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## **The MUSE project. Improving access, participation and learning of students with disability in Latin American universities<sup>1</sup>**

*Alessia Cinotti<sup>2</sup>, Luca Ferrari<sup>3</sup>, Giulia Righini<sup>4</sup>, Enrico Angelo Emili<sup>5</sup>*

### **Abstract**

This paper aims to present the activities carried out within the MUSE European Project, with specific regard to the Work Package “Modernization and Strengthening of Human Capital”, led by University of Bologna. One of the main goal of this project is the creation – in Chile, Mexico and Argentina – of *Students with disabilities Support Centres* and long-term strategies for the *access* and *retention* of students with disabilities in the Higher Education system. In order to design and create these Support Centres, the University of Bologna trained 30 administrative and academic staff from Latin America on the main conceptual issues related to: Inclusive Approach, Universal Design for Learning, ICT for inclusion and pedagogical design of active learning environment. The training aims to provide pedagogical and didactic competences – in particular on the use of ICT – to foster the inclusion of students with disability at university.

**Keywords:** inclusion, university, disability, ICT, learning environment.

<sup>1</sup> This contribution, fully shared by the four authors, was drawn up as follows: paragraph 1, 2 and 3 by Alessia Cinotti; paragraph 4, 5 and 6 by Luca Ferrari; paragraph 7 and 8 by Giulia Righini; paragraph 7.1, 7.2., 7.3 by Enrico Angelo Emili.

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## Introduction

The “Modernity and Disability: Ensuring Quality Education for Disabled Students” (MUSE) project is co-financed by the European Commission through the ERASMUS + programme. The proposal is a Key Action (KA2) of Cooperation for Innovation and Exchange of Good Practice – Capacity Building in the field of Higher Education (HE). The three Latin American (LA) countries involved are Chile, Mexico and Argentina, with the support of European (EU) institutions<sup>6</sup>.

The motivation behind this Project comes from the awareness that, despite an anti-discriminatory legislation framework, in these three LA countries, there are enormous gaps between the international law, the local policies and the practices of inclusion. In fact, HEs in Chile, Mexico, Argentina – and in LA countries in general – are mostly isolated in the task of granting students with disability’s access to high quality education according to their needs.

Democratisation of HE has helped to ensure a growing trend of increasing enrolment of students with disabilities, although it is still not significant enough in terms of potential numbers. According to the World Health Organisation, 15% of the world’s population are estimated to live with some form of disability (World Report on Disability, 2011)<sup>7</sup>. The adaptation of HE to cater for disability is of major importance from an economic, political and social point of view. Only through this the employability of persons with disabilities can be enhanced, and public policies – focused on the promotion of work, income security, poverty prevention and social inclusion – can be supported. Consequently, the international community is increasingly taking into consideration the rights of students with disabilities with particular attention to their access to HE. The Convention on the Rights of Persons with Disabilities was ratified by Chile, Argentina and Mexico in 2007.

## Inclusive approach

In the world, according to the World Report on Disability (2011), 90% of person with disabilities have no access to services, over 85% are unemployed and less than 4% of minors with disability have access to formal education.

<sup>6</sup> Department of Education Studies – University of Bologna. Scientific Director of the project: Professor Roberta Caldin. Principal members and collaborators of the project: Alessia Cinotti, Roberto Dainese, Luca Decembrotto, Enrico Angelo Emili, Luca Ferrari, Giulia Righini. University of Alicante (Spain). University of Coventry (UK). Four Elements Foundation (Greece).

<sup>7</sup> Further details will be provided in the following pages.

These persons are nearly always excluded from the advantages of development. Disability is therefore both the cause and the effect of poverty, since persons with disability are subject to discrimination and have no access to equal opportunities. This situation limits their participation in society and entails continuous violations of their human rights. With the advent of the *Convention On The Rights Of Persons With Disabilities* (CRPD) in 2006, disability can no longer be considered only as a health issue. The CRPD emphasises that the persons with disability must be beneficiaries of all policies, since they are *citizen* like all the others (Italian Development Cooperation Disability Action Plan, 2013, pp. 8-13).

