UNIVERSITY ACCESSIBILITY AND INSTITUTIONAL RESOURCES FOR INCLUSIVE LEARNING ENVIRONMENTS

Elena Marin, **University Lecturer Ph.D.,**
University of Bucharest,
elena.marin@fpse.unibuc.ro

Abstract: *Universities must put accessibility first if they want every student, no matter the disability, to take part in campus life. When classes are designed for inclusion, students with disabilities receive direct help and every learner benefits because the same measures value a range of talents plus learning styles. Within this effort, the right technology and equipment are decisive for inclusive teaching. This paper looks at the accessibility resources that universities already provide but also at how those resources shape everyday face-to-face contact. The information comes from an Erasmus+ project - the pages that follow present the country level results. A mixed methods plan was used - numbers and narratives were combined. Twenty-one professors at the University of Bucharest answered two questionnaires supplying the numeric part. Interviews supplied the narrative part - the transcripts were coded for themes as well as summarised. Staff members report clear obstacles to accessibility and inclusion during in person teaching. Many say that hardware or software are adjusted to student needs but a large minority give a neutral answer signalling that access to learning tools still needs work. At the same time, the majority state that their university climate lets them treat students as equal partners in group work, a point that supports inclusion.*

Keywords: *inclusion; learning environment; resources; university.*

Introduction

Universities must remove barriers so that every student, whatever the disability, joins in on campus classes. Inclusive methods help not only students with disabilities - they widen everyone's learning - welcoming difference and - allowing varied ways to learn (Majoko, 2018). To serve disabled students well, staff need a clear picture of each person's specific hurdles plus preferences (Moriña & Orozco, 2020). During in person sessions, universities must supply the exact assistive technology and tools a student needs (Perales Jarillo, et al., 2019). Research points

to multiple areas universities must fund if they want a campus open to all. The first is a full needs survey that maps the wide range of difficulties but also preferences among disabled students (Stufflebeam, et al., 2012). Such a survey must look past stairs and doors to cover vision, hearing, cognition, preferred ways to learn as well as particular needs like those of students on the autism spectrum (Van Hees, et al., 2015). When universities grasp needs in this broad way, they can craft supports that fit every kind of ability and disability (Gillespie-Lynch, et al., 2017).

After the assessment needs analysis, staff should draw up a personal accessibility plan for each student who has a disability - the plan is built on the principles of universal design for learning (Ferguson, et al., 2019). The student, disability support services, the teaching staff and any other relevant parties should work together to write the plan (Wilson, 2017). When the university tailors open educational resources plus open practices to the exact needs of each student, it gives that student an academic experience that is genuinely inclusive and equitable (Zhang, et al., 2020). Accessibility solutions have to be flexible but also adaptable, because the needs of students with disabilities change over time. Technologies and equipment must allow students to alter settings, preferences as well as functions as their requirements shift (Oliver, 2002). Universities also have to be ready to try other approaches and to change the plan whenever necessary so that accessibility or inclusivity remain in place (Dolence & Norris, 1995).

As shown earlier meeting the needs of students with disabilities demands multiple coordinated steps - carry out full assessments of what each student requires, draw up a personal accessibility plan for each one, talk with the student early and often, design every service around the student's own experience, stay ready to adjust plus teach the student to speak up for personal needs. When universities put those steps first - when they pay close attention to the exact barriers and preferences of students with disabilities but also supply the specific technology and equipment each student requests - they build classrooms as well as campuses where every student has a fair chance to succeed and to take part in every academic activity.

Key dimensions regarding accessibility in higher education

Accessibility in higher education is essential for creating an inclusive learning environment where every student, whatever their abilities or disabilities, has fair access to educational opportunities.

It covers various issues, such as accessible instruction by using alternative formats and inclusive pedagogies, accessibility of digital

information by means of accessible websites and online databases, and accessibility of physical space by ramps and lifts.

