

Guidelines to facilitate and enhance the learning for students with special needs in Higher Education

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Abstract

All students are different, but higher education may prove to be more challenging and inaccessible to those with learning, mental and physical disabilities. Some needs must be addressed separately or individually, but many improvements made for students with disabilities could benefit all. We investigate the challenges met by different groups of students, and provide concrete guidelines on how to counteract them. Furthermore, we conclude that a Universal Design for Learning would be the best way forward: a solution that can accommodate all students simultaneously, challenge students without causing unnecessary stress and at the same time not compromise the quality of the education.

Aim of the project

The aim of this project is to introduce and define specific learning challenges posed to students with special needs in higher education. We also want to summarise and propose solutions in the form of inclusive teaching guidelines, where these guidelines can be used in practice to facilitate and enhance the learning of students not only with special needs, but to all students. This report is addressed to teachers and representatives from educational institutions, who can implement the guidelines in the learning environments.

Introduction and background

To be able to accomplish university goals, the students require a variety of academic and personal services along with support, advice and guidance. The providers of these services include academic and non-academic staff who belong to different university areas and who are in charge of facilitating and enhancing the student experience and progress (Morgan 2013). While the university structure is clear and simple, there are occasions where students present specific needs that require to be addressed separately or individually. These special needs may come in the form of 1) Learning disabilities; 2) Mental disabilities; and 3) Physical disabilities.

The term disability is an attempt to categorise long-term limitations produced by a medical condition or a misfitting environment (Box 1). As such, it covers a diverse range of conditions, from learning deficiencies to physical impairment. According to the World Health Organisation, about 15% world-wide live with a disability. In Europe only, it is estimated that about 135 million people live with a disability (6-10% of the population) (WHO Regional Office for Europe 2022). In 2016, it was reported that 30.3% of disabled people have completed a degree in higher education, against 43.5% of people without a disability (Grammenos 2018).

Box 1: Definitions of the term disability

WHO: "Disability is the umbrella term for impairments, activity limitations and participation restrictions, referring to the negative aspects of the interaction between an individual (with a health condition) and that individual's contextual factors (environmental and personal factors)" (World Health Organization 2011).

UN: "Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others" (United Nations 2022).

One of the reasons for these percentage variations could rely on the fact that most institutions and public environments were modelled after the needs of the average population, which usually do not include all limitations a disabled person may encounter. Furthermore, the transition to higher education often represents a turning point in anyone's life where a more self-driven and independent life is expected, accompanied by a change of environment that does not leave everyone equal.

These barriers to the success of students with disabilities may be separated into four categories, according to Owen-Hutchinson as described by Bishop and Rind (2011):

- Attitudinal: attitude of key persons in the life of a student (family, friend, educational staff, etc).
- Institutional: access to the material, knowledge or opportunities offered by an institution to any student.
- Environmental: access to facilities (university campus, classroom, etc).
- Physical: additional constraints caused by the environment in relation to one's disability (tiredness, pain, etc).

These will not impact all students the same. Hidden disabilities, such as learning disabilities or mental disabilities, may not limit access to higher education facilities, but may impact the relationship between a student and the staff or their use of institutional resources. On the contrary, a student in a wheelchair without any other impairment may have difficulties accessing classrooms, but could use a computer, read or interact with material to the same extent as other students (with the exception of labs and practical work).

If a higher education institution fails to mitigate these barriers, it would in fact exclude students with disability and contradict the United Nations' Convention on the rights of persons with disabilities (United Nations 2022).

To prevent these negative outcomes, it is important to first have a better understanding of the different disabilities so that improvements in the higher education system can be done. Here in the following sections, we will describe three different disabilities and their challenges. Then, we will share our reflections and propose guidelines that can be implemented in all universities.

Disabilities and challenges in higher education

Learning disabilities

Learning disabilities can be defined as a group of disorders intrinsic to the individual (genetic and/or neurobiological origin) where there are serious difficulties to make use of listening, speaking, reading, writing, or reasoning to acquire certain knowledge. Along with these disabilities, other psychological and physical impairments can emerge, but they are not the

reasons for developing learning disabilities. Similarly, adverse environmental conditions cannot trigger these conditions (Mazzotti & Mustian 2013).

