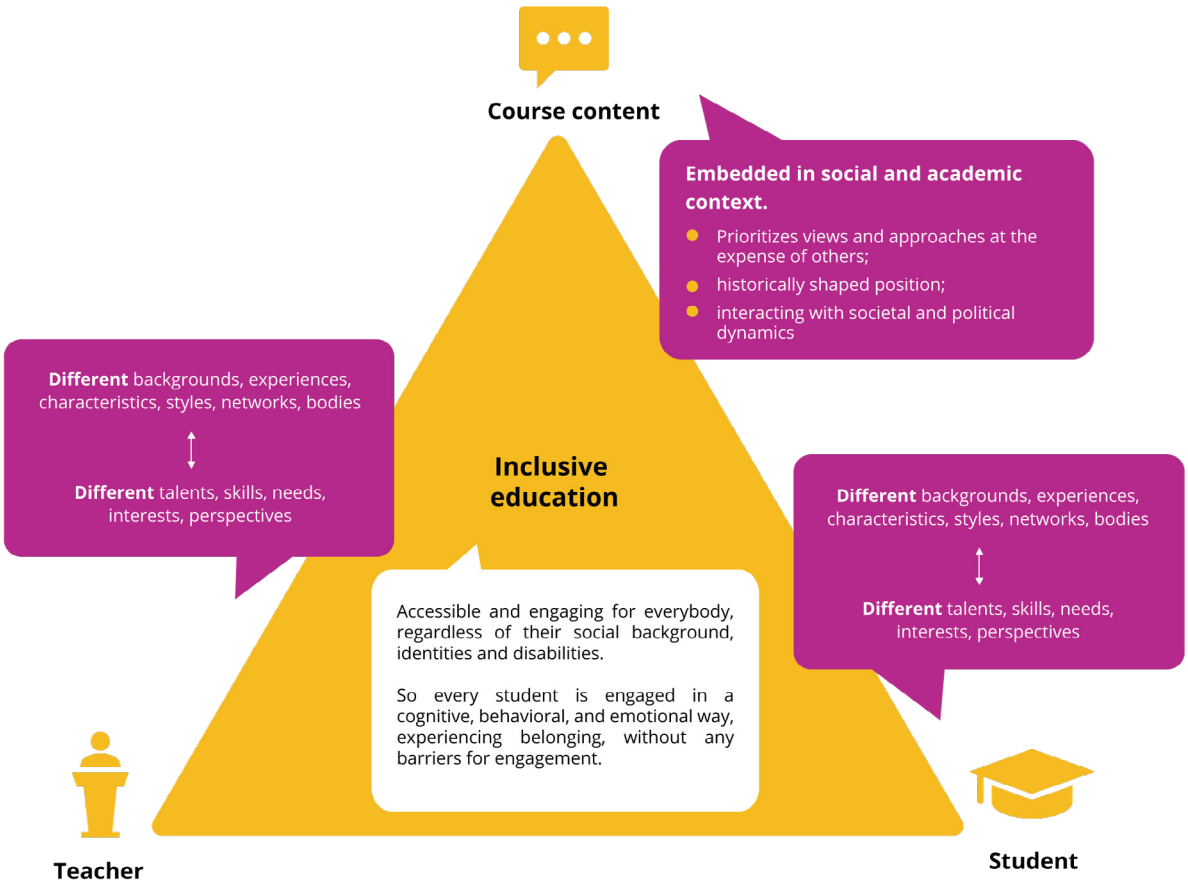

Figure 4: Inclusive education through the lens of the pedagogical triangle

2.2.1 Diversity and inclusion in relation to students

Too often, higher education is tailored to the needs and interests of the kind of students who traditionally have made up the majority of the student body. For example, in many universities in Western countries, most students have been white, native, middle-class, able-bodied, heterosexual students, without other consuming obligations such as financial or care responsibilities. By contrast, students with migration backgrounds, ethnic/racial minority identities, a disability or a non-heterosexual orientation, students of lower socioeconomic backgrounds, working students, and students with children or other care-responsibilities, have diverging experiences, worldviews, communication styles, bodily and mental abilities, and resources and therefore hold diverging interests and needs.

Because of this, the minority students' conditions and ambitions are overlooked. Their contributions can be undervalued when they are not expressed in "smooth academic writing." Their experiences are ignored, or seen as invalid or incidental, and do not resonate with the mainstream curriculum – which in turn feels less relevant to them. These underserved students encounter microaggressions that are difficult for them to criticise, as senders are unaware of the effects of their behaviour and have no explicit exclusionary intentions. They find themselves not represented in the curriculum's texts, examples, imagery and assignments, nor do they have role models in positions with authority. Sometimes, the norms, codes of conduct, positions and worldviews of their upbringing differ from those of the educational context (the habitus of the institution). And many of these underserved students have shown immense amounts of perseverance to get into higher education; are masters in switching between different cultural contexts and have a broad range of experiences. Nevertheless, their skills, achievements, and normative frameworks are often not acknowledged, let alone respected. Instead, they are seen as *lacking* and get little affirmation. In addition, students with disabilities sometimes are faced with spaces that physically inaccessible, learning resources that are hard to read, listen to or watch, or that are too intense for those with concentration problems or other challenges.

Students bring a range of experiences, perspectives, and ambitions to class. If they are properly addressed and acknowledged, students' confidence, engagement, and self-actualisation increase. This is particularly important for non-traditional students, who are underserved in our current educational systems, and whose connection with the system is often weaker than that of traditional students. Unsurprisingly, many of underserved students have lower levels of self-confidence than those of traditional students (Ramos-Sánchez & Nichols, 2007).

Students do not seek "compartmentalized bits of knowledge" and want to be seen as "whole human beings with complex lives and experiences" (hooks, 1994, p. 15). Therefore, education would become more inclusive and holistic when their **voices** are seen as valuable information source and their perspectives are taken more seriously, so they are not dismissed as irrelevant forms of knowledge. When all students are recognised as knowledgeable individuals with valuable experiences and perspectives, and when they are granted agency, they feel that they are invited to participate in education as full-fledged, multifaced individuals. Learning processes are strengthened when students are encouraged "to personalize subject matter with examples from their own lived experiences" (Tuitt et al., 2018, p. 67). It is empowering and affirming for underserved students to tell and hear more diverse stories, or "counterstories", which balance or challenge majority perspectives (Berry, 2010). It is empowering for students when they can "make connections between the ideas they are learning in our classroom and the world as they understand it" (Tuitt et al. 2018, p. 5).

Clearly a student's engagement and agency enhance learning. Above all, education is enriched for all students when the diversity in students' experiences, talents and perspectives is invited and used in courses, and when the curriculum is expanded to broaden its relevance (Ramdas et al. 2019).

In inclusive, equitable education, every student experiences a sense of **belonging,** which in turn influences academic success[4] . Belongingness is related to having beneficial and constructive relationships with teachers and with fellow students, and feeling valued and acknowledged (Tinto, 1993). Students who feel like they belong in the classroom, who are in a course free from microaggressions, stigmatisation and stereotyping, who feel acknowledged, and have good contact with fellow students and teachers are likelier to successfully participate in and complete the course. Sense of belonging is also related to being familiar with codes of conduct, which underscores the relevance for teachers of being explicit about expectations and norms.

[4] For research supporting these claims on feeling of belonging in education or for more information on belonging in higher education, see Hoffman et al. (2002); Johnson et al. (2007); Master, Cheryan & Meltzoff (2016); Meeuwisse, Severiens & Born (2010); Thomas (2002); Freeman et al. (2007); Steele & Aronson (1995); Marchesani & Adams (1992); Zumbrunn et al. (2014); Tinto (1993); Owens & Massey (2011); Harrison et al. (2006); Spencer & Castano (2007); Spencer, Logel & Davies (2016); Spencer, Steele & Quinn (1999) and Steele & Aronson (1995).

2.2.2 Diversity and inclusion in relation to teachers

Like students, also teachers have diverging talents, skills, interests, perspectives, and needs, which are shaped by their social identities. Although teachers, particularly in higher education, are sometimes seen (or see themselves) as neutral professionals, they are persons who bring their bodies, communication styles, preferences, experiences, talents, and needs into the classroom. Teachers' social identities, who-they-are, shape their strengths and comfort zones, as well as their implicit and explicit preferences, judgements, and blind spots.

For instance, some teachers feel more comfortable in discussing sensitive topics than others; some teachers are more aware which topics are sensitive to whom; and some find the discussion of these topics more important than others (Jabbar & Hardaker, 2013; Stout et al., 2018; Willner Brodsky et al., 2021). Some teachers are very sensitive to mechanisms of inclusion and exclusion – perhaps because they have experienced exclusion themselves – whereas for others it takes conscious effort to develop awareness. Some teachers also adapt more easily to unexpected circumstances, while others like to be more in control. Not all teachers conceive their pedagogical role in the same way: some see their role in a broader way than others and feel that they are equipped to take on this role. Not all teachers have the same technological skills.

Similar to students, teachers' social identities shape how teachers are judged and approached by others, including students. Put differently, who-they-are shape whether they are seen as knowledgeable and authoritative, and how confident they are about themselves in their profession. Also, as people, teachers are not free from exclusion, discrimination and microaggressions, and many groups are still underrepresented in higher education faculty, particularly in higher positions (like women, people of colour, and people with disabilities). Research shows that female faculty members are consistently evaluated lower and are seen as less credible than male faculty (Mengel et al., 2019; Mitchell and Martin, 2018). Likewise, staff members with migration backgrounds and with disabilities more often experience exclusion in their universities (Wekker et al. 2016). Situations in which female and colour scholars with doctoral degrees and professorship positions are introduced to their colleagues with no indication of their academic position are also abundant in the literature (see e.g., Tuitt et al., 2009; Wekker et al., 2016).

Unsurprisingly, teachers of underrepresented groups have lower levels of confidence. For example, students question their academic credentials, expertise or fairness, and the impostor-feeling is pervasive amongst faculty of colour in university systems (Tuitt et al. 2009: 71). Brown and Ramlackhan describe challenges experienced by academics with a disabil-

ity: they feel devalued, as they do not fall within the normalised conception of "everybody being healthy and well" (2022, p. 1231); and when a disability is invisible, they are often seen as "less productive, underachieving, and failing in their roles as academics" (p. 1232). As a result, students with a disability internalise these norms, so they come to believe that an academic career is an unlikely career option (Saltes, 2022).

Above all, these experiences of exclusion call for **institutional measures** to reduce inequality for teachers. Teachers need to get to know their students to accommodate to their needs and, by the same token, institutions need to get to know their faculty and staff to accommodate to their needs.

Due to the diversity and distinct positionality of teachers, there is no one-size-fits all approach to reach effective and inclusive education. Instead, inclusion requires **awareness and continuous self-reflection** from the teacher's part. hooks describes how the classroom should be a place where not only students, but also teachers grow and are empowered by the process (1994, p.21). When the teacher has the courage to be vulnerable and to share personal experiences, and to break with the role of the all-knowing, superior, distant instructor, this creates a safe environment where also students can be vulnerable.

Making digital education more inclusive requires not only teacher's knowledge and awareness but also teacher's willingness and **intrinsic motivation** to become aware and to make changes. Creating inclusive online education is not always easy. It entails dedication of teachers to remain open to learn and to keep re-evaluating their courses and classrooms' dynamics, and their own roles. Creating inclusive education requires awareness of how their established practices and approaches – which are often broadly accepted in their respective disciplines – reproduce inequalities. This goes hand in hand with continuous self-reflection and feelings of vulnerability.

For many teachers, this is out of their comfort zone, and sometimes it requires a shift in what they always have regarded as *good teaching*. Here, the support they receive from the higher education institution becomes critical: without that support, teachers' initiatives will remain isolated and marginal, so transformative teachers might ultimately become demotivated and drained.

2.2.3 Diversity and inclusion in relation to course content

Diversity and inclusion should not only be about the classroom participants, but also about the course content; the subject of the course. In all disciplines, certain knowledge is considered as *academic* and *valuable*, while other perspectives and approaches – from other individuals, from other regions, communicated through other media – are seen as lesser, and are often ignored and excluded (Jabbar & Hardaker, 2013; Nieto, 1999; Sabry & Bruna, 2007). When courses actually include experiences and information outside of the mainstream, this knowledge is often only a sidenote or afterthought to the mainstream theory (e.g., one week with readings from outside of Europe or North America, as a separate theme, and not incorporated within the base of the course).

What is considered the canon in a certain discipline in a specific country is not a natural given. That canon has been shaped by historical societal developments and power structures. The academic mores, which determine what is legitimate and thus *academic* education, are formed by the groups who historically held positions of power in society and academia. In many Western countries, canons predominantly contain the thoughts of white, Western men, whose work is predominantly known through written texts. The presumption that academic knowledge is *objective*, and that perspectives and experiences are just perspectives and *experiences*, invalidates knowledge and approaches outside of this knowledge framework. These alternative perspectives and experiences are seen as lesser, not legitimate, or not academic (Small 2018 in Tuitt & Stewart, 2021). For instance, knowledge based on lived experience or open interviews, or that reflects indigenous epistemologies, is often seen as less legitimate than quantifiable outcomes following the Western enlightenment ideal of rationality.

The call for **decolonisation of the curriculum** refers to acknowledgement of these power imbalances and suggests a change toward more equitable systems, with equitable representation at the individual and system levels (Tuitt & Stewart, 2021). This is not only important in terms of geography and race, but also when it comes to gender, able-bodiedness, etcetera

Inclusion of marginalised perspectives in the curriculum – perspectives outside of the Eurocentric, male mainstream – and serious engagement with them, makes education more inclusive and more enriching. The experiences and perspectives of non-traditional students, because of their different backgrounds, positions, and experiences, is often not seen as valuable knowledge by higher education institutions and is not connected with courses' content either. However, inviting and including diverse perspectives and approaches, as well as welcoming perspectives and student voices acknowledges non-mainstream ex-

periences and can make education more engaging for non-traditional students (see e.g., Wekker et al. 2016, p.72). Therefore, inclusive pedagogies are inherently dialogical and discursive (Tuitt & Stuart 2021, p. 108).