The initial reason is connected with the infrastructure: universities should make sure that the lecture room, classes, and communal spaces are tailored to people with disabilities (Edwards et al., 2022). With the introduction of lifts and open restrooms alongside seating zones, all the students are able to move freely and sit anywhere (Morina & Morgado, 2018; Jayasinghe et al., 2023). Universities are supposed to invest in assistive technologies in order to cater to the needs of students with special needs. It is the second dimension, as it brings out the importance of inclusiveness and equity in tertiary education (MacLachlan, 2018). These technologies are necessary to students with diverse needs: screen readers, speech recognition software, and other input devices are necessary (Wolbring & Lillywhite, 2021; Shpigelman, 2022). Screen readers would enable students with visual impairments to access digital content on their own since they can convert text into speech that is synthesized, or with Braille output. Speech recognition software allows students with mobility impailments to use spoken instructions to enter text and enhances accessibility and efficiency. Other types of alternative input devices that can be used to overcome the specific functional limitation or disability to allow students to effectively work with digital devices are ergonomic keyboards and adaptive mice. Integration of learning management systems ensures the compatibility of assistive technology and enables students to move through course materials with ease and engage in discussions (Couzens, 2015; Smith, 2018). The other major consideration is that universities have support and training programs aimed at ensuring students utilize the help of assistive technologies effectively to make the learning process more accessible and inclusive as every student has an equal opportunity to succeed.

The third dimension focuses on the implementation of the learning management system (LMS) platforms with the accessibility functionality embedded into it; it is the most important in the development of the inclusive learning environment in which all students, regardless of their abilities, can access course materials, submit assignments, and communicate with instructors without difficulties (Baker, 2019). By focusing on the choice of LMS platforms, which comply with accessibility standards, such as the Web Content Accessibility Guidelines (WCAG) (Schimmelpfeng and Ulbricht, 2021), universities can make students with disabilities have the same access to educational resources and opportunities.

Such accessibility provisions can comprise of customizable user interfaces, navigation on keyboards, providing an alternative description of multimedia objects, and compatibility with screen readers and other assistive technologies. Investing in available LMS platforms helps universities to show their interest in advancing equity and inclusivity in higher education, which eventually benefits students and their learning experience (Bongey, 2012; Wenzel and Moreno, 2022).

In the case of teaching philosophies, the idea of universal Design Principles is the most probable to be linked with inclusive teaching strategies. The consideration of the universal design principles on campus buildings through construction and renovation helps in fostering inclusivity by developing spaces that can be used by individuals with diverse abilities (Burgstahler, et al.,2010). Wide doorways, clear signage, and tactile maps are beneficial to all students and the university overall because they are helpful not only to individuals with disabilities but to everyone (Watson, et al.,2013; Tipian, & Sawadsri, 2017). In the process of teaching in this philosophical approach, university educators must do their best to ensure that course resources are available to students with disabilities (Burgstahler, et al.,2004; Gin, et al., 2020). These include the following: the application of readable fonts, text description of images, and arrangement of content in a systematic format that is compatible with screen readers (Morina, 2019). Also, flexible teaching practices, including active learning approach, collaboration in pairs, and multimedia presentations, are regarded as beneficial, serving different types of learners and increasing their interest in students with varying abilities (Al-Kaabi, 2016).). Promoting other types of engagement, like written feedback or online discussions, will support students who are likely to be disadvantaged in a traditional classroom environment (Kanchana, 2019).

Lastly, to be prepared to become an inclusion in academic learning space, university teachers need to be provided with training and support programs to raise their awareness of inclusion issues and provide them with the skills required to offer the necessary inclusion to diverse learners (Moriña & Carballo, 2017; Caena, 2019). Peer mentoring programs, online learning materials, and workshops can help instructors to apply inclusive principles in their instruction (Marin, 2014; Solis-Grant, et al.al., 2023).

Overall, to encourage the idea of accessibility in universities, it is a multidimensional process that involves technological, infrastructural, and pedagogic provisions. Universities can create inclusive teaching environments by investing in assistive technologies and providing

accessible facilities as well as by encouraging inclusive teaching practices that allow every student to feel appreciated and empowered to engage in face-to-face activities. Diversity and inclusion are right not just morally and legally but also add value to the learning experience of individuals within the university in general. In the future, the further work on the improvement of accessibility will be needed to facilitate equity and ensure academic success in all students regardless of their abilities.