There are different ways to classify learning disabilities, but the most accepted ones are: 1) listening; 2) speaking; 3) basic reading; 4) reading comprehension; 5) arithmetic calculation; 6) mathematics reasoning; and 7) written expression (Fletcher et al. 2002). Among all these categories, the ones that are mostly recognized by society are: 1) dyslexia (reading comprehension): difficulty decoding speech sounds and letters that make a word or a sentence understandable; 2) dysgraphia (written expression): difficulty to create written content that is legible; and 3) dyscalculia (arithmetic calculation and mathematics reasoning): difficulty to understand numbers, mathematical concepts and mathematical calculations (Cortiella & Horowitz 2014; Grant 2017).

Contrary to popular belief, ADHD (Attention Deficit Hyperactivity Disorder) and ADD (Attention Deficit Disorder) are not considered as “specific learning disabilities”, but “other health impaired” (Silver 1990). These two conditions are mainly characterised by the trouble of staying focused and paying attention, circumstances that can affect learning, but that not necessarily require to receive a special education service as for the other categories mentioned before (Grant 2017).

A learning disability does not disappear over time but when diagnosed on time and with the appropriate support, people can perform perfectly fine in the different academic, working and social environments.

Mental disabilities

After learning disabilities, mental health conditions are the most common reported disabilities in higher education (Hubble & Bolton 2021). Mental disabilities can be defined as disturbances to a person's mental health and often include a combination of troubled thoughts, behaviour, emotions and relationships with others (WHO 2019). Among mental disabilities such as social anxiety, depression and autism, social anxiety and depression are the most common, and these conditions often co-occur (Mineka et al. 1998, Wittchen et al. 2011). People with social anxiety experience an intense fear or anxiety of being negatively evaluated, judged, or rejected in a social or performance situation (Veale 2003). Autism spectrum conditions (often shortened autism, ASC, or ASD) are a set of neuro-developmental conditions and disorders that emerge in early childhood (APA 2013), but are often not diagnosed until much later in life (WHO 2021). Autism can be characterised by some degree of difficulties in communication, social interaction, atypical patterns of behaviours, activities and narrow interests (APA 2013, WHO 2021). Depression is characterised by feelings of low mood, sadness, hopelessness, loss of interest, tiredness, and disturbed sleep, appetite and concentration (WHO 2022).

There can be many challenges for students with mental disabilities in higher education (Fabri et al. 2016). Autism, social anxiety and depression can be said to be spectrum conditions, meaning that it affects different people differently. Yet, there are some common challenges often reported: Autistic students report difficulties apprehending unwritten social rules, handling sensory aspects such as crowding, background noise and lighting, understanding why something needs to be done, interpreting open and ambiguous assignment instructions correctly and planning studies (Fabri et al. 2016). Fear of public speaking and troubles communicating and working in groups is another concern brought up (Fabri et al. 2016), and also shared by students with social anxiety (Wittchen et al. 1999). Social anxiety has been shown to correlate with social skill difficulties, learning and attention problems (Bernstein 2008) and to lead to students dropping out of school prematurely (Van Ameringen et al. 2003). Depression can impair the students' ability to function in school, to learn and to cope with daily life, it can lead to failure with studies, to premature drop out, and in worst case scenario to suicide (IBCCES 2019). Students suffering from depression and social anxiety

have reported not knowing where or how to seek help, and also a reluctance to seek help (Eisenberg et al. 2007).

Physical disabilities

A physical disability is the long-term impairment of a body structure that partially impedes or entirely suppresses its function (New Brunswick Human Rights Commission 2011). Depending on the health condition, this may affect a person's motor functions (mobility and dexterity), or sensory functions (hearing and vision).

Because of the nature of their limitations, people affected by physical and sensory disabilities may be most concerned with environmental barriers. These forms of disability are usually not associated with intellectual limitations, but apprehending traditional teaching materials can nonetheless prove to be difficult, especially for students with vision or hearing impairment.

The struggle of physically or sensory impaired students starts outside of the classroom, with the inaccessibility of higher education facilities. In several studies on European students, they reported being limited by the lack of ramps, suitable elevators or accessible toilets (Biewer et al. 2015, Vlachou & Papananou 2018). Students with sensory impairment such as vision or hearing loss may also be greatly affected by poor lighting and acoustics, respectively (Biewer et al. 2015, Bishop & Rhind 2011, Vlachou & Papananou 2018).