In addition, the widening of topics and perspectives elevates the quality of education for all students. Instead of the curriculum predominantly reflecting and reinforcing the worldview of one group, a decolonised curriculum enhances critical thinking and broadens perspectives because diverse knowledge is included and there is more awareness of the history and position of the canon. The inclusion of diverse knowledge in the curriculum, in colour-brave ways, can challenge established perspectives and strengthen critical thinking.

Diversification of the curriculum helps a wider range of students to identify more with the course and perceive their own contributions to the classroom as valued and relevant. In the end, the presence of diverse topics and perspectives reduces dropout and enhances the study success of non-traditional students (Freeman et al., 2007). In addition, diversification of the course content enriches learning for all students and strengthens critical thinking.

A critical perspective about the curriculum leads to raise important questions on the discipline and the dynamics in academia, including the following: *why we have come to see a certain body of knowledge as the main knowledge?; who finances research in academia?; who determines the research areas, and who benefits from the outcomes?; what kind of publications are stimulated?; which scholars get visa for which visits?; and arguably most importantly: who is valued in academia and why?* These reflections shine a light on the role of academia, its relevance to society, who benefits and who is left out. Consequently, they help to make science even more valuable for the wider society, and to make education more relevant – and hence more appealing and engaging – for more students.

2.2.4 Diversity and inclusion in relation to context

Teachers and classrooms do not exist in a vacuum. They are part of course programmes, institutions, and broader societies, which together shape overall learning goals, codes of conduct, languages and discourses, images, and financial, social, and cultural opportunities and barriers (see Figure 5).

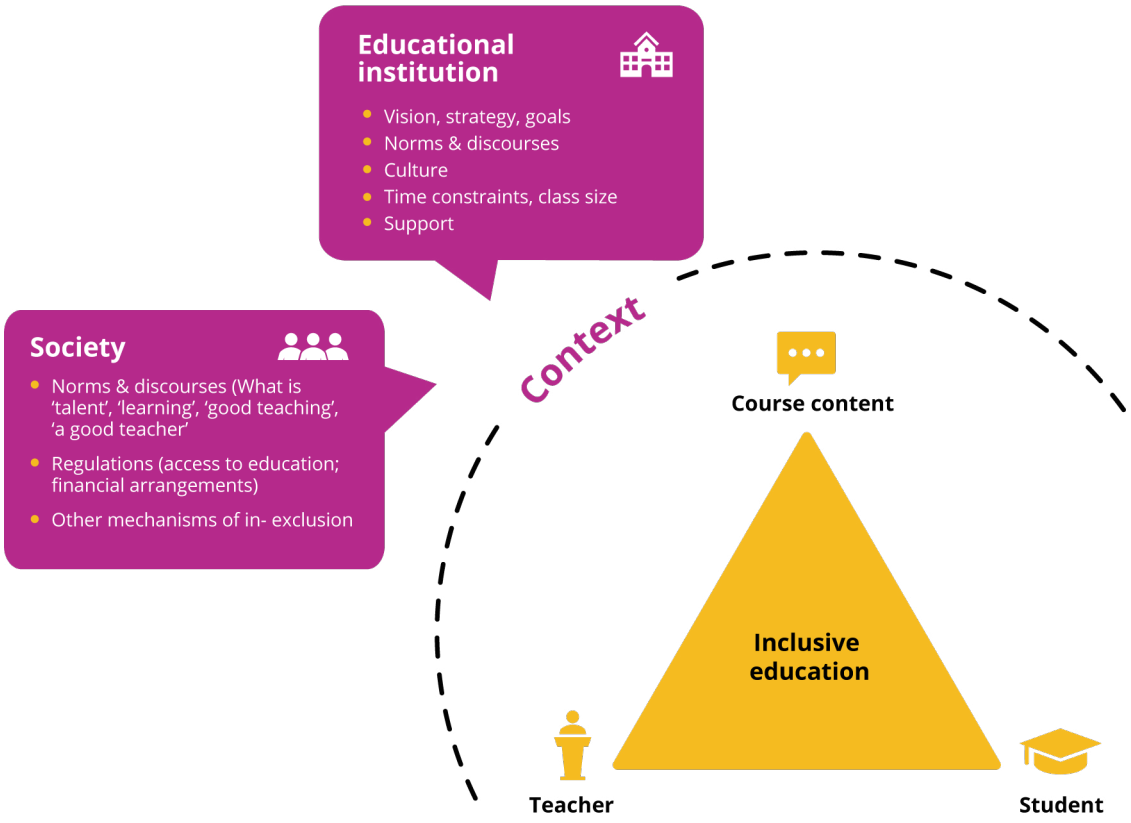

Figure 5: The context of the pedagogical triangle through the lens of inclusive education

All the aspects of education that are not explicated in the curriculum, but nevertheless shape the students, are called the **hidden curriculum**. These aspects include the communication styles (e.g., speaking politely to some but not to others), behaviour that is praised or punished (e.g., speaking up in certain ways at certain moments), encouragements (like "you did well, for a woman"), arguments that are taken for granted (such as "everybody is free to follow one's own ambition") or need explanation (such as "I take the wishes of my parent into account when choosing a job"), jokes and the layout of virtual spaces. These aspects all radiate specific cultural norms and worldviews, although they – to many – remain unnoticed because to them these are so *normal*.

These norms also include conceptions of *talent, excellence and quality* and are not primarily defined in the classroom but are shaped in broader society and replicated in higher education institutions' norms. This also applies to notions of *good teaching, a good teacher, and a good student* which are also shaped in society, and materialised in educational institutions' regulations, policies, training programmes, evaluation criteria, and communication and leadership styles and hence also are reflected in the faculty and staff composition. Ideas about *valuable* knowledge and skills are shaped and reshaped within the various academic and professional disciplines (O'Shea et al., 2016; Thomas, 2002).

These conceptions all influence *which* attitudes and contributions are valued, and ***whose* attitudes and contributions are valued**, and hence impact who is addressed and acknowledged, whose needs and interests are met, who feels invited to participate and contribute, who feels inspired to learn, and who feels capable of educational and societal success. Higher education institutions thus reproduce existing inequalities (see for example the works of Bourdieu, 1974, 1986 and Freire, 1996), but can also in return play a role in reflecting on and changing existing inequalities. As agents of educational institutions, teachers have a role to play in the reproduction of existing inequalities but can also facilitate reflections on and changes in existing inequalities (Bourdieu, 1974, 1986; Freire, 1996).

The arrangements of higher education institutions influence the opportunities of students and teachers alike. Financial regulations and physical locations determine students' access to education. Evaluation criteria, sometimes in combination with a competitive climate, affect priorities of teachers and students. Time constraints too often lead to pragmatic, efficient, opportunistic approaches that leave little room for deep immersion, reflection, and real interpersonal contact. Often, at universities, teaching is undervalued in comparison to research endeavours. Consequently, many teachers have strong research ambitions and often develop an academic profile that is strongly research oriented. They work in environments with certain images of professionalism and expertise, which traditionally have a cognitive orientation and depersonalised attitudes. Work pressure is high, teaching responsibilities fight for priority with research activities, and not all teachers have an extensive pedagogical training. This adds to the challenge of making education inclusive. The principles of inclusive education can conflict with how teachers perceive the role of education and their role as a professional, academic, and teacher. In academic settings, there is often little acknowledgment that personal characteristics – of teachers and students alike – matter in teaching and learning, and that education is not only about cognitive skills, but also about social skills and personal development (see Biesta, 2020).

Teachers have an incredibly important role to play in providing equal access to every student, by inviting every student to learn and to recognise, use and develop every student's individual talent and learning possibilities. Nevertheless, they are only one of the little cogs in the entire social machinery affecting students and, without institutional support from the higher education institution and broader implementation of institutional efforts to create inclusive and equitable environments, their endeavours will have only marginal impact. In their teaching, teachers must deal with the structures of this broader context. They interact with this context, consciously or unconsciously. Even though they often have little influence on the structure, teachers can reflect on, investigate, and challenge or strengthen these broader structures.

Chapter 3. Inclusive-Technological Knowledge (I-TK): how technology use shapes equity

The use of educational technologies impacts inclusion in various ways, offering opportunities to enhance equity but also posing challenges. In this chapter, we discuss the opportunities, challenges, and strategies regarding the impact of technology use on accessibility and engagement.

- Technology & accessibility (section 3.1):
  - Technology use offers numerous opportunities to enhance accessibility, through diversification and offering flexibility in time and place.
  - Technology use can hamper accessibility, in case of failing technology or inadequate digital skills.
- Technology & engagement (section 3.2):
  - Technology use offers numerous opportunities to enhance student agency and participation.
  - Technology use can seriously hamper belonging and participation, when social presence is lacking.
- Other points of attention regarding technology and inclusion (section 3.3):
  - Ethical aspects
  - Organisational aspects

We identified these aspects based on literature review, our everyday experiences in digital education, the pilot online e-inclusion course, and interviews with students and teachers in emergency remote teaching modes during the COVID-19 lockdown (see appendix A on the use of empirical data).

These factors require teachers' attention, so teachers and higher education institutions can deliberately use educational technology to strengthen the accessibility and engagement of their courses and minimise potential negative effects. Both the opportunities and challenges raised by educational technologies are most pressing in courses that are fully online (or in hybrid courses that some students attend only online). In blended education, teachers have the possibility to combine the strengths of educational technologies with the benefits of offline education modes.

3.1 Technology use and accessibility: diversification and flexibility

Among the main advantages of technology use in education is the availability of numerous options to diversify education (either in fully online, hybrid or blended education modes) and the flexibility in time and place that it can provide to both students and teachers, particularly when fully online modes are implemented. This has particular advantages for students with special needs. Special attention is needed to avoid digital barriers that hamper accessibility.

Opportunities of technology use: enhancing diversification and flexibility

Students differ in how they can be engaged or motivated to learn, how they perceive and comprehend information, and how they can navigate a learning environment and express what they know (CAST, 2022). Underlying these differences can be sensory disabilities (like blindness or deafness), learning disabilities (e.g., dyslexia), language or cultural differences, differences in learning styles, or varying technological skills.

Inclusive education is designed in line with the principles of **Universal Design for Learning (UDL)** (CAST, 2011)[5], UDL is a research-based framework that advocates proposes the use of multiple goals, methods, materials, and forms of assessment to provide effective learning for all students, regardless of their identity, background, or disability. In this way, education is designed to be accessible, flexible, and easy to use to every student, without individual adaptations. Instead of creating learning resources, assignments and learning environments with the imaginary *average student* in mind, they should be designed to be used by the largest possible group of people and to fit every student, including those with exceptional abilities and learning difficulties, and those with demanding family or financial responsibilities.[6] Going from one-size-fits-all to **multi-faceted-fits-everybody** education, in UDL it is only by exception that individual adaptations are made.[7]

[5] See also Domagała-Zyśk, 2018; Edyburn, 2010; Meyer & Rose, 2005; Meyer, Rose & Gordon, 2014; Rose & Meyer, 2002; 2006
[6] See also Rose T. 2013. A myth of average. TED talk.
[7] Universal design is regarded as a solution for inclusive education, for example in the Convention on the Rights of Persons with Disabilities (CRPD, 2006)

The use of multiple formats and media for communication, for presenting information and course content, as well as for student participation, assignments and assessment not only enhances the accessibility and engagement for a greater number of students, but also broadens learning for all students. For more details, see the UDL guidelines sheet in Appendix B.

For example, in the case of an assignment to record an argumentation as a public speech, deaf students would generally be advised to prepare a written report, which outcasts them from the group. Better is to offer the assignment in multiple formats to the whole group (e.g., a public speech recorded on video, or an essay, an infographic, recorded film material that includes slides, photos, and texts, etcetera). Only in exceptional cases, it is then necessary to provide specific support to some students (reasonable adjustments, modifications, and accommodations).

Digital education allows for increased flexibility in time and place, which can enhance efficiency and accessibility.

Digital asynchronic learning methods offer **time-flexibility.** They facilitate access for students and teachers with multiple responsibilities (work, care), with higher levels of fatigue, or who find it hard to attend in-person classrooms for other reasons.

Digital teaching also enhances **place-flexibility** (except when a societal lockdown pins everybody to their homes), providing educational access to students and teachers who reside far away or are less mobile. The following quote of a student with motor challenges illustrates how this can broaden horizons:

> **With this online pandemic education possibilities to stay at home and have the learning materials delivered online, I have the impression I can study at any university in the world.**
>
> **- Korach (2020, p.55)**

Many students and teachers appreciate the **time efficiency**, convenience, and cost reduction resulting from the vanished need to commute to class. For many who live in rural, distant areas or have familial or professional obligations, the flexibility that digital education provides allows them to access higher education.

This flexibility in space and time has specific benefits for **students with special needs** who encounter many barriers to participating in in-person classes. For them, the disappearance of physical barriers increases accessibility and autonomy. They experience that studying from home allows for bigger independence in everyday situations. Korach (2020) found that for students with motor disabilities the time-flexibility enabled them to take better care of their rehabilitation. Asynchronous learning modes increased the flexibility that some needed for their exercise, medicine use, eating or drinking patterns (Lewandowska, 2021; Skoczyńska, 2021). Some of the students needed special toilet equipment or meal adjustments (like they eat only blended food or drink using special cups). They did not feel comfortable enough to have a meal at the university and eat only while at home before and after classes. While studying online, they felt comfortable to have a meal or unlimited drinks during the day. In addition, some students felt less embarrassed for diverging physical features, because they could choose to be less visible. Lewandowska (2021) shows how deaf and hard of hearing students also pointed out numerous advantages of online learning. For instance, the efficient use of study time:

> **At the university I had to spend many hours just sitting in the classes. I did not understand anything as I cannot lip-read so efficiently, but the university stressed, I 'have to be present' at lectures. Then, after getting the notes from the notetaker, I was coming home and spent additional time learning the content.**
>
> **- Lewandowska (2021, p. 293)**

In addition, students with hearing impairment experience a lot of strains and stress during on-site learning. Being in acoustically uncomfortable and noisy environments, trying to lip-read and make sense of the speech around, is exhausting when practiced for many hours a day. Online, these students often experienced less stress connected with communication and language issues:

> **In online learning the sound – the lecturers' voice – comes straight to you, you do not have to 'fish for' the sound, it comes in a way 'straight to your brain'. It is not so stressful and tiring as using CI [cochlear implant][8] , hearing aid and lip-reading. I felt safer and more comfortable and I understood the content better.**
>
> **- Lewandowska (2021, p. 294)**

[8] Cochlear implant: prosthetic device to improve hearing

Additionally, the flexibility in time and space opens up new opportunities for **international education,** in which students participate online in international programmes. Online education significantly lowers the financial and structural barriers for international study, which makes international study accessible for students from more families and regions. Online education increases the contribution of internationalisation to society (Brandenburg et al., 2019) and makes internationalisation more carbon neutral (De Wit & Altbach, 2021).