Research Approach

Objectives of the Study

The main purpose of the current research is to explore the availability of resources that exist within the university settings and which are designed to facilitate the inclusion in the face-to-face learning processes. This entails exploring the continuum of the facilities, technologies and support systems offered by institutions of higher learning to cater to the needs of various students and to support an inclusive learning process. In addition, the research will aim at identifying a gap and shortcomings in these provisions as understood by the university instructors and learners. The research aims at shedding some light on the challenges and opportunities of ensuring equitable access and participation of all learners in universities by mapping the accessibility terrain in universities, which in turn will contribute to the further development of inclusive practices in higher education.

Methodology and Participants

The research design was mixed methodology combining both the quantitative and qualitative methods. The quantitative data were gathered through the use of a questionnaire that was given to 20 teachers in the University of Bucharest. The study followed a descriptive-analytical model (Biber, 1994) that considers institutional settings, as well as personal aspects of view. The questionnaire included four statements, each of which was rated on a 5-point Likert scale with a strong disagree (5) and a strong agree (1) in both directions.

Interpretation of qualitative data was determined by means of content analysis of transcripts of interviews wherein the objective was to have large-scale data condensed into moderately substantiated, interpreted data (Anderson, 2007). Semi-structured interviews were chosen with five participants (n 5). The identification of the respondents was coded with numbers (e.g., I1 to I5). All interviews were tape-recorded, transcribed and sent back to the participants to ensure they verified

with them. This data were then analyzed and grouped into themes that are prevalent, such as awareness of the student learning needs, adoption of varied learning styles, availability of non-judgmental discussion of cultural and social differences, and promoting diversity in the classroom. The involvement was voluntary and ethical clearance was taken at the institutional review board to protect human subjects.

This paper presents only the first aspect of a larger study that was performed within the framework of the Erasmus+ project Coaching Academics as Learners to Inclusive Teaching in Optimal Networks (COALITION; project no. KA220-HED-18399197). The long project came up with several dimensions that tried to expand on the insights into readiness of university instructors to an inclusive approach to academia: (1) Accessibility and availability of resources in universities so as to support an inclusive approach to academia (advanced in this article); (2) The willingness of university instructors to embrace an inclusive approach to academia; (3) Curriculum changes that support an inclusive approach to academia, including but not limited to: curriculum design, methodology and evaluation of curriculum; and (4) Attitudes, skills and concerns of university instructors to the facilitation of inclusive.

Results

According to university personnel, there are some serious obstacles and challenges in the context of inclusivity and accessibility in the face to face activities in universities.

Regarding the equipment and technical support, the respondents mainly agree that such facilities are adjusted to student needs. However, no one in the minority agreed or disagreed with this, which indicated that some room to improve was available. Accordingly, 57.1% of respondents confirmed that the equipment and technological support are accommodated to the needs of the students; 28.6% were indifferent; and 9.5% preferred not to agree or strongly disagreed.

The equipment and technological support are adapted to the needs of the student					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	4,8	5,0	5,0
	Disagree	1	4,8	5,0	10,0
	Neither agree nor disagree	6	28,6	30,0	40,0
	Agree	12	57,1	60,0	100,0
	Total	20	95,2	100,0	
Total		20	100,0		

Table 1 University teachers' perspective on the equipment and technological support are adapted to the needs of the student

There were also certain groups of students, which the teachers in the interviews pointed out needed technology support e.g. students with visual impairment or minority groups. One interviewee remarked:
`when I teach in amphitheatres which lack modular desks is a tremendous issue definitely space. I had a student in a wheelchair and she was forced to remain right in front of the first desk. That was very uncomfortable to her, since she did not want to remain beside her co-workers. In one of the old university buildings, there is no elevator and I believe there is a smaller entrance door that will not allow a student in a wheel chair to pass. Some of the other missing resources include; the absence of a tactile rug to the blind students since in my university there is never a shortage of visual impaired students in my department of special education. But we want some sound amplifiers to students who have hearing problems I think we want them all the student secretariat office because there is only a small open window between students and secretary in charge I imagine we will all profit by this resource even when we have or have not hearing problems` . (I2)
In terms of resources adaptation when asked about the same it is clear that there was a considerable percentage of respondents who agreed that the learning resources are adapted to the needs of students and 47.6% confirm that learning resources are adapted to the socio-cultural and cognitive developmental needs of the students. Nevertheless, 28.6 %felt neutral and 14.3 % disagreed or strongly disagreed and said that more resources tailored towards learning needs were needed.