Once in the classroom, these considerations are still important, but the design of the curriculum and lectures can also damage the experience of physically impaired students (Moriña 2017). Obstacles range from inadapted technological resources to lecturers' attitude. Students with hearing loss may find it difficult following traditional lectures due to acoustics or the lecturer's style (talking distinctly in the classroom's direction; Vlachou & Papananou 2018). Visually or motor impaired students may find it difficult or impossible to take notes, either due to the pace of a lecture or its design, and find themselves having to rely on their peers for note-taking, when appropriate support is not available to them (Moriña 2017, Vlachou & Papananou 2018).

Although it concerns all students, comfort and stamina are important considerations for students with disabilities, who may get tired faster than average or even be in pain if they cannot take regular breaks (Collins et al. 2019).

A recurrent theme in student interviews is that they may be reluctant to disclose their disability and associated needs due to the negative attitude of people towards it (Biewer et al. 2015, Collins et al. 2019, Bishop & Rhind 2011, Moriña 2017, Vlachou & Papananou 2018). In some testimonies, the teaching staff has expressed doubts regarding a student's needs. On the contrary, some students have described the attention brought by expressing their disability as humiliating. Such behaviour can dramatically impact a student's success by demotivating them or preventing them from accessing the support they need, especially during periods of transition to higher education (Biewer et al. 2015).

In fact, friends, family, and staff's attitude often has an extraordinary influence on a disabled student's success, whether it is by giving essential support or hindering their academic evolution (Biewer et al. 2015, Bishop & Rhind 2011, Vlachou & Papananou 2018). Some students also report relying more on their friends and family than on supporting resources, even when they are in place. This in particular shows the limitations of higher education inclusion policies which should allow a student with disabilities to be as independent as possible.

Universal Design for Learning at the service of inclusion

Every learner has a unique profile that impacts their potential and success in education. This applies for all students, as different personality traits have been shown to influence learning approach, achievement, and commitment in different learning tasks (Rosander & Bäckström 2014; Veden, Thomsen & Larsen 2015). The unique profile is, however, especially true for students with disabilities, who may be excluded by the widespread educational practices that tend to follow tradition and have been designed with the average person in mind.

According to the social model and most definitions, disabilities are not only a result of health issues but of their interaction with a misfitting environment (Moriña 2017). As educators, it is highly relevant to know how different traits and special needs influence learning and affect student's experience of it (Fjelkner, Håkansson & Rosander 2019). Because it is impossible to re-design a curriculum for each individual student, the best solution would be a design that can accommodate all students simultaneously, challenge students without causing unnecessary stress and at the same time not compromising the quality of the education: a universal design.

Universal Design for Learning is a framework to create curriculums, tools and teaching materials to engage and support the widest diversity of learners, regardless of status, background or disability. Core principles of Universal Design for Learning is to 1) stimulate students interest and motivate them to learn by providing multiple means of engagement, 2) presenting material in multiple ways e.g. visual, audio, kinesthetic, and 3) letting students demonstrate their learning through multiple modes of expression (CAST 2018).

This concept could be especially beneficial to students with disabilities, who may still be marginalised by the need to ask for help or the lack of understanding of educators, even when support is available to them.

Moreover, Collins et al. (2019) suggest that making individual accommodations and giving too many resources could render students dependent, as they will not be available to them in the workplace.

With the concept of Universal Design for Learning in mind, we propose a non-exhaustive set of guidelines to improve the learning experience of students with disabilities, based on literature and our own conclusions (Table 1). As students all have a unique learning profile, regardless of disability, they may all find their experience improved by the diversity of options given by an inclusive educational framework.

There are, however, barriers perceived by teachers for implementing UDL. These barriers include lack of training and administrative support (Scott 2018), as well as time, engagement and motivation (Martin 2016). In addition, UDL guidelines that are provided on the CAST website are rather broad and can therefore lead to ambiguous interpretation (Lachheb et al. 2021).

Assessment and evaluation

Despite that the guidelines proposed here (Table 1) seek to unify different teaching strategies and needed facilities so all students regardless of conditions can reach the learning goals, their implementation can also come with some constraints. While new institutional infrastructures usually take into account the need for adequate services that improve the access to the different environments, many universities are still located in old buildings that do not provide suitable architectural elements for people with disabilities (Simonson et al., 2013). Renovating these spaces can also bring other obstacles if the universities have a historical value (de Velasco and de Oliveira, 2021). Other elements like signage or lighting are in theory easier to implement since they do not require significant alterations of the physical spaces, however they are still neglected due to a lack of proper

communication between all persons involved in the design, construction and use (de Velasco and de Oliveira, 2021; Simonson et al., 2013).