Online learning also enhances the possibilities for **personalised learning**. Online education provides possibilities for a platform that – in combination with diversified content, assignments, and assessments – gives students the possibility to shape different learning paths or journeys. Depending on the course design, they can choose between various paces, various forms of participation, assignments, and assessments. Furthermore, it creates the option for students to engage with their own selection of subjects within the course content, namely those they are most interested in.

Challenges of technology use: digital barriers

As we described in Chapter 1, many of the opportunities that digital education offers to enhance accessibility were not seized during the emergency remote teaching models that conventional universities resorted to during the COVID-19 lockdowns. In emergency remote teaching, the needs of students with disabilities even faded into the background. These experiences underscore the relevance of a purposeful course design aligned with the UDL principles, so educational technology is used in ways that stimulate learning for every student – as many open distance universities actually have put in place.

This purposeful course design should pay attention to how the accessibility of digital education can be severely hampered when teachers or students lack good equipment or technological skills. Effective learning with the use of technological tools requires good technological equipment and digital connection. Particularly synchronous lectures – largely used in emergency remote teaching and hybrid education – can be severely impacted by technical issues such as poor quality of the equipment and services (low sound or picture quality), technical problems in connections (e.g., frozen screens), black screens (when participants do not use their cameras), and disturbing noises (e.g., if several microphones are on) (Best, 2021).

Like teachers, students differ in the availability of technological equipment, software, and internet connection speed. Particularly, financially insecure students might have problems with the equipment and connectivity needed to access digital education (Katz et al., 2021).

"A subset of undergraduates always struggles with being under-connected: their internet access is slow, they have gaps in connectivity because of an overdue bill, their computer needs repairs, or they are completing schoolwork on their smartphones" (Katz, 2020).

Like teachers, students also differ in their technological skills and confidence. Despite the widespread assumption that students who are from a younger generation than most teachers, automatically will have adequate digital skills, many students feel insecure about technology use in education. Even when students have broad digital skills, this does not automatically mean that they have the digital skills necessary for the digital classroom, that they know how to use the online platforms and tools in a specific educational context. Whereas higher education institutions and teachers shape the course and the technology use, students often do not have a say in this design. They simply have to adapt to the institution's and teacher's choices, no matter if they are unfamiliar with the technological tools used, lack the skills to work with them, feel uncomfortable using them, or are insecure about what is expected of them.

Online international programmes involve additional challenges regarding accessibility, as international students also diverge in terms of language proficiency (in the instruction language) and accent, and live in a wide range of time zones. There is a risk that some students, particularly those with lower language proficiency in the instruction language, accents that diverge from the norm, or who live in different time zones, are underserved in comparison to other students.

Strategies

That during emergency remote teaching the opportunities of digitalization for accessibility were not seized underscore the **deliberate attention needed for accessibility and special needs**. The popularity of online distance education, which is purposefully designed as online education to be accessible and flexible, shows the potential.

Open distance universities show that purposeful online educational design allows for greatly enhanced accessibility. Generally, open distance education – with fully online, open distance models – strive to ensure that every student can fittingly use the learning management system and the multimedia learning materials regardless of their physical, sensory, or intellectual capacities, their home context, and the technical conditions (internet connection speed, software used, etcetera). The main purpose of open distance education is to make higher education accessible to everybody, wherever they live, whatever their disabilities are, etcetera (the term "open" refers precisely to this). It is not a coincidence that most students with disabilities or special needs chose to enrol in open distance

universities with quality education, when this option is available for them (Melián et al., 2022). And that the dropout at online universities does not differ between traditional and non-traditional students, contrary to in-person universities (Sánchez-Gelabert, 2020). The international UK-based Open University, which is one of Europe's largest universities, with 208,308 students, is the largest provider of higher education for people with disabilities: 37,078 students declaring a disability studied at the Open University in 2021/22 (Open University, 2022). Furthermore, 25% of their UK undergraduates live in the 25% most deprived areas, and the OU states that their open admissions policy 'helps thousands of people who failed to achieve their potential earlier in life' (Open University, 2022). These open universities form an inspirational example for conventional universities.

Furthermore, the time efficiency, as well as the flexibility in time and space, is a critical motive that leads many students choose online educational models used by open distance universities. Most of these students are *adult* students who enter higher education when they are older and have more working experience, and who often combine their study with a near-to-fulltime job. For most of them, the social and personal learning goals are less important during this educational phase.

Technology can greatly facilitate making learning environments and learning resources **diversified, accessible, and easy to use.** Digital education offers many opportunities to deliver information, exercises, assessments, and feedback in multiple formats, modes, and resolutions (including html, html5, ordinary audiobook, daisy audiobook, videobook, mobipocket, ePub, pdf). Text, images, and sound can easily be combined; subtitles and written transcriptions can be added to broadcasted video lectures; translation tools can be embedded; and it is easy to include videos and audios of all kinds and origins in didactic materials. Multimedia learning resources can include subtitles or a text version of audio accompanying every video or animation, so students with hearing loss have direct access to such information. Braille transcriptions of didactic materials can be provided to students with sight difficulties. Online meetings that use conference software provide accessible options to write down comments and questions, instead of having only verbal interactions – and this creates a great chance to participate for students who feel uncomfortable speaking up, either due to some personal characteristics (like extreme shyness or lack of self-confidence), negative experiences with speaking up in class (like microaggressions due to an accent or use of speaking vocabulary) or speech disorders. Posting platforms provide the opportunity to introduce oneself not only synchronously and verbally, but also to post a recorded audio or video, or to share images or videos from the web. Translating thoughts into images or video, and including materials from diverging language regions, not only enhances accessibility and engagement for underserved students, but also appeals to other kinds of skills and invites different perspectives.

Besides the purposeful diversification, it is important that higher education institutions and teachers, particularly those who adopt fully online learning models, strive to lower or remove **technological barriers** for access and participation. They can do so with the help of instructional designers and media support, for example by ensuring that every student can access online help services to respond or solve technological concerns or queries. Or by explicating expectations and providing detailed instructions regarding technology use in the context of classroom dynamics and learning processes. Or by delivering multimedia learning resources in XML formats – from which versions can be made available in PDF, HTML, karaoke, audiobook, and e-book formats. Furthermore, accessibility is enhanced by designing the learning management system and the entire virtual education environment (including communication spaces in classrooms, library services, register's office services, etcetera) according to the Web Content Accessibility Guidelines (WCAG) of the World Wide Web Consortium[9] , as to provide universal access to everyone, regardless of the device, software, and connection speed. These guidelines also make digital content more accessible for students who are blind, deaf, colour-blind, or dyslexic, and students with cognitive or learning challenges, students with diverging language proficiency, and students who are technologically savvy or inexperienced. The WCAG guidelines are incorporated in Chapter 4, Guideline 3.

In the context of international education, for students living in different time zones, it is important that deadlines are clear and synchronous virtual meetings and exams take place at moments that convenient for every student (Maat, 2020).

Purposeful design of the course requires **deliberate use of technology**. As the I-TPACK model argues, institutions and teachers should make deliberate choices not only in terms of content and pedagogy, but also regarding technological tools and platforms. For instance, why is a certain platform, tool or media format used? Why not use others? Why not more or less? It helps students to understand why and how to use this particular platform, and to what ends, in their motivation and learning. Alignment with colleagues can help to balance between diversity in tools (to keep the use varied and playful) and uniformity in the programme (so students have the time to get familiar with the specific tools).

Our experiences with the online e-Inclusion pilot course illustrate the importance of these deliberate choices, and of explaining them to students. The students were hesitant to record introduction videos, which was a part of the introduction assignment. The explana-

[9] Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 establishes all public sector bodies' websites and apps (including those of public universities) must meet the accessibility requirements included in standard EN 301 549 V2.1.2, which are based on the WACG.

tion from the teachers that this recording was important to (a) enhance social presence and belonging, (b) become familiar with new approaches, and to (c) experience discomfort as it is part of everyday life for some students, helped to convince and motivate the students to participate and get the most out of this assignment.

3.2 Technology use and engagement: belonging and agency

Opportunities of technology use: supporting agency and belonging

Educational technologies offer multiple possibilities for participation, collaboration, and co-construction, in anonymous and named, in synchronous and asynchronous ways.

As explained in Chapter 1 and 2, inclusive education relies on student participation and knowledge co-construction. Inclusive education grants students agency and sees them as knowledgeable people whose input and experiences form valuable sources for learning. An inclusive course invites and engages with their experiences and perspectives, which contributes to students' self-actualisation and learning. This is particularly important for underserved students, as their perspectives and experiences are less represented in the mainstream course content and teaching. In a broader sense, agency and active engagement is important for all learning, and increases the course's relevance. It is for a good reason that current trends in education include active learning, collaboration, peer feedback, flipped-classrooms, and student-led learning.

Although online teaching that lacks social cues can pose a challenge in terms of belonging, as we have seen in Chapter 1, the relative **anonymity can also offer advantages** to some students. Interviews showed that some students enjoyed the comfort of studying from the safety of their homes, or experienced more autonomy to present themselves. The lack of face-to-face interactions veils some characteristics of identities or disabilities that would be visible in an in-person context, like a transgender student explained (Korthals Altes, 2021, p. 28). Online participation with switched-off cameras allows students with motor disabilities to participate in more comfortable positions – for example, students can use armchairs, change body position to the most comfortable one or lie down (Korach, 2020). Also, deaf and hard of hearing students might appreciate invisibility during online education, as this student expressed (Skoczyńska, 2021, p.271): "People do not see my hearing aid, they just listen or read what I want to share".

Although it is not desirable that individuals need to hide parts of their identity to be treated like full-fledged persons, for many students and teachers this is the reality. This is why, being able to make an otherwise noticeable characteristic invisible in an online context, can have an empowering effect.

Challenges of technology use: belonging requires more deliberate attention

Perceived anonymity and a lack of social presence can hamper belonging and the creation of a save learning environment in which every student feels brave enough to participate.

The physical separation of students from their teachers, peers, and the higher education institution is one of the most challenging aspects of online education, which needs to be carefully dealt with. As we have described in Chapter 1, the invisibility of many social cues (body language and detailed facial expressions) and the absence of in-person interactions as they happen on-campus (at informal moments during breaks and before or after class) made it harder for students, in the emergency remote teaching situation, to establish *social presence*, to get to know each other, which for many had a negative impact on their motivation and participation.

Social presence is the ability to establish social and emotional connections, and to present oneself as a *real* person to group members (Garrison et al., 2003).[10] It refers to the degree to which participants feel emotionally connected to other participants, and to a willingness to help others and contribute to the group dynamics (Balboni et al., 2018). This lack of social presence can potentially reduce the sense of connection and belonging, which are both crucial for enjoyment, willingness to participate, and openness to gaining a deeper understanding of the course content (Pilotti et al., 2017) – and eventually for well-being and study success (Balboni et al., 2018; Freeman et al., 2007; Kaufmann & Vallade, 2020). Clearly, a sense of anonymity, sometimes even in combination with hypervisibility, makes it harder to establish a safe and inclusive environment in which every student feels recognized as a person and feels safe to participate. This is undesirable, because when students refrain from participation and do not contribute to the learning dynamics, this not only has implications for the individual students, but negatively impacts the entire class. A lack of social presence not only forms the toughest challenge in emergency remote teaching, but also in purposefully designed online learning (Delahunty et al., 2014; Martin et al., 2020).

[10] For more about social presence, see the Community of Inquiry framework (COI). https://coi.athabascau.ca/

While applies to all students, a lack of belonging is particularly pertinent for underserved students. As for them, the connection with the educational system is already weaker than for traditional students, and their experiences and views are less incorporated in the mainstream teaching, and they might be extra hesitant to expose themselves given their previous experiences of exclusion.

Although a lack of bodily cues, which veils students' and teachers' special needs, can offer more freedom in how to present oneself, it can also be inconvenient when individuals have to explicitly articulate their characteristics and special needs, and have to ask for help more explicitly. A student with a physical disability explains:

> **I started my studies at the university and my condition was obvious to everybody – I am one-handed since birth and my second hand is not working quite properly. When I was at the uni, I even did not have to ask for help – people offered to bring me books from the library, shared notes etcetera They were really kind and understanding. Now I am in my flat in another town and I am totally alone with my studies. I cannot make notes – the lectures are too quick for me. Even if we work with texts, it is difficult for me to turn the page or scroll the page quickly and I cannot follow the analyses. Nobody is offering me help – there are some new courses now and people might not know I am disabled. I am considering quitting the studies.**
>
> **- Domagała-Zyśk (2021, p.56)**

Establishing social presence not only requires deliberate attention in purely online education, but also in **hybrid classes** where online students are only offered live broadcasted lectures. During these synchronous lectures, which some students attend in-person and others online, teachers often forget to involve online students. Often, the online students cannot follow the entire conversations or have less possibilities to engage. These students who attend online run the risk to be known less well by their lecturer and get less attention, and to become second-class participants. Under these conditions, it is hard to avoid this inequality, and takes a preparation and continuous attention to engage online and in-person students to the same level.