Available learning resources are adapted to the social, cultural, cognitive development needs of students					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	4,8	5,0	5,0
	Disagree	3	14,3	15,0	20,0
	Neither agree nor disagree	6	28,6	30,0	50,0
	Agree	10	47,6	50,0	100,0
	Total	20	95,2	100,0	
Total		20	100,0		

Table 2 University teachers' perspective on Available learning resources are adapted to the social, cultural, cognitive development needs of students

The teachers further commented that they tend to create learning materials on their own. One of the instructors said: `in reference to our courses, that we create the educational material. We choose articles, prepare exercises` (I1).

However, educators are faced with the problem of finding the appropriate material because there is no adequate investment in the improvement of the learning environment, faculty motivation, and attraction of new employees. Although university educators make an attempt to design educational material, it may happen that certain groups do not have sufficient materials. One respondent described it as: `an issue of lack of access to Braille material and therefore gave more attention to audio material and accessibility software, yet these are also not sufficient in the university context`. (I5)

The other dimension is that of architectural facilities of inclusive pedagogy. The statistics show the division of opinions between the suitability of architectural facilities. 38.1 % of the respondents would say that architectural facilities allow them to embrace inclusive pedagogies; Same percentage would say that it is neutral; and 14.3 % would say that it would disagree or strongly disagree.

Architectural facilities (e.g., wheelchair access, lifts, modular desk, etc.) allow me to adopt inclusive pedagogies					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	4,8	5,0	5,0
	Disagree	3	14,3	15,0	20,0
	Neither agree nor disagree	8	38,1	40,0	60,0
	Agree	8	38,1	40,0	100,0
	Total	20	95,2	100,0	
Total		20	100,0		

Table 3 Architectural facilities (e.g., wheelchair access, lifts, modular desk, etc.) allow me to adopt inclusive pedagogies

Lifts came out as the important architectural attributes in the institutions that were being investigated. Although other sites have managed to resolve the issue of physical accessibility, one of the interviewees added that: `in our previous location where we did not have an elevator, of course, physical accessibility was an issue. In this case, we have solved this issue, though,`(I2). However, there are still instances where elevators cannot be ignored especially when students have difficulties in moving about the interior of the building.

Furthermore, the educators also revealed other deficiencies in architectural facilities, such as poor furnishings. Such facility design has a strong impact on the learning activities, either supporting or limiting pedagogical space. The limitations, which were observed, were a lack of rooms that can accommodate various student activities and the lecturer room layouts that either create challenges or create opportunities in organizing the course.

Inclusion is still an issue even though there has been an attempt to make education accessible. The special needs students are not always physically present in the same space but feel excluded, which is usually due to their seating at a distance much more than the others. The space arrangement is a major problem as one of the teachers gave an example of an amphitheatre with no modular desks. *`I had one student in a wheelchair who was required to sit down singly before the first desk. This was not comfortable to her because she wanted to be near her classmates`* (I3).

In regard to the dynamics of group work in the context of a higher education institution, most of the respondents (47.6%) agree that classroom environments are conducive to teamwork. However, some minority expressed their disagreement pointing out that 21.1% disagreed and 9.5% strongly disagreed thus showing that there could be some limitations in providing collaborative learning environments.

The classroom space favours group work					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	4,8	5,3	5,3
	Disagree	4	19,0	21,1	26,3
	Neither agree nor disagree	2	9,5	10,5	36,8
	Agree	10	47,6	52,6	89,5
	Strongly agree	2	9,5	10,5	100,0
	Total	19	90,5	100,0	
Total		20	100,0		

Table 4 University teachers' perspective on whether the classroom space favours group work

The conflict between teachers is emphasized through interviews of them, in which they identify the elements that affected the group working process. Among the issues that were raised was the issue of class size: *`we usually teach in small classes, but when speaking to more than seventy or even a hundred students, it is hard to create an individual contact with each student`* (I1).