Regarding course material and content, the satisfactory application of novel pedagogical tools requires the involvement of both institutional representatives and instructors. The first ones because they oversee designing the modules and the second ones because they are responsible for executing the design together with their own experience and teaching style. In practice, several studies have shown that overall teachers present a positive attitude and are committed to use different pedagogical tools that facilitate learning of people with disabilities. However, they still have concerns about the lack of proper training or bias towards specific disabilities that can affect the relation with the student and the learning outcome (Freer and Kaefer, 2021). One way of addressing the instructor's problem of not feeling prepared to teach students with disabilities is described in the category of "awareness". Here, the guideline aims to highlight the importance of everyone acknowledging disabilities and the need for formal training (e.g. different teaching techniques, basic medical training, how to act in emergency situations). The possible drawbacks could involve considerable extra time spent on the training and an elevated cost by bringing in different specialists.

Providing support and assistance to students with disabilities not only influences the learning goals but generates a safe and more relaxed environment where the students can experience more inclusiveness and recognition of their necessities. The downside here could be that institutions most probably will provide general assistance and not specialised assistance. Overall, all the disadvantages exemplified here can be resolved if the institutional representatives, when taking decisions on the education system, put into consideration that all students have the right to access equally to the different education levels. To finalise, in order to determine which of the guidelines have been successfully implemented and how the students responded to them, an anonymous survey after a certain time could provide insights of the elements that need to be kept and the ones that need a revision for improvement.

Conclusion

In higher education, students with different personalities, abilities and challenges are put together to follow a traditional educational practice which is designed to fit the "average person". A traditional design risks not taking challenges for people with disabilities into consideration. This could be excluding students with certain personality traits, learning deficiencies, or mental and physical disabilities, resulting in students conducting their studies on an unequal basis.

Due to the impossibility to create a curriculum for each individual student, using the framework of Universal Design for Learning would be the best way to include and engage the widest diversity of learners. By using such a framework to adjust facilities, learning environments and educate staff in higher education, the conditions for all students to conduct their studies in the best possible way would be much improved, regardless of disabilities or challenges.

Table 1: Suggested guidelines in response to the challenges encountered by students with disabilities

Category of adaptations	Description	Constraint avoided	Condition affected	Source
Facilities/ Learning environment	Automatic/electric doors, ramps, elevators, adapted toilets	Lack of accessibility	Physical impairment	Biewer et al. 2015, Collins et al. 2019, Moriña 2017
	Improved signage (clearly visible, big police size, high colour contrast, lit...)	Lack of accessibility	Sensory impairment	Bishop & Rhind 2011
	Ensure stable lighting and quiet teaching area	Distractions	Autism, sensory impaired*	Bishop & Rhind 2011
	Communicate changes clearly and in advance (location, content...)	Unstable learning environment, low mobility for location changes	All disabilities*	Fabri et al. 2016, Vlachou & Papananou 2018
Course material & content/ Teaching style	Give clear information on boundaries, expectations and learning outcomes	False expectation, trespassing boundaries, learning the wrong thing	Autism*	Fabri et al. 2016
	Make transcripts available to all students for all lectures in various formats	Difficulty to take notes, difficulty to follow/focus	All disabilities*	Bishop & Rhind 2011, Fabri et al. 2016, Vlachou & Papananou 2018
	Record lecture and make them available to all students	Difficulty to take notes, difficulty to follow/focus	All disabilities*	Bishop & Rhind 2011, Fabri et al. 2016, Vlachou & Papananou 2018
	Offer multiple options when possible (reports, presentations, mode of study, flexible deadlines...)	Unsuitable examination methods	All disabilities*	Fabri et al. 2016
	Give regular breaks	Difficulty to follow/focus, strain of being seated for too long	All disabilities*	Collins et al. 2019