Strategies

First of all, we like to mention that the impact of the lack of social presence depends on the students' preferences and expectations. Students who deliberately choose a fully online programme (for example at an open distance university) differ in their expectations from students who subscribe to an in-person programme and unexpectantly participate in emergency remote teaching. In fact, some students prefer digital education programmes

precisely because of its apparent lack of personal interaction, which reduces the chances of painful social exclusion (Korthals Altes, 2021; Peacock et al., 2020). This can be particularly relevant for underserved students who do not really recognise themselves in teachers, fellow students, or the course content. This also helps to explain why most students with disabilities choose open online universities rather than in-person universities, if they are affordable and available for them (Melián et al., 2022).

However, **with deliberate educational design**, it is very well possible **to elicit a sense of social presence** amongst students and teachers in online education. As decades of research in e-learning have shown (see e.g., Rodríguez-Ardura & Meseguer-Artola, 2016), advanced learning management systems and well-designed learning strategies can prompt subjective feelings of immersion in the virtual educational environment evoked by the technology, which lead to an intense sense of being inside such a virtual environment, surrounded by real people (real teachers, real students, real librarians, etcetera). As a result, the virtual education environment becomes the student's or teacher's reality.

There are several strategies that higher education institutions and teachers can use to prompt feelings of social presence in online classrooms. At the beginning of the semester, teachers can encourage students to upload personal photos and profiles in which they describe their interests, ambitions, or pastime. Such initiatives can act as ice breakers and help students getting to know each other, which in turn makes them feel more emotionally connected and contributes to social networking. Throughout the semester, teachers can regularly promote students to open up and share their emotions, personal experiences, and personal ideas to the class. In addition, they can strengthen social bonds through more informal conversations, or for example by providing feedback through videos, which besides content contain non-verbal cues, such as tone of voice, facial expressions (smiling) or eye contact.

Interviews with students about their educational experiences during the COVID-19 lockdowns, showed that students appreciated teachers' strategies to personalize their online teaching. Even if it was not possible for the teacher to chat with every single student, short, and seemingly simple, warming-up activities like "Could you please raise your (virtual) hand – who drank your first coffee today? And who prefers tea?" were valued by the students. Students perceived them as humanising online learning. When teachers are proactive in their communication and deliver frequent and timely messages, they can show themselves as constructive, trustworthy, and caring members of the community, who are responsive to every student's social and educational needs. It also helps when teachers use high-quality multimedia learning resources and advanced learning management systems, and when they receive support of knowledgeable instructional designers. Altogether, this helps stu-

dents find meaning in the information and content offered in the class and feel close to their teacher and peers. Read more about establishing social presence in online teaching environments in Chapter 4, in Guidelines 1, 2 and 5.

To reduce uncertainty and enhance trust, clear communication rules – which can be jointly formulated in the classroom – reduce uncertainty and enhance trust in online settings (Walther & Bunz, 2005).

As we also pointed out in section 3.1, it helps to explicitly explain the value of certain approaches or assignments. As many experienced during the emergency remote teaching period during the COVID-19 pandemic, students often preferred to stay in their comfort zone and keep their cameras off (see section 1.2). They refused switching on their cameras because they feared being judged by fellow students, or recorded with unfavourable mimics, etcetera (Grygierzec, 2021). Students explained that often they felt little encouraged by their teachers to actively participate in the classes. They praised teachers who consequently stimulated (and sometimes required) active participation, for example by demanding that students switched on their camera while speaking, by using virtual systems for voting, using chat options to collectively share answers to some questions, and so forth. Students admitted that although they hesitated to comply with these rules, they appreciated the effects of these rules in the long run. This underscores the importance of the teacher, who is expected to take on a leading role in online learning.

A range of educational technologies exist that **invite active participation and collaboration**, in named or anonymised form – which include serious games, wiki activities, multimedia learning resources, survey tools, collective brainstorm platforms, multiblogs, and instruments for peer feedback. Students can participate in serious, formative games and simulations, and fill out and conduct (anonymous) real-time surveys. Students can vary in their forms of contribution, ranging from text to graphs, audio, and video, in synchronous or asynchronous ways. There are numerous tools that facilitate collaboration and peer feedback. The online context also facilitates co-construction: a course manual can be transformed into a dynamic multimedia learning resource, and a literature list can easily be converted into a collaboration project on critical review. Students can also collaborate on handouts and detailed lesson plans. The possibility to easily record and edit knowledge clips enables teachers to transfer knowledge in asynchronous ways and make synchronous (online or in-person) classes engaging and interactive. In these flipped classrooms, the teacher is not the centre (and primary sender) during class meetings but guides the interactions and problem-solving activities.

3.3 Other points of attention: ethics and organisation

Point of attention: digital ethics

Technology use requires **new ethical considerations**, particularly regarding privacy. This for example relates to the possibility of (open or secretly) recording contributions of classroom participants, which requires clear guidelines and rules. Institutions and teachers are responsible for choosing educational technologies and learning management systems that are safe to use and do not harm privacy.

In addition, they should be aware of how the choice for a search engine, an email system or a learning management system can shape what education and knowledge looks like (see Krutka et al., 2021).

The use of artificial intelligence (AI) for learning deserves careful consideration. In AI, human intelligence is simulated by computers based on patterns in large amounts of data. Although outcomes are often regarded *objective*, they obviously reflect existent societal structures as they are engrained in the data or reflected in the analytical processes (algorithms), including social biases and other inequalities. Often, data even produce societal inequalities by the technological design. At the same time, when employed carefully, AI can contribute to making education more equitable, for example by transforming text into (fluent) speech, or the use of intelligent tutoring software. Read more about how to use AI in education in the UNESCO brochure AI and Education (Miao et al., 2021); particularly Chapter 3 that discusses how AI can be leveraged to enhance education and how to ensure ethical, inclusive, and equitable use of AI in education.

Point of attention: organisation of digital education

For teachers, technological barriers can be discouraging. Teachers often have less digital knowledge than their students, and many teachers do not feel confident using technology in their teaching. In addition, many teachers feel insecure about how to create inclusive education. Getting to know how to use technology and purposefully apply it in teaching, in ways that enhance accessibility and engagement for every student, can involve a large investment in time and energy.

Institutional support in the form of instructional designers and media support is very important here, as is teamwork, so individual teachers do not need to discover technological tools and inclusion-knowledge by themselves. Alignment within teaching teams is also

important to create consistency in the programme, so students are not confronted with a haphazard assortment of digital tools and demands, and varying conceptions of inclusion, but with a coordinated, purposeful inclusive educational technology package.

Inclusive online (synchronous) education, which is based on flexibility requires thorough **course preparation in advance** of the course. Although this might sound paradoxical, thorough course preparation gives teachers more room to adapt to classroom dynamics in the moment as they occur and enhances flexibility. Course preparation includes (but is not limited to) a detailed course communication plan, with partly pre-prepared messages for pre-planned moments. As explained earlier in this chapter, thorough preparation is particularly important in the context of technology use, and in online courses that have primary asynchronous communication, as the instructions need to be more detailed and more accurate than in in-person and synchronous education. Thorough preparation is also particularly important in inclusive courses that are built on student agency. Although teachers in these courses let go of the control, and embrace the unplanned, un-orchestrated character of these courses, it requires a lot of attention from teachers to navigate and steer the classroom dynamics as they evolve.

Chapter 4. What to do: inclusion knowledge applied in six guidelines for e-inclusion

We have explained the importance of making education more inclusive, or equitable. The attention for digital educational contexts is urgent, as digital education (whether in fully online, hybrid or blended settings) is here to stay, and the online education during the COVID-19 lockdowns has shown that the shift to online education, if unplanned and not purposefully designed, can exacerbate societal inequalities. Practicing e-inclusion requires a deliberate course design, which makes deliberate use of digital tools. When digital tools are applied in purposeful ways, they can even contribute to making education more accessible and engaging for every student.

The purposeful design of equitable education that makes use of technology requires knowledge on how technology use shapes inclusion. The previous chapter described four ways of how technology interacts with inclusion:

- **Technology & accessibility (section 3.1):**
  - **Technology use offers numerous opportunities to enhance accessibility, through diversification and offering flexibility in time and place.**
  - **Technology use can hamper accessibility, in case of failing technology or inadequate digital skills.**
- **Technology & engagement (section 3.2):**
  - **Technology use offers numerous opportunities to enhance student agency and participation.**
  - **Technology use can hamper belonging and participation, when social presence is lacking, as well as save learning environment in which every student feels brave enough to participate.**

Although these challenges apply to all students, their effects are more consequential for underserved students (who are less connected with the educational system because their talents are less acknowledged, their views are less represented, and their special needs are not met).

We like to again emphasise that efforts to create inclusive education are always **work-in-progress**. We understand inclusive education as a process that is in a continuous state of development; a process that gets shape on a particular moment, in a particular class, in a particular institution and discipline, with particular students and a particular teacher. As e-inclusion depends on the context, there is no one-size-fits-all checklist. We can only offer guidelines – and some concrete suggestions that serve as illustrative examples – which hopefully will inspire teachers (and others) to continue thinking about how to further develop their education towards e-inclusion.

In this chapter, we formulate **six guidelines for practicing e-inclusion**; for creating inclusive digital education, whether in fully online, hybrid or blended settings. These guidelines resonate with various insightful resources – which include the five dimensions of Inclusive Excellence of Salazar, Norton and Tuitt (2010) and the Inclusive Excellence Scorecard framework of Williams, Berger and McClendon (2005) –, which we combined with our own experiences in online education and empirical research.

1. **Develop awareness on inclusive digital education and practice self-reflection in relation to your own position and role.**
2. **Get to know the students and adapt to their needs, including their digital needs.**
3. **Diversify pedagogical practices (delivery methods, learning goals, and assessments), seizing the many opportunities that technology offers to do so.**
4. **Diversify content, using the online possibilities to find and access resources outside the mainstream canon (in terms of region, language, format, etc.), involving the input of students to further extend the realm.**
5. **Create an inclusive digital learning climate, in which:**
    - **teachers are engaged with students' input – and engagement of students is facilitated by diversified pedagogical practices and content and digital tools;**
    - **language, examples, and images are inclusive;**
    - **moments of tension are seen as possibilities for learning; and**
    - **with purposeful approaches to establish social presence and belonging for every student.**
6. **Build organisational alliances for encouragement, knowledge, and organisational impact for e-inclusion.**

As Figure 6 schematically depicts, these guidelines relate to the four areas of the didactic triangle-in-context (teacher, student, content, and context), and zoom in on the pedagogical practices of the course (which include the diversity and accessibility of learning goals, delivery methods and feedback & assessment).[11] The social climate is so important that we granted it is worth a separate guideline. Obviously, all areas and guidelines are interrelated.

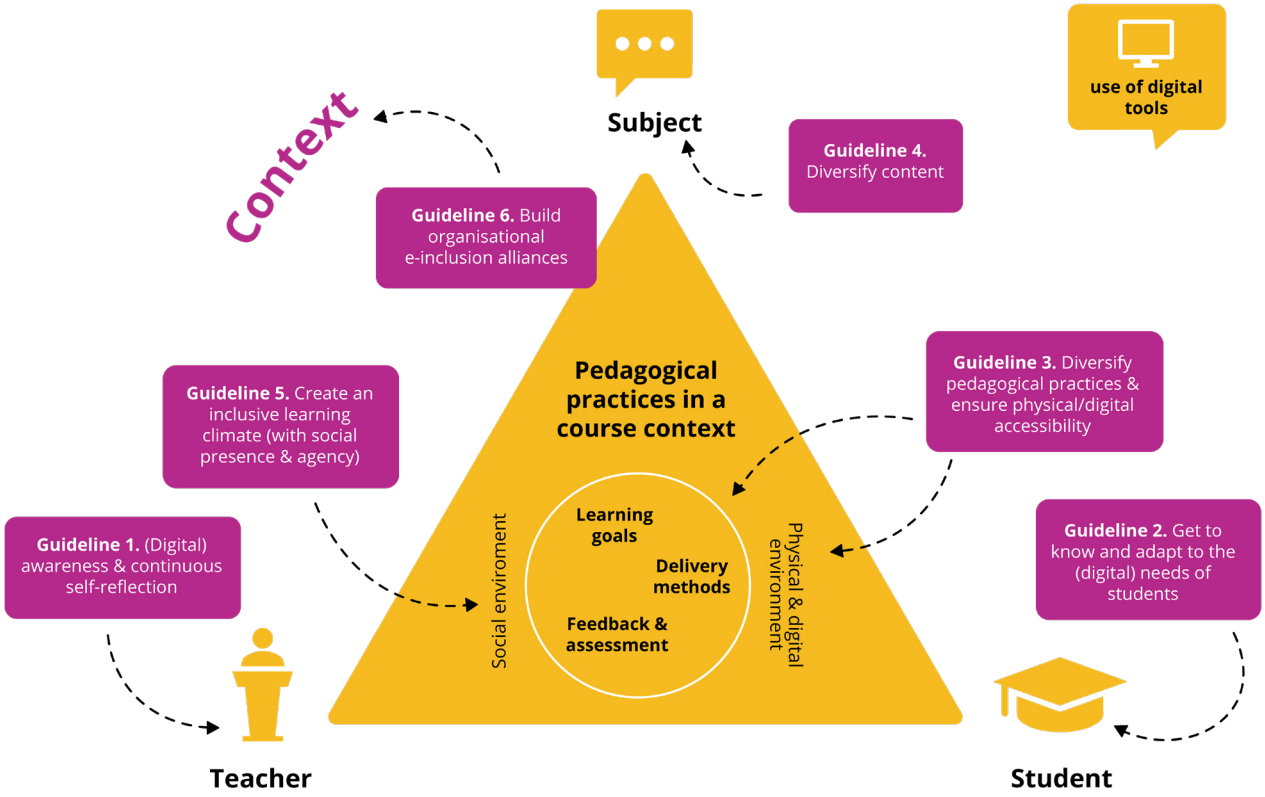

Figure 6: Equity knowledge in six guidelines

[11] This follows the educational principle of *constructive alignment*, which states that teaching and assessment should be aligned with the outcomes we intend students to learn (Biggs & Tang, 2011)

See also

- Our e-Inclusion e-learning modules with information, tips, resources, and reflective assignments for teachers who want to make their online/blended/hybrid teaching more inclusive
- Our e-Inclusion awareness raising tool, for teachers who want to enhance awareness about how their own position and role shapes inclusion in their digital courses.
- Our e-Inclusion open access course design, for institutions or departments that want to offer a course on e-Inclusion to teachers in higher education.
- Our e-Inclusion poster, with a visual overview of the content of the handbook.