Majority of the respondents confirm that their setting helps them to promote student collaboration as equals, which is a good attribute to inclusiveness. Statistics indicate that 61.9% concur that their environment encourages this kind of collaboration with 14.3% neither agreeing nor disagreeing with the fact and 9.5% disagreeing or strongly disagreeing.

My environment allows me to encourage my students to collaborate as equal partners					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	1	4,8	5,0	5,0
	Disagree	2	9,5	10,0	15,0
	Neither agree nor disagree	3	14,3	15,0	30,0
	Agree	13	61,9	65,0	95,0
	Strongly agree	1	4,8	5,0	100,0
	Total	20	95,2	100,0	
Total		20	100,0		

Table 5 University teachers' perspective on how environment encourage students to collaborate as equal partners

Interviews of teachers also shed some light on dissent and brought out attention to actual difficulties that students encounter at the classes. Questions of communication, mobility, and accessibility are viewed as a major impediment to establishing inclusive learning processes where students can learn on equal terms. One of the teachers said, that these `*obstacles impede the inclusion and deny students the opportunity to build relationships, communicate effectively as equal participants and see the classroom environment as something that should take the first priority as the solution to the problems*` (I5).

Access to technological support of the faculty is subject to varied opinions. Whereas 10% of the respondent's state that they have a dedicated support unit, 45.0 per cent states otherwise, and 25% is ambivalent. This is also reflected in interviews where teachers admitted deficiencies and indicated that they needed help form a technological centre.

I have access to a unit which provides me with technological support					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly disagree	5	23,8	25,0	25,0
	Disagree	9	42,9	45,0	70,0
	Neither agree nor disagree	3	14,3	15,0	85,0
	Agree	2	9,5	10,0	95,0
	Strongly agree	1	4,8	5,0	100,0
	Total	20	95,2	100,0	
Total		21	100,0		

Table 6 University teachers' perspective on have access to a unit that provides technological support

To support the above, one of the teachers said: `training of course. It is my wish that I had more information and training on the matters of the digital issue... I do not have much training; there are instances when I just play a video on YouTube or just show my PowerPoint presentations due to the lack of training (I1).

Moreover, the need to have extra technological support by the university especially in assistive technologies was noticeable. According to another teacher it is important to have `a clear lack of assistive technologies in our universities. It is depressing to see students with various needs having no access to the tools and resources that would help them to achieve academic success. Beyond that, I believe that the lack of assistive technologies does not only disrupt their learning process but also compromises their possibility to be fully engaged in the learning process` (I5).

Conclusions

The results indicate that despite the efforts of universities to deal with the inclusivity and access, serious problems exist. Even though most of the respondents confirm that equipment and technological support is modified to suit the needs of students, there is still a significant number of respondents who have not made up their minds yet, which means that it could be enhanced. Similarly, most of them will say that learning resources support the needs of students but still some respondents differ on this matter, particularly on issues that relate to availing of learning materials to particular students like the visually impaired. The situation of architectural facilities is not a homogeneous one. Examples of commendable efforts, like accessibility of wheelchairs and gender-neutral toilets, are balanced with a series of challenging issues, including insufficient furniture layout and troublesome room arrangement, so it all works against inclusivity. Further disagreement is being witnessed over group work especially in relation to personal relationships in bigger classes. Positively, most of them feel that their school environment supports the promotion of student collaboration as equal partners. However, these issues, including communication difficulties and a lack of access to technological assistance, are persistent, which affects the effectiveness of the faculties and denies the students their full experience of the learning process. To sum up, although there has been a lot of improvement, universities still need to deal with these issues and provide equal opportunities and access to all students. This can be by enhancing the technology to support, enriching learning material and further adjusting the architectural premises to facilitate inclusive pedagogies.

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