Category of adaptations	Description	Constraint avoided	Condition affected	Source
Course material & content/ Teaching style	Give extra time to students in need during examination	Too short examination time frame for students with trouble focusing, reading or writing	Learning disabilities, physical and sensory impairment	Collins et al. 2019
	Allow devices and arrangements, such as wearing hoods, sunglasses, headphones, handling “anti-stress toys”, and having designated seats	Stress, difficulties handling sensory stimuli	Autism	Fabri et al. 2016
	Gradual exposure for public speaking	Stress, social anxiety	Social anxiety, Autism*	Russel & Topham 2012
	<i>During group work:</i> encourage the group to set ground rules, provide support if communication fail, if someone is being excluded, or if labour division seems unfair	Stress, social anxiety	Social anxiety, Autism*	Farbi et al. 2016, 2020, Russel & Topham 2012
	Give concise, clear and unambiguous instructions, or explain the pedagogical purpose for ambiguousness; explain the reason for asking students to do something	Misunderstandings	Autism, Learning disabilities*	Fabri et al. 2016
	Make powerpoints readable by all students (big police size, colorblind-friendly)	Difficulty to read from afar, low colour contrast	Visual impairment	Bishop & Rhind 2011, Moriña 2017, Vlachou & Papananou 2018

Category of adaptations	Description	Constraint avoided	Condition affected	Source
Awareness	Create awareness for both students and staff on disabilities and where to seek help	Need to disclose special needs, prejudices/scepticism, the stigma of seeking help	All disabilities*	Eisenberg et al. 2007, Fabri et al. 2020, Moriña 2017, Russel & Topham 2012, Sarrett 2018, Vlachou & Papananou 2018
	Train staff in various ways of teaching	Limited number of options for students.	All disabilities*	Farbi et al. 2016
		Unprepared instructor with potential bias towards specific disabilities.		Freer and Kaefer, 2021
Support & assistance	Content in various formats with all the support information, advertised to all students before start and repeated on first day	Unknown support available, stigma to seek help	All disabilities	Biewer et al. 2015, Eisenberg et al. 2007, Russel & Topham 2012, Ryan et al. 2010
	Provide council and support from professionals for students with special needs**	Discrimination, specific individual constraints	All disabilities	Biewer et al. 2015, Collins et al. 2019, Moriña 2017, Russel & Topham 2012, Vlachou & Papananou 2018
	Provide note-takers, recorders, cameras (to zoom on content and/or film), laptops or specialised softwares for students in need	Difficulty to take notes	Physically and sensory impaired	Collins et al. 2019, Vlachou & Papananou 2018
	Provide a trained lab assistant for practical classes***	Impossibility to manipulate	Physically and sensory impaired	Collins et al. 2019
	Private tutoring	Misunderstandings	Learning disabilities	Writers 2021

* Note that most measures proposed to ensure a suitable learning environment for students with special needs may benefit to all student regardless of their health condition

** Students of LU may be referred to Accessibility officers: <https://www.lunduniversity.lu.se/student-life/before-you-arrive/students-disabilities>"

*** This may be also necessary for examination. Lab assistants must be familiar with the topic of study to avoid misunderstanding specific terms or techniques.

Process report

All group members developed the idea and agreed on a work progress. We divided the topics among us in order to search for literature, read articles and write about definitions, challenges and guidelines for students with different disabilities. Micaela focused on learning disabilities, Veronica on mental disabilities, Valentin on physical disabilities and Sofia on different personalities. We later decided to incorporate the personalities section into other sections. Everyone in the group took part in and actively discussed the project report in regular meetings. Micaela and Valentin drafted the introduction, Valentin drafted the table where all group members later incorporated the guidelines for each of their topics. Valentin and Veronica wrote about Universal Design for Learning, Micaela wrote the assessment and evaluation based on the feedback given, and Sofia drafted the conclusions and part of the guidelines section. Veronica drafted the abstract, and aims. All group members read, edited and approved the final version of the report.

Feedback summary

To improve this report we have, as a response to feedback, added a footnote to table 1 on where students with disabilities in Lund should turn to get proper support. We have also added a footnote to specify that lab assistants must be familiar with the topic of study to avoid misunderstanding specific terms or techniques. As a response to feedback on that we did not mention any disadvantages or difficulties in implementing UDL, we have added a paragraph about this in the end of the section about "Universal Design for Learning at the service of inclusion", and also in the new section "Assessment and evaluation". The feedback of whom the report is addressed to, resulted in clarification in the section "Aim of the project" as well as "Assessment and evaluation". Suggestion on anonymous surveys as a way to assess the UDL effectiveness and student's experience has also been included in the section "Assessment and evaluation" as a response to feedback. Finally, the references have been adjusted to be more uniform after feedback on the differences in the reference list.

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