What to do? How to use digital tools in education?

Digital tools offer many possibilities to organise various educational activities and objectives, **including personal introductions, interaction, input, presentation, expression, discussion, collaboration, evaluation, feedback, monitoring, testing, and organization.**

The use of digital tools in education enables participation in various modes:

- Anonymous / named
- Synchronous / asynchronous

Please, note:

- Select tools that are adequate and relevant to your educational objectives.
- Make sure that all students know how to use the tool or platform in adequate ways (otherwise the tool becomes a barrier).
- Consider that digital tools not only *support* learning, but that they also *shape* learning (see Krutka et al., 2021).
- Choose digital tools that are safe to use and do not harm privacy. Give preference to digital tools that your institution facilitates.

Guideline 1. Develop awareness and practice self-reflection

For most teachers, creating inclusive learning – and especially in online settings – will be a process of trial and error, which is probably out of their comfort zones. Like every learning process, creating inclusive (digital) education requires commitment, flexibility, and self-reflection. This is particularly the case because practicing inclusive education requires an increasing awareness of how dynamics of power affect the classroom (interpersonal awareness), and what role the teacher's own position and assumptions play here (intrapersonal awareness) (see e.g., Salazar, Norton & Tuitt 2010).

Digital media offers access to numerous tools and resources that enhance awareness about implicit biases and positionality. At the same time, the use of educational technology creates new forms of exclusion and bias, and adds to the vulnerability of teachers with less digital confidence.

Recognizing mechanisms of inclusion and exclusion

The foundation for creating inclusive – or equitable – digital education is inclusion-knowledge. Teachers can only practice e-inclusion when they are aware of mechanisms of inclusion and exclusion. Put differently, e-inclusion requires from teachers to be aware of the mechanisms of inclusion and exclusion in education and in society as a whole.

This includes awareness of assumptions (explicit or implicit biases) that are dominant in society, in the education institution, in the discipline in which the teacher has been trained, and of teachers themselves, and how these affect education, for example through underrepresentation of many groups in the organisation (particularly in positions of power); everyday racism in the form of microaggressions that are often subtle or even well-intended (like reducing minorities to one identity dimension, mentioning of stereotypes, or tokenising); the use of learning resources that only represent society's majority; or a colour-blind approach, after all, when inequality is ignored, it is strengthened.

As we explained in detail in the previous chapters, mechanisms of inclusion and exclusion are also shaped by the educational mode. It is important for teachers to understand how technology use can create specific barriers in online, blended or hybrid settings, but how it also has the potential to level the playing field, when purposefully used. In online environments, particularly the establishment of social presence requires deliberate attention.

Awareness about positionality

Inherent to these mechanisms of inclusion and exclusion is *positionality* – the fact that our societal position shapes our perspectives and actions. As explained in Chapter 2, positionality is about the role(s) we take on in certain social situations. In the context of digital education, positionality refers to the awareness about how our own experiences and personal background influence the way we interact with and perceive the digital learning environment and the students, and our views on what is good teaching, a good teacher, a good student, and good technology use. This shapes how we approach and evaluate people.

To practice positionality involves constant reflection on how our own perspective is shaped by our personal background and experiences, and how it impacts our actions (e.g., our teaching). Part of a teacher's positionality is the power imbalance in the educational context, as a teacher has much more influence than individual students in shaping the course, technology use, and classroom dynamics (Salazar, Norton & Tuitt, 2010). The asymmetry of power between teacher and student in shaping the digital classroom means that students are dependent on their teacher to create a safe, educational, and inclusive environment.

The importance of vulnerability

Being aware is not enough: e-inclusion also entails a willingness and intrinsic motivation to critically review and challenge some of these assumptions. This is a personal process that can make teachers feel very vulnerable, particularly in an environment where the ideal of a "good teacher" is still an all-knowing, objective, neutral, distant individual. In addition, for teachers who like to be in control, and feel insecure when unexpected dynamics occur, inviting diversity and addressing exclusion may be extra challenging. Unfamiliarity with digital tools only adds to this vulnerability.

A teacher's learning process can form a great source of inspiration for students and colleagues. Students see that there is no such thing as a faultless, perfect approach. They learn that it is acceptable to pause and reflect in the moment, or even to reflect on a situation in hindsight, and learn from it together (see Willner Brodsky et al., 2021).

Reflective questions on your own positionality as teachers

- What are my own assumptions?
- Why do I hold particular people in high esteem?
- Why do I feel more intended to help this person than that person?
- Do I speak with a certain judgement about certain perspectives (politicians, methods, situations) and what norms do I radiate?
- What barriers did/do I encounter?
- When and where do I feel confident and insecure? Why?
- How do people see me? Why? How does this impact me?
- What factors have been helpful to me during my career?
- How do I use technology and social media myself, and what do I consider constructive and unproductive technology use? When am I comfortable with technology?
- Am I familiar/comfortable with technology, how are my digital skills?

Reflective questions on your digital course[12]

- How do I see my role and responsibility as a teacher?
- What kind of attitude and behaviour do I value in students?
- What kind of students do I feel most/least connection with?
- What do I expect of my students, in my (fully online, hybrid or blended) courses? Do I make this explicit? Why (not)?
- How do I see the use of technology for teaching purposes in my (fully online, blended or hybrid) classes? How can I employ digital tools that can support my inclusive teaching?
- Provided the equity knowledge above, what barriers could students experience in my (fully online, hybrid or blended) classes?
- Do I have an accurate understanding of the digital skills of my students?

[12] For examples of reflective questions about the curriculum, see Guideline 3.

What to achieve?

- Educate yourself to enhance your awareness about mechanisms of inclusion and exclusion, particularly regarding digital education. Reflect on your positionality and the positionality of others.
- Be open, curious and practice self-reflection on e-inclusion. Become (more) comfortable with feeling vulnerable.

What to do?

- Reading this handbook is a great start.
- Use the e-Inclusion awareness raising tool.
- Use a questionnaire to examine your own openness or implicit associations, such as the Harvard Implicit Association test.
- Reflect on yourself and your digital course, using the reflective questions in the text box above.
- Monitor and evaluate inclusion in your courses. You can ask for anonymous and/or identifiable input, in more open and/or more structured ways. For example, through an online discussion board or polling tool. (Also see Guideline 5).
- Share with colleagues! Create teacher peer groups to discuss challenges with colleagues in a safe setting. Invite an expert to guide these groups.

Further inspiration

- Colorblind or colorbrave? (video) Mellody Hobson, TED Conference, 2014.
- Microaggressions in the classroom (video) Yolanda Flores Niemann, University of North Texas, YouTube, 2017.
- Purposeful steps away from ableism (video) Alyson Seale, TED Conference, 2019.
- Critically evaluate online tools (e-learning module) Edu-Hack Erasmus+ project. This module explains how human biases are engrained in technology.

See the following **e-Inclusion e-learning modules** for more information, resources, and reflective assignments:

- Explore your position and biases, and the ways in which these affect digital learning
- Develop and integrate an inclusive language for digital learning purposes

Guideline 2. Get to know and adapt to the needs of students

Instead of integrating every person to an existing static system, the learning context, whether online or offline, should be made responsive to the various learning needs, talents, and ambitions of every student (and teacher). Student learning is optimal when the digital course meets the students' individual needs, appeals to their individual talents, and feels relevant to their lives, and when students are acknowledged as multifaced individuals with multiple, intersecting identities, who navigate complex contexts and come with a repertoire of experiences, perspectives, and skills.

This means that the teacher first needs to get to know the students, and that the teaching and learning process is based on a participatory, flexible curriculum, so it can be accommodated and modified to answer to the diverse needs of the student population, applied to the particular educational mode (online, blended or hybrid).

Digital tools offer numerous possibilities to get to know the students. At the same time, technology use in teaching also requires different (digital) skills from students. When teaching occurs in a fully online context, a special effort should be made to elicit social presence, so students feel the virtual environment is safe enough to participate.

Underserved students

The deliberate effort to get to know the students and their digital barriers is particularly important in the case of underserved students, because their positions, views and needs diverge from what is most standard (from what is seen as *normal*) and what teachers generally are most used to. They are underserved because higher education institutions and teachers are unaware of their needs and the education is often tailored to the students who traditionally constitute most of the student body. It is important that teachers not only create awareness of their own positionality, but also of the positionality of the different students, whether they participate online or offline, so they can better understand students' actions, reactions and needs, and can better accommodate them.

Attention for the needs of underserved students is critical because their discomfort and insecurity often makes them less visible in the classroom, often even more so in online

classrooms. Students who do not know their fellow students and have experienced unfair treatment will be more hesitant to participate and to interact in online education settings. Many students can become passive observers instead of active participants.

A skill that often is overlooked is language proficiency, which is crucial for learning. Students who are not native speakers in the instruction language, like many international students or students in international programmes taught in English, immigrant students or students with immigrant parents, experience extra barriers for understanding.

Digital barriers and opportunities

The use of technology in teaching adds a dimension that is relevant for students' learning: it is important for teachers to know about students' needs, talents, and experiences in relation to the technology use in the course. Important is the communication with students, the explicit of assessment of specific needs (such as access to technology), and flexibility in the course structure (Garcia-Vedrenne et al., 2020, p. 12620). After all, many digital barriers exist that can hamper access and engagement. "Presume that your students are **under-connected**" is the pressing advice (Katz, 2020, based on a survey conducted among 3000 in-person university students in the United States). Furthermore, **do not overestimate students' digital skills**, and realize that digital skills in general do not automatically imply that students understand how to use the digital tools in a specific educational setting; and know what are the expectations and learning goals.

Fortunately, digital technologies provide **manifold ways** to get to know the students and collect personal information in safe and engaged ways. Learning management systems that support digital education offer extensive academic, usage and achievement data about online students, at individual and course levels. This can also make available data analytics to help understand patterns or pathways to persistence and academic performance and help identify barriers in the virtual environment and pathways towards engagement and academic success. This behavioural information can be complemented with quantitative and qualitative information shared by students about themselves via forums and polling tools, in named or anonymous forms (Pacansky-Brock et al., 2020). Fully online courses allow for considerable autonomy for students in how to present themselves. This is the case when certain bodily features that are visible in real-life are invisible in the online context, such as is the case with some disabilities.

Reflective questions on the student's digital barriers

- Who feels insecure in the online classroom, or when using certain digital tools?
- What are reasons for reluctance to switch on the camera or participate in other ways?
- Can everybody receive the lecture well enough to follow it (e.g., adequate sound quality)?
- How are students affected by hampering technology or connection, or by lack of a quiet space when participating in synchronous lectures? How does this impact assessments?

What to achieve?

- Identify students' aspirations, talents and needs (including digital barriers and needs) to personalise teaching and make your teaching accessible and engaging to every student.
- Educate yourself on the backgrounds of special needs and minority identities, what is required to make your (fully online, hybrid, blended) teaching inclusive and how technology can facilitate these needs.
- Enable yourself to adapt your educational approach to students' evolving needs during the course.

What to do?

- Use the digital tools to the fullest extent.
- Inventorise needs, interests, knowledge, skills and talents, including digital and language skills.
  - Have students introduce themselves to the group and the teacher.
  - Pay attention to gender identities; ask students for their preferred pronouns (she/her, he/him, they/them, ...) and indicate your own pronouns.
  - Offer a range of options for expression and interaction (text, image, video).
  - Set an example by sharing personal details that illustrate that diversity and vulnerability are accepted.

    - Survey students at the start of the semester, either in anonymous or named ways. Poll them regularly about their abilities to participate in the course. If engagement levels drop, reach out to them individually.[13]
- Involve students in shaping the course, employing technology to facilitate their participation and collaboration.
- In international settings: communicate the required language proficiency.
- Encourage students to contact you.

Further inspiration

- The danger of a single story (video) Chimamanda Ngozi Adichie, TED Conferences, 2009.
- TED playlist about ablism and the power of disability
- Seven research-based principles for smart teaching (video) Susan Ambrose, Northeastern University, 2018. How to make your teaching more inclusive and get to know your students?
    - Students as human beings (38:15 min)
    - How stereotypes reduce ambition and lead to fall out (40:00-41:00 min)
    - Students don't leave their selves when entering the classroom (42:00 min)

See the following **e-Inclusion e-learning modules** for more information, resources, and reflective assignments:

- Get to know your students' backgrounds, perspectives and learning journeys
- Recognize the specificities of digital learning that hamper or strengthen e-inclusion

[13] https://inclusivepedagogy.uchicago.edu/remote-inclusion

Guideline 3. Diversify pedagogical practices and ensure accessibility

Inclusive (digital) courses are designed to offer diversification and flexibility to enhance the accessibility and engagement for every student, in alignment with the UDL principles. This is preferrable to singling out students with special needs. It is important to get to know the students' barriers, including their digital needs, and accommodate to them. It helps students to provide clear instructions; and to test and introduce technological applications in low-key ways. Teaching and learning activities, and assessment and feedback can be offered in various formats (text, audio, video). Learning goals can be broadened to intentionally include social and personal development goals.

As is clear by now, the current *one-size-fits-all* education, which is designed with the imaginary *average student* in mind does not fit every student. Digital education that is really inclusive responds to the principles of Universal Design for Learning, UDL (see section 3.1). The goal of UDL is to offer education that does not need to make exceptions for students with special needs (for example when a deaf student is allowed to make a written exam instead of an oral test), but to offer education that is accessible, flexible, and easy to use for every student.

The UDL approach responds to the diversity among learners in digital education by **diversification**. Offering multiple means of representation, engagement, and expression, increases accessibility for every student as it offers flexibility in format, approach, time and place. This means that information, assignments or tests are presented in multiple accessible formats (e.g., oral and written; as a public speech and recorded film material, or in the form of an essay, vlog, poster, website, etcetera). This diversification also broadens learning, as it engages with diverse knowledge perspectives, and accommodates and stimulates varying needs.

Technology greatly facilitates the diversification for pedagogical practices. For example, in online synchronous meetings, students can choose to participate verbally or in the chat, which might lower barriers for engagement. Digital tools facilitate translation, add subtitles, transfer texts to audio, which increases accessibility for students with visual or auditive impairments, or students with different language proficiencies. Asynchronous online learning activities increase the accessibility for students with special needs who are less mobile, students who live far away from, students who live abroad, and students with other responsibilities, such as work of care tasks.

Beyond digital barriers

As explained in 3.1 and 3.2, the use of technology involves challenges in the form of **digital barriers** and a potential lack of social presence. Insecurity about digital skills and failing technology can severely hamper accessibility. Furthermore, a lack of social presence in online education settings not only might impact feelings of belonging, but also make it harder to perceive the preferred codes of conduct and communication styles, which can make students hesitant to contribute. They might feel insecure about what is expected of them; for example, how to pose a question or what is needed for them to do in an assignment. These experiences reveal the importance of **clear articulation of instructions and expectations**. In online asynchronous settings, this is even more important than in in-person settings, where it is easier to detect confusion and clarify instructions on the spot. It is important that instructions are clear and well prepared, and that students know how to work with the technology chosen by the teacher. They need to understand the assignment in the context of the digital tool or platform and not just the assignment as such. It helps students when they understand why a particular tool of platform is chosen, and understand **how its use facilitates their learning process**. Also, it is advisable that the technology has been tried and tested in advance of important (assessment) moments.

The accessibility of digital educational content (whether activities, assignments or learning resources) starts with the design. Content should be **perceivable, operable, understandable, and robust (POUR)**[14] to make digital education accessible for every student, regardless of their abilities, technological skills and digital confidence.

The combination of multiple approaches requires teachers to pay attention to various groups of students who participate in different ways, to **avoid that technology use creates second-class students**. It is important that all students are acknowledged and engaged, including students who attend online while other students attend in person (in hybrid classes), students who do not attend synchronous meetings but participate in asynchronous learning activities, international students who live in different time zones, or students for whom the course is hard to follow because of bad connections or because of concentration disorders.

[14] https://aem.cast.org/create/designing-accessibility-pour

What to achieve?

- Reduce barriers for access by providing materials, communication and assignments that are perceivable, operable, understandable and robust, so every student can participate to their full ability, regardless of their exceptional abilities or learning difficulties, identity, background, family situation or financial situation.
- Lower the digital barriers for your particular students, including students with special needs in terms of vision, hearing, concentration, dyslexia or mental health, and students with less-than-optimal equipment (e.g., bad Wi-Fi, slow computer) or inconvenient home locations (e.g., shared rooms).
- Offer student-centred, inclusive learning activities in multiple, flexible forms, in which students are co-producers.
- Organise inclusive (peer-) feedback and assessment in multiple, flexible forms.
- Set inclusive, holistic learning goals that include not only cognitive aspects of learning but also social and personal ones.

What to do?

Provide materials that are perceivable, operable, understandable, and robust.

- Present digital content in multiple formats, so that it can be perceived in different ways (also by students who are blind, deaf, colour-blind, or dyslexic):[15]
  - Add text descriptions to your images.
  - Use descriptive filenames.
  - Include closed captions and transcripts.
  - Provide enough colour contrast, and do not use colour alone.

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[15]A checklist with web content accessibility guidelines can be downloaded from: https://learn.essentialaccessibility.com/wcag-2.1-checklist
See more information on the CAST website (Centre on Accessible Educational Materials).
https://aem.cast.org/create/designing-accessibility-pour;
https://aem.cast.org/create/perceivable;
https://aem.cast.org/create/operable;
https://aem.cast.org/create/understandable;
https://aem.cast.org/create/robust;
https://www.essentialaccessibility.com/compliance-overview/wcag-web-content-accessibility-guidelines;
https://vu.nl/en/about-vu/more-about/accessibility-checklist-for-events.

- Provide multiple options for navigating and interacting with the digital content (via mouse, keyboard, touch gestures or voice comments):
  - Provide a clear structure (table of contents, title, headings).
  - Create descriptive link names.
  - Check for keyboard accessibility.
  - Avoid content that flashes.
- Prepare digital content that is intuitive to access and easy to navigate (also for learners with cognitive or learning challenges, and limited proficiency in virtual environments):
  - Provide clear instructions.
  - Identify and use language(s) that everybody understands well.
  - Use plain language.
  - Explain your use of technology, and test and introduce technological applications in low-key ways.
- Design the digital content so that it works in a variety of web browsers and devices (including tablets and smartphones) and check its accessibility by entering the address in the evaluation platform available at https://wave.webaim.org/.

Offer inclusive (digital) learning activities.

- Deliberately design the use of technological tools in alignment with the learning goals, and communicate the learning purposes to students.
- Offer teaching that is aligned with the students' talents, needs and interests.
- Offer students multiple forms of activating/participatory learning activities, supported by technological tools that enable diversification, participation and collaboration. Include (peer-) evaluation or cooperation to ensure that students take collaboration seriously.
- Make the setup of the course dynamic, so it can be adapted to the circumstances.
- Make the student co-producers of the course, supported by technological tools that enable (anonymous and identifiable) collaboration.

Offer inclusive (digital) feedback and assessment.

- Make feedback accessible, understandable and constructive to every student.
- Prioritize formative (feedback oriented) assessments over summative assessments (grade oriented).
- Regularly provide (group-) feedback on the classroom dynamics.
- Make online assessments accessible and avoid unnecessary barriers through the assessment form:
  - Ensure that every student at the offset of the course understands the assessment.

- Ensure that every student understands and can meet the technical conditions for the assessment.
- Offer multiple forms of assessment (writing, verbal, video, etcetera).
- If the assessments cannot be designed to be inclusive for every student, adapt it to the special needs of individual students or offer individual support.
- Have anonymous grading (evaluate and grade assignments without knowing which student made the assessment), with the support of technology.

Formulate inclusive learning goals.

- Include in the course's learning goals: learn to critically engage with multiple perspectives; develop self-awareness about one's own positionality; develop social interaction skills, and sensitivity of power dynamics and subtle processes of inclusion and exclusion in interactions.
- Ensure that every student knows and understands the learning goals.
- If a goal cannot be made inclusive for every student, adapt it to the special needs of individual students.
- Involve underserved students in the process of formulating learning goals. Discuss how the students would meet the expectations.

Further inspiration

- Exploring learner diversity beyond Disability: What are the challenges and why is UDL immediately appealing? Part of a webinar series organised by SIHO, the Belgium Support Centre Inclusive Higher Education. Scroll down to webinar 1 and watch Frederic Follet's presentation (minutes 16:18 till 32:51).
- Tools for educators to gain Digital Competence (e-learning modules) Edu-Hack Erasmus+ project.
  - Use video resources in teaching
  - Use games in teaching
  - Technology & assessment
  - Technology & formative assessment
  - Accessibility of platforms & resources

See the following **e-Inclusion e-learning modules** for more information, resources, and reflective assignments:

- Universal design for online inclusive learning environment
- Identify inclusive digital resources for online learning
- What about inclusive online internationalisation in higher education?
- Assessment as online inclusive learning

Guideline 4. Diversify content

Inclusive (digital) courses actively engage with perspectives of non-mainstream regions and non-mainstream thinkers, and raise awareness about the positionality of the canon. Inclusive courses also include a broad range of examples, illustrations and visuals. For instance, real-life examples are included, and contributions from a more personal perspective are invited and used.

Internet, databases and open educational resources facilitate the access to non-mainstream knowledge from various parts of the globe, from channels beyond accredited journals, in media formats other than text, and in various languages, including languages that the teacher does not speak. The use of digital tools increases the possibility for expression, participation, and co-construction, also through anonymous contributions.

Engagement with marginalised perspectives and a critical reflection on the canon enriches education for every student and enhances critical thinking, and it makes education more inclusive and appealing to underserved students in particular.

Diversity in perspectives **widens the hidden curriculum.** It signals to every student that knowledge is not only created in the West from a white male perspective, but that also other perspectives and other people count. When non-mainstream experiences and perspectives are integrated, this validates the experiences and identities of underrepresented students, increasing the relevance of the content for them. This also applies to examples, thought-provoking questions, assignments, and visual material. These should include various groups and perspectives (and not in stereotypical ways, like only referring to people with immigrant backgrounds in the context of language deficiencies, poverty, or particular diseases), should have relevance for a broader audience (instead of using only scenarios that resonate with heterosexual experiences or political leftist ideals) and should not radiate implicit norms (e.g., “Where did you all go for your summer holidays?”). (See more about inclusive language in Guideline 5).

Learning is strengthened when the course feels relevant to the student’s personal life or relates to societal issues that they find important (Tuitt et al., 2018). To make the course equally relevant to underrepresented students, it is important that a range of real-life situations are included and personal experiences are seen as relevant knowledge and valuable contributions to the course.

Online educational settings offer extended opportunities to find, access, include and engage with non-mainstream perspectives and approaches, for teachers and students alike. This, for instance, includes materials that are not based on written texts in the form of articles or books, but rely on blogs, images, or films. As mentioned in Guideline 3, the online context also offers direct translation possibilities, which facilitates the inclusion of materials in various languages. The accessibility of online resources facilitates co-creation with students. Translating thoughts into images or video, and including materials from diverging language regions, also appeals to a broader set of skills and invites different perspectives.

Teachers do not have to broaden the curriculum by themselves. Students are knowledgeable actors, with diversified perspectives, backgrounds, knowledges, language skills. It enriches their learning and the broader course when they are invited to find and engage with non-mainstream materials and can contribute to the course. Digital platforms can facilitate this process of collaboration and co-construction – this joint knowledge construction.

Reflective questions on the course content

- How come that we generally read literature from some kinds of authors (e.g., male, Western, white authors) and not from others in the discipline?
- What do we signal when we only show white, thin, extravert, heterosexual, able-bodied, middle-class people in visuals and examples?
- How do we have come to see certain approaches as the preferred (or only) way to research, measure or calculate a specific problem?
- Why do we know everything about certain groups and not others?

What to achieve?

- Reflect on the source and consider the positionality of any learning resource that the course engages with: whose perspectives are represented in the course, and whose are not?
- Create diverse and inclusive content, which includes multiple perspectives and has relevance to every student. Recognise the value of personal experiences. Make use of the possibilities that internet, databases and digital tools offer for accessing a variety of knowledge sources, expression, and participation.

What to do?

- Include diverse perspectives in the course material that are discussed throughout the course, making use of the potential of online channels to identify relevant perspectives outside the dominant (language/geographical/text-based) areas:
  - Be aware of the origin of the bulk of the course material and be honest about the learning resources to students and explain why these sources were selected.
  - Actively engage with marginalised perspectives by including them in the learning resources as much as possible.
  - Be aware of the historical or societal importance, and potential sensitivity of the materials in classroom discussions.

    - Include visual material that is relevant to diverse people, pay attention not only to the presence of diversity, but also to the role of people in the images and textual examples. Who is the actor? Who has the active (authoritative) role in the image, and who has the passive, receptive role? For example, a picture where a white male professor explains something to a woman of colour affirms existing hierarchies.
- Build on input from students who share their worldviews, expertise, experiences, or source materials in the course:
    - Have students contribute to the course, offering content, and take their contributions seriously. For instance, by explicitly assigning a specific online space where students can share their additional material.
    - Connect with experiences and worldviews of every student by giving students room to explain their view on a topic without stigmatisation (before and during the course).
- Explore and explain the positionality of the canon to your students through reflective questions such as those mentioned above.
- Communicate with experts on the topic of your course. Involve guest lecturers with expertise in marginalised perspectives you do not feel apt to lecture on.

Further inspiration

- Black Student Voices: What Does It Mean To Decolonise the Curriculum? (video) University of Southampton Students' Union, 2021.
- Decolonise the curriculum (video) Pran Patel, TED Conferences, 2019.
- The Uprising. A guide for educators to engage students in decolonizing the mind. (online educational toolkit) Pravini Baboeram.
- Seven Forms of Bias in Instructional Materials (blog) David Sadker, Myra Sadker Foundation.
- Algorithms of oppression (video) Safiya Umoja Noble, Annenberg School for Communication, 2018. About how search engines misrepresent a variety of people, concepts, types of information and knowledge.

See the following **e-Inclusion e-learning modules** for more information, resources, and reflective assignments:

- Using multiple media to find and include a diverse range of non-mainstream topics and perspectives for your digital course
- Identify learning methodologies and digital tools that let students collaborate on content co-creation and Equity responsive teaching and inclusive online learning

Guideline 5. Create an inclusive digital learning climate with belonging and agency

The previous guidelines are interwoven with this fifth guideline: create a digital inclusive learning climate in which every student experiences belonging as a full-fledged person, and feels safe to learn and participate. An inclusive learning climate is, of course, characterised by inclusive language and absence of stigmatisation and stereotyping, and other microaggressions; it grants agency to every student and relies on participation and co-construction. Educational technologies offer extensive possibilities to organise this. However, in online environments, it requires extra effort to establish a sense of social presence, which facilitates an inclusive climate and helps turning moments of tension into moments of learning.

It is important that students feel like they belong, that they feel like a member of the learning community and feel that their contributions matter. When students experience the classroom environment as unsafe, they are reluctant to interact and their study success will be affected negatively (Ambrose et al., 2010; Freeman et al., 2007; Marchesani & Adams, 1992; Steele & Aronson, 1995; Zumbrunn et al., 2014). To learn, students need to feel known, acknowledged and appreciated, and to play an active role in the learning process and the shaping of the classroom dynamics.

Social presence in the virtual education environment

As described in 3.2, social presence – the feeling that you get to know one another – is a prerequisite to experience belonging and to feel safe to contribute to the classroom. In online learning environments, where many social, non-verbal clues are obscured, this social presence formation requires extra deliberate attention.

How can teachers support the creation of social presence in an online course? This is entwined with Guideline 2: getting to know the students. Teachers can use **introductory activities**, preferably in smaller groups. To create an inclusive environment where diversity is welcomed and used, these introductory activities invite the classroom participants to bring out their diversity (in skills, experiences, expertise, approaches, worldviews and perspectives). In addition, **collaborative learning** strengthens perceptions of social presence (So & Brush, 2008). Furthermore, to create an atmosphere in which personal reflections are welcomed and taken seriously, it is important that **teachers set an example** and present themselves as multifaceted people, by explicating their own background and articulating their own positionality and perspectives.

As explained in 3.2, and mentioned in the previous guidelines, teaching in **hybrid classrooms** requires explicit attention to establish social presence for the online participants, or for course-participants who follow the course through recordings in asynchronous ways. Students who physically participate in the classroom reap the benefits of in-person social presence, which easily reduces the other participants to second-rank students.

Moments of tension as moments of learning

The aim of providing an environment in which everyone feels safe to contribute, can conflict with the discomfort that comes with learning. As learning is about expanding knowledge, navigating diverging perspectives, and stretching frames of reference, learning can involve uncertainty and even discomfort. Ideally, there is space for ***intellectual discomfort*** **while protecting** ***dignity safety***, so every classroom participant can feel "free of any reasonable anxiety that others will treat one as having an inferior social rank to theirs" (Callan, 2020, p. 65). This nuance makes that some prefer the term *brave spaces,* or *accountable spaces,* to *safe spaces* (Ahenkorah, 2022). Having communication rules appears to reduce uncertainty and enhance trust (Walther & Bunz, 2005).

In practice, however, this balance can be complex, as intellectual debate can be personal, and stances are rarely neutral. Often, there is a hierarchy in stances. The majority position is seen as the neutral position, which does not need argumentation (e.g., "it is good to make your own choices" or "a good student is a student that actively participates in discussions") while other positions require legitimization (e.g., "it is good to follow the wishes of your parents" or "it is better to not speak up immediately and to delay opinions"). Often, the classroom functions as an echo *chamber* for majority opinions (Willner Brodsky et al., 2021). Clearly, representing a minority position makes one vulnerable, especially for underserved individuals.

Moments of tension are inherent to classroom dynamics, particularly in settings where students engage with different perspectives. These moments of friction, where dignity and safety can be under threat, are so-called *hot moments*. A hot moment can occur, for instance, when a student (unknowingly) uses a derogatory term or points out a stereotype in the course material, or when a minority perspective or personal experience is rashly dismissed, which then leads to discomfort with one or more of the classroom participants.

Hot moments are important **opportunities for learning**. In hot moments, students (and teachers) can learn to dissect their own perceptions of what they presumed to be a neutral stance and become more aware of stereotypes or stigmatisation. Nevertheless, hot moments can be scary for both teachers and students and can be difficult to deal with in

constructive ways. When moments of friction are ignored, this strengthens the status quo. For education to become more inclusive, teachers and students need to learn to be more comfortable with discomfort and unexpected situations. Teachers (and students) will have to become comfortable with pausing and reflecting in the moment, or even to reflect on a situation in hindsight, and learn from it together (see Willner Brodsky et al., 2021). Dealing with hot moments can be even harder when social presence is meagre.

Agency and participation

As described in Chapter 1 and 2, in an inclusive classroom, teachers do not have the all-knowing position. Students, including underserved students, are seen as **knowledgeable participants** whose experiences, perspectives and questions are valuable contributions to the learning setting. When students actively participate and are recognized as co-constructors of the classroom, or even the course, this enriches everyone's learning.

Being granted more **agency**, is not only important for student to learn the course content, but also validates the experiences and identities of students, and strengthens their self-confidence in learning. This is particularly important for underserved students, who generally experience less confirmation and validation. Building the course on student's input can be challenging for teachers, as this often requires a changing view on teaching and letting go of control. This can be challenging to students as well, who often expect the teacher to play the all-knowing role.

Inclusive communication

An inclusive climate is **free from microaggressions, stigmatisation, stereotyping, and tokenism** and uses **inclusive language**. This requires awareness of teachers and students on how everyday interactions can (unconsciously) exclude individuals (see section 1.1). Racism, sexism, ableism, heteronormativity, etcetera are deeply engrained in our norms and practices, and thus in our hidden curriculum. For example, stereotyping and microaggressions can hide in well-intended expressions ("for a woman, you do great in maths!") and seemingly neutral expressions can reflect dominant positions and habits ("where did you all travel to during the summer holiday?"). Even casual references to minority identities (female, black, Asian, poor, disabled) can trigger the underlying stereotypical images and

function as self-fulfilling prophecies (Spencer, Logel & Davies, 2016). An example of this *stereotype threat* is that when students are told that women underperform to men on a specific maths test, this lowers the actual performance of female students (Spencer, Steele & Quinn, 1999).

To avoid affirming the male norm, and to create a safe and welcoming space for people with non-binary gender identities, it is important to use *gender inclusive language*. Gender inclusive language avoids using he/him in neutral examples ("The citizen, he…" can better be reformulated as "Citizens, they…"). When using gender inclusive language, one avoids the automatic assumption that one can tell how they identify by someone's appearance, and uses they/them pronouns to refer to persons with a non-binary gender identity who express this preference.

As mentioned in Guideline 4, inclusive images and texts not only include diverse people, but also avoid the reproduction of existing hierarchies. Avoid portrayal of white, able-bodied men who instruct a diverse group of students, and has the authority. Vary the person who has the active (teaching) role, and who has the passive (receptive) role.

Good practice: Social presence at the Universitat Oberta de Catalunya

The Universitat Oberta de Catalunya, an open university that offers fully online education, forms an example of how to structurally establish social presence, while making comprehensive use of the opportunities of asynchronous online education in terms of diversification and flexibility. Their approach contains the following elements:

- *Course coordinators* design the courses, ensure their quality, and select, train and coordinate the instructors who will be teaching the students. Also, they define the student assessment strategies, methods, and criteria.
- *Course instructors* monitor the students' activity individually, proactively assist and guide them, and assess their progress throughout the courses.
- *Tutors* guide students in their choice of their individual academic pathway and closely accompany them throughout their journey at the University.
- Students are aware that all instruction will happen online, so they have access to the technology that enables them to actively engage in the learning experience.
- Students are trained, and expected to be, self-directed.

At the Universitat Oberta de Catalunya, courses:

- are mainly asynchronous, include multimedia learning resources that enable students to study regardless of their personal circumstances, where they are based, the device they use, and their individual characteristics,
- have been fully developed and are accessible by the beginning of the term,
- make use of various educational strategies that facilitate a self-directed learning experience,
- contain interactive learning activities virtual laboratories and learning spaces for social interaction,
- make advanced use of multiple educational technologies that support participation and social interaction of class and learning activities, and
- involve regular check-ins by instructors who monitor progress and provide both group and personalised feedback, using purposefully designed communication strategies.

Course instructors and tutors receive personalised training on online communication and learning strategies from the university before courses start. Course coordinators are assisted by multidisciplinary professional teams that provide them with technological and pedagogical guidance and support before, during and after each term.

Good practice: Engaging with diversity using the VU Mixed Classroom Model

The VU Mixed Classroom Educational Model provides a framework through which students learn how to engage with diverse perspectives (Ramdas et al., 2019). The model identifies three phases in a group learning process: sensitizing, engaging and optimising.

This means that a course contains activities to:

1. sensitize students to existing diversities and their own positions, through introduction activities that aim to get to know one another and establish an inclusive (digital) learning climate;
2. have students engage with diverse perspectives and learn to deal with moments of tension;
3. have students integrate and combine perspectives to formulate creative solutions.

Examples of practical teaching activities can be found in the two Mixed Classroom brochures: The VU Mixed Classroom Educational Model (Ramdas et al. 2019) and The VU Mixed Classroom Educational Model in blended learning (Ramdas et al. 2022). See Appendix C for an overview of the elements of the model.

What to achieve?

- Create an inclusive learning climate, in which every student feels safe to learn and participate, where students feel like they belong as members of the online learning community and their contributions matter.
- Establish social presence.
- Encourage student participation, and engagement with multiple perspectives and personal experiences.
- Protect human dignity while allowing for academic discomfort. Perceive hot moments as opportunities to learn and turn them into moments of learning.
- Engage and promote inclusive communication – free from stereotypes, stigmatisation, tokenism, and other microaggressions.
- Be open to discomfort and unexpected situations. Learn to be vulnerable.

What to do?

Create an inclusive climate with social presence.

- Introduce yourself early in the course, preferably even before the start, using video. Share personal details that illustrate that diversity and vulnerability are accepted. Share your own pronouns (signal them in in your display name), and ask others to indicate their pronouns. Be open to your students about your expertise and experience.
- Set up introductory assignments in such a way that students can choose what kind of information they reveal, and use group-assignments (breakout-rooms) so students can get to know each other in smaller groups and dyads. Invite active participation/communication from the start.
- Explicitly establish ground rules for interaction. Specify how you respond to each other's input. Explicitly acknowledge you have read/seen/heard other participants' input. Acknowledge and appreciate that students from different regions have different accents.
- Monitor the learning climate, for example through an online discussion board or polling tool that enables students to give anonymous and/or identifiable input, in more open and/or more structured ways.
- Try to look beyond the language skills and not only appreciate the valuable contributions of students with good academic writing skills, but also of students with less developed academic writing skills.
- Actively stimulate students to have their cameras on during synchronous meetings. Explain the relevance, and (jointly) formulate ground rules for camera use; including valid reasons to have cameras switched off.
- In hybrid courses, also explicitly address and engage students who attend class online or via recordings on a later moment.

Encourage participation and engagement with diversity.

- Explicitly invite input and diversified contributions from students, and make them co-constructors of the course (e.g., through peer-to-peer initiatives, peer feedback). Have designated spaces or tools for feedback.
- Compose working groups in such a way they are diverse but avoid that minority students are the only non-traditional student within a group.

Promote inclusive communication.

- Become aware of how microaggressions work (see Guideline 1).
- Use person-first language instead of identity-first language, so you emphasise one's personhood to not reduce someone to a minority identity dimension and create *otherness* (e.g., use expressions such as *people with disabilities* instead of *the disabled*, or *students* instead of guys or *ladies and gentlemen*).[16]
- Use gender inclusive language:
  - If the pronouns of the person being described are unknown, reword the sentence to avoid a pronoun or use the pronoun *they*.
  - Use singular *they* as a generic third-person singular pronoun to refer to a person whose gender is unknown or irrelevant to the context of the usage.
  - Use a person's self-identified pronoun, also when the person uses the singular *they* as their pronoun[17].

Further inspiration

- Activation Education. The Mixed Classroom (video) Vrije Universiteit Amsterdam, 2021.
- How to create an inclusive virtual learning environment, (webinar) Alexandra Sedlovskaya, Harvard Business School. In English, Spanish, Catalan and Sign language, 2021.
- Inclusive language (video) Camelia Bui, TEDxYouth talk, 2019.
- How to foster knowledge co-creation among students (e-learning module). EduHack Erasmus+ project.
- Online discussions for problem based learning (video) Maastricht University, 2020.

See the following **e-Inclusion e-learning modules** for more information, resources, and reflective assignments:

- Create and monitor an inclusive online learning climate
- Turning moments of friction into moments of learning

[16] For extensive inclusive language guidelines, use American Psychological Association. (2021). Available at https://www.apa.org/about/apa/equity-diversity-inclusion/language-guidelines.pdf and in Words Matter. An unfinished guide to Word Choices in the Cultural sector. https://www.materialculture.nl/en/publications/words-matter

[17] https://apastyle.apa.org/style-grammar-guidelines/grammar/singular-they

Guideline 6. Collaborate with organisational allies

Practicing e-inclusion should not be an individual endeavour. First, because sharing experiences with colleagues about successes and discomfort can be enlightening and empowering. Second, because developing knowledge about inclusion and technology in education is an enormous task, which can better be shared. Third, because a well-balanced course programme with consistent ideas about inclusion and technology use, requires close coordination between courses and teachers. Lastly, because creating inclusive education requires institutional support – in terms of knowledge, digital resources, expert advice, time, and appreciation.

It can be inspiring and encouraging to share experiences with colleagues, and to grow together. Colleagues' stories can give a sense of recognition and when teachers "recognize that their situation is reflected in a case and they hear what their colleagues have tried in similar circumstances, they feel more confident saying or doing something they have not said or done before" (Hughes et al., 2011, p. 9). Collaboration can lighten the endeavour of practicing e-inclusion because tasks can be divided, and knowledge and skills can be shared.

Furthermore, collaboration is a prerequisite to design a well-balanced educational programme in which individual courses contribute to larger learning goals and together constitute an educational environment with consistent values and codes of conduct.

In a broader sense, making digital education inclusive requires a collaborative effort of multiple actors, both in- and outside educational institutions, who set structural and intentional goals, organise dedicated resources, and set up monitoring, data collection, and extracurricular intervention programmes. Providing time and support is even more important in the case of digital education or when using digital tools, as e-inclusion requires not only awareness about mechanisms of inclusion and exclusion, but also about technology use, and the availability of good technological tools and equipment.

We make a pressing call to institutions. We too often see that particularly those teachers who feel the urge to make changes to education, are often relatively new and short-tenured, and therefore are often still in a precarious employment situation. Particularly in institutional cultures that do not encourage critical change, this prevents them from actually pursing educational innovation (Ahmed, 2012; Wekker et al., 2016). Obviously, this is an undesirable situation. Please recognise the indispensability of critical stances for organisational change. Do not only encourage, but also protect and explicitly back up innovative teachers. Provide these front-runners with extra time. Cherish them!

What to achieve?

- **Teachers:** find, mobilise and collaborate with allies, for your personal development and wellbeing, as well as for institutional anchorage.
- **Teacher teams:** formulate shared goals and approaches regarding diversity and inclusion, and align (diverse) course content and technology use.
- **Higher education institutions:** encourage and support endeavours for inclusion, by supporting teachers and teacher teams.

What to do?

- **Teachers:**
  - Organise *intervision* sessions (peer coaching sessions), in-person or online, with colleagues to share experiences and develop approaches, for example using the critical incident approach (see the video Critical Incident Technique, Ellen Cordeiro).
  - Collaborate with colleagues who co-create or co-review your course.
- **Teacher teams:** create a shared vision on inclusion and technology use, and a well-balanced programme using (online) reflection tools such as those mentioned in the box below.
- **Educational institutions:**
  - Seize moments of educational change, such as innovative shifts towards online/blended learning, to also strengthen inclusion.
  - Anchor the pursuit of inclusion in policy and practice. See for a range of tips

the report Let's do diversity (Wekker et al., 2016). For more inspiration on approaches and interventions that promote inclusion, see the Diversity Policy Toolkit (Slootman 2020).

- For the structural integration of educational innovations, such as blended learning, see the European Maturity Model for Blended Education developed in the Erasmus+ project EMBED (Van Valkenburg et al., 2020).
- Facilitate and protect equity frontrunners in the organisation, providing teachers and teacher teams with time, knowledge, practical (digital) support, acknowledgment, and protection.

Further inspiration

- The Team Teacher Reflection Manual developed in the Erasmus+ project I-Belong to empower teacher teams to strengthen inclusion (Baboeram, Meeuwisse & Wolff, 2021).
- The Curriculum Reflection Tool of the Utrecht University, which elicits reflection on how a course can be made more inclusive.
- Self-assessment tool on the use of digital tools in education, based on the European Digital Competence Framework for Educators (DigCompEdu).

See the following **e-Inclusion e-learning modules** for more information, resources, and reflective assignments:

- In the know: current trends and policies of inclusive digital education
- Identify organisational key players in inclusive digital education and find strategies to collaborate with them

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Appendix A. Use of empirical data

Numerous qualitative interviews were conducted in studies in which e-Inclusion project partners were involved. The data and publications of these projects formed the basis for our understanding of the challenges and opportunities regarding inclusion and exclusion in online educational settings. The first main study was conducted in the spring of 2021, during the COVID pandemic, with the help of Bachelor students, 27 underserved students were interviewed about their experience with online education at VU. Most students had a non-Western migration background (20) and/or identify as LGBTQI+ (7), four were international students, two students were neurodiverse and one had a physical disability. We deliberately included interviewees with visible (for instance, non-western migration background) and non-visible (such as neurodiversity) identity markers. Interviews were conducted by various interviewers (all Bachelor and Master students themselves) and transcribed verbatim. Two coders worked jointly developed a coding frame that formed the basis for the analysis. See for more information about the methodology of this study Korthals Altes (2021). These student interviews were complemented with interviews with teachers about their experiences with online education during the COVID pandemic, conducted in 2021 by researchers of the e-Inclusion project (five in the Netherlands (VU) and four in Belgium (Universiteit Hasselt)).

The second source of knowledge and data, consists of a project that studied the experiences of students with disabilities in online education. This project contained various studies that were conducted and published under the supervision of one of the project partners and Handbook authors: Domagała-Zyśk (see Domagała-Zyśk 2020; 2021a).

- For the study "Online teaching and learning and special educational needs. Experiences on Covid-19 pandemic" 30 persons with a motor disability were interviewed in spring 2020 (21 women, 9 men). They agreed to participate in research about their coping strategies for managing the pandemic experiences. In addition, three in-depth interviews were also conducted (Korach 2020).
- Several months later, in 2021, the second year of pandemic, three quantitative studies were conducted within the framework of the project "Let's switch on your cameras: Experiences of online education at school and university". Students' voices have been collected in three sub-studies, from
    - 31 students from 6 universities in Poland on their fear(s) in online education (Grygierzec 2021).
    - 70 students with hearing disorders from 15 countries in Europe, Asia, North America and Africa (the study was also announced for South America but no participants joined), in which deaf and hard of hearing students

reflected on several aspects of online education, mainly these connected with language issues in online university education of deaf and hard of hearing students and zoom fatigue experienced by this group (Skoczyńska, 2021; Lewandowska, 2021).

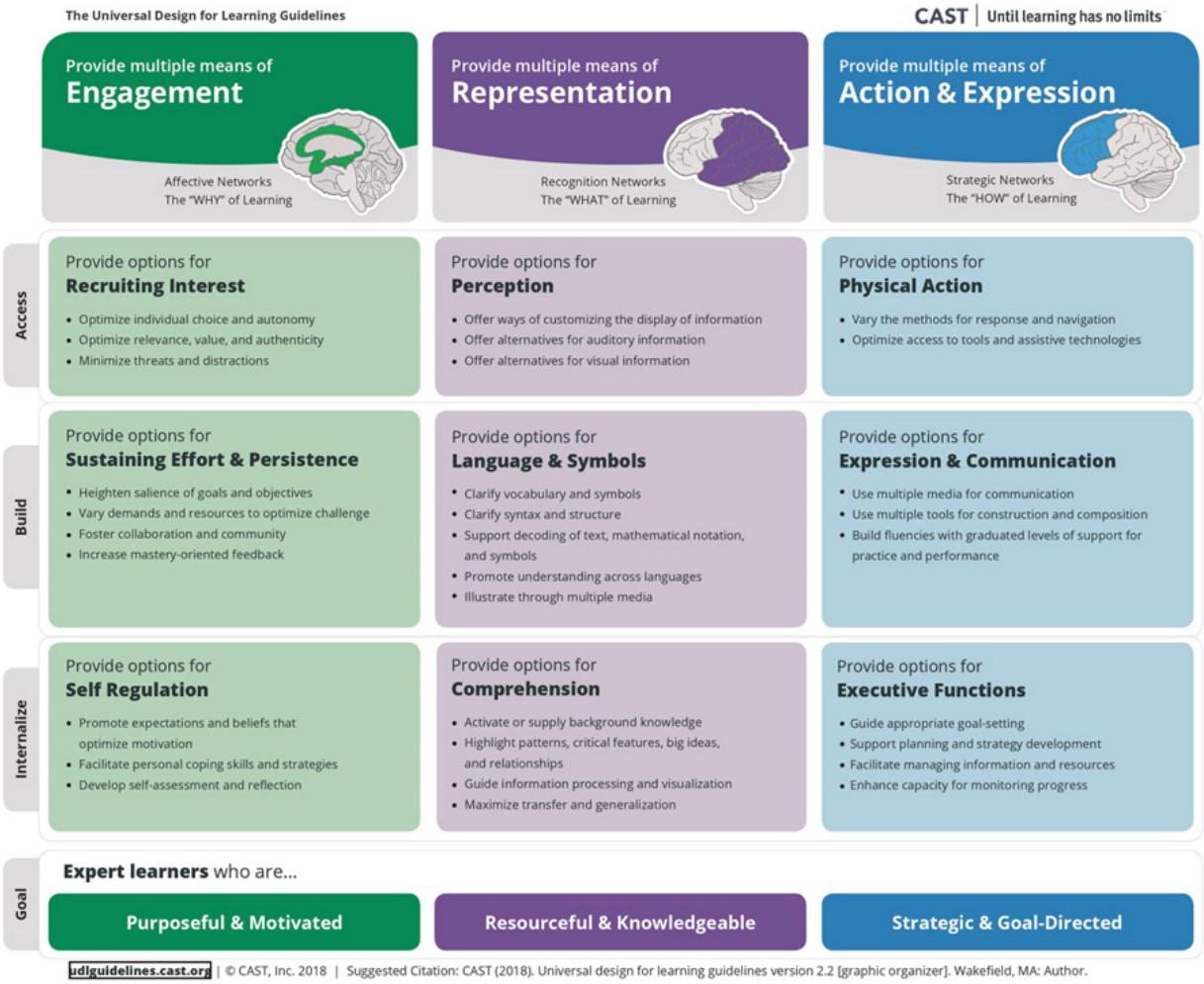
- 42 university students with motor impairments from all over Poland (29 women and 12 men) took part in a study on their experiences of online education in spring 2021. This was an online survey concentrating: challenges and opportunities regarding online learning managements for students with motor disability, physical well-being during the online pandemic teaching, teacher-student relationships in online pandemic learning, and students' resiliency strategies (Korach 2021).

- In addition, voices of university teachers, staff and faculty members were collected (Gulati 2020, 2021). These included:
  - 9 staff members shared their experiences in managing the organisation of online classes for university students with disabilities and special educational needs, in 9 higher educational institutions (HEI) in Poland. (June-July 2020)
  - 23 faculty and staff members from 7 Polish HEI described their experiences supporting students with disabilities and managing online education at their institutions; especially in the context of foreign language classes for deaf and hard of hearing students. Among the interviewees, there were 9 staff members from offices that support students with disabilities, 12 teachers of foreign languages working with students with disabilities, and 2 sign language interpreters. (May-July 2021)

Appendix B. The Universal Design for Learning Guidelines

Source: CAST (2018). Universal design for learning guidelines version 2.2 [graphic organiser]. Wakefield.

Accessible from: https://udlguidelines.cast.org/?utm_source=castsite&lutm_medium=web&utm_campaign=none&utm_content=aboutudl



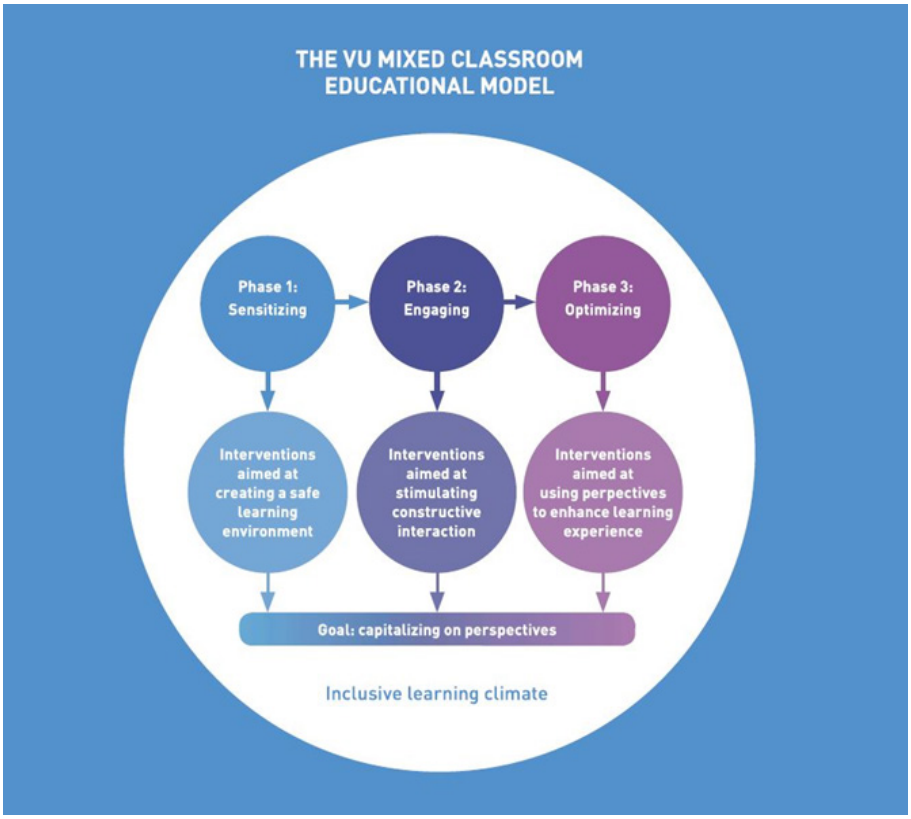
Appendix C. The VU Mixed Classroom Educational Model

See below a schematic overview of the VU Mixed Classroom Educational Model and a table with the learning goals, strategies and examples of learning strategies per phase.

Source: Ramdas, S., Slootman, M., & van Oudenhoven-van der Zee, K. (2019). The VU Mixed Classroom Educational Model. Amsterdam: Vrije Universiteit Amsterdam.

See more information about the VU Mixed Classroom Model: https://vu.nl/en/about-vu/more-about/mixed-classroom

Figure A1. The VU Mixed Classroom Educational Model



(Source: Ramdas et al., 2019, p.8)

Figure A2. Learning goals, strategies and examples of learning strategies per phase

Phase	Learning goals	Strategies	Learning activities
1. Sensitizing	• Students are able to reflect on their own frame of reference, and demonstrate awareness of their own perspective being not necessarily a universal perspective; • Students are aware of, and can articulate the importance of "openness" towards other perspectives and approaches; • Students know what a safe learning environment entails and how they can contribute to it.	• Reduce anonymity • Explore values and assumptions • Establish ground rules for interaction and discussion • Monitoring learning climate • Induction of identities	• What shaped you? • Card system • Circle of trust • Exit slips • Personality tree/rose • Tiles • Fifty seconds • Buddy system • Getting to know you • Contract • Dotmocracy • From judgement to question • Three-step-interview
2. Engaging	• Students recognize and are willing to explore perspectives and approaches that differ from their own; • Students are able to interact with these perspectives in a constructive way; • Students recognize unease and tension when they arise in interactions, and have practiced dealing with them.	• Structuring interaction with other perspectives • Creating "in between" spaces for interaction • Dispelling the illusion of explanatory depth • Integrative conflict management • Reinforcing ground rules for interaction and discussion/ monitoring learning climate	• Speech writing/letter writing • Affective response • Devil's advocate • Buzz duo's • Predict, Observe, Explain • Pro/Con grids • Speed date • Questions only/Quescussion • Idea line up • Debate • Rotating Chair
3. Optimizing	• Students actively seek and consider perspectives and approaches different to their own; • Students are able to switch between these perspectives and approaches; • Students are able to integrate and combine perspectives when analyzing problems or cases; • Students can demonstrate combining different perspectives to formulate creative solutions, both on individual and group level.	• Combining perspectives in a structured way • Switching between perspectives to stimulate cognitive flexibility • Reflecting on learning process • Rewarding students for capitalizing on perspectives	• One-minute-paper • Big paper • Think aloud • Jig Saw/Expert exercise • Student-led sessions • Chain notes • Solving the problem • Index card pass • Tag team discussion • World Café exercise

(Source: Ramdas et al., 2019, p. 40)

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