The term inclusion was officially used for the first time in the educational field and it was socially and culturally recognised in 1994, within the Salamanca Declaration. It marks the start of change and renewal in pedagogical and cultural terms, even if the different interpretations of the concept of *inclusive education* determine the choice and implementation of very different political decisions and educational practices from country to country (Caldin, 2013). The international political and scientific debate has backed the concept of inclusion, in which access, participation of *all students* (including students with disability) are considered a priority. Moreover, UNESCO (2000) recommends replacing the term “special educational needs” with “education for all” in order to promote real educational and cultural changes. The concept of *education for all* considers diversity as a value and an ordinary element of life (Gardou, 2006). In other words, inclusion aims to change the traditional educational view, typically based on the “specialised answer to special needs” (focus on people with disabilities), into an “ordinary answer to the needs of all”. As stated by Caldin (2013), in the pursuit of inclusive perspective, scholars of Special Education continue to consider a fundamental task to ensure that a person with disability’s achievements become opportunities for all.

Transforming a “specialist response” into an “ordinary” one is one of the most important and yet one of the most complex challenges facing the educational and social system, where – as already highlighted – a focus on the “person with disability” still seems to prevail over a broader inclusive approach that included the role of the *environment*. An inclusive approach should base on the *right* of everyone to learn and participate thanks to a facilitating environment without restrictions or limitations (social, cultural, political barriers etc.).

### **The right to education**

Students may be disadvantaged in their possibility and in their Project of Life if they do not have equal possibilities to access education opportunities

(starting from the childhood). The UN Convention draws our attention to the importance of contexts within integration and inclusion processes, both in European and non-European level: thus, according to the CRPD definition of disability “is an evolving concept and that disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinders their full and effective participation in society on an equal basis with others” (preamble).

Another important aspect to highlight is that CRPD refers to disability using the *Biopsychosocial model* which is in contrast with the medical model that considers persons with disability as sick, unable and invalid (Biggeri and Ciani, 2015). The Biopsychosocial model is not only based on an integration of two opposing models (medical and social), but it attempts to achieve a synthesis, in order to provide a coherent view of different perspectives of health based on the interaction of biological, psychological and social factors (ICF, 2001).

The Convention on the Rights of Persons with Disabilities represents the conceptual framework for considering the issue of disability. This perspective is based on principles that support, protect and ensure people with disability’s full and equal enjoyment of all human rights and fundamental freedoms. According to this perspective, university intents and actions have to take into deep consideration the framework of human rights, for instance the right of education, independent living, active citizenship, employment and inclusion. In particular, as stated in the Guidelines of the National University Conference for Disability Delegates (CNUDD): the commitment is to promote and support access to university, to education and to lifelong learning. This is based on the belief that knowledge, HE and participation in research foster full human development, entry into the job market and means of freedoms – understood as opportunities to fulfil personal aspirations. Awareness and training of the administrative and academic staff on the right of education, equal opportunities and full inclusion of student with disability or specific learning disorders is both a goal and a strategic instrument to develop the quality of the university system (CNUDD, 2014, p. 5).

The UN Convention represents one of the most interesting documents considering its inclusive community-based proposal that is rooted in the fertile ground of the rights for all, without any distinction. The issue of rights recalls the *right to education* which is based on the right of all learners to a quality education that meets basic learning needs and enriches lives. Focusing particularly on vulnerable and marginalized groups, it seeks to develop the full potential of every individual. Inclusive Education ensures that “persons with disabilities are not excluded from the general education system on the basis of disability, and that children with disabilities are not excluded from free and compulsory primary education, or from secondary education, on the basis of disability” (UN, 2006).

Educational system should in fact be the place where the right to education is guaranteed to every student, according to his/her own capacities and inclinations, offering educational responses and teaching methods that attentively and promptly match the transformations of the social fabric (Armstrong and Barton, 1999).

The right to education is a fundamental condition from the isolation to the participatory frame toward the possibility of emancipation. With the verb “to emancipate” it is meant the opportunity to free oneself from the restraint, the control or the power of someone else and, in particular, to free oneself from any kind of slavery (Biggeri and Ciani, 2015; Biggeri and Ferrannini, 2014).

### **The pedagogical design of active learning environments to support didactic inclusion at University**

As underlined in the initial part of this paper, one of the main expected results from the MUSE project concerns the creation of Students with disabilities Support Centres. Each Centre will purchase several Assistive Technologies that will be used to improve the teaching-learning process and delivery for students with disability. This focus on teaching and learning processes – and not only on technical tools or on the single student with disabilities’ needs – recalls some strategic issues that should be considered, at the same time and by each University, both in the learning environments’ design and in the didactic design of teaching-learning models.

This paragraph presents some brief and non-exhaustive considerations regarding the relationship between the organization of spaces, engagement and impact on student learning. A few questions are behind our reflection: to what extent does the student change his/her way of learning according to the environment in which he/she is located? To what extent is the “container” (the class setting, a “virtual” environment that hosts the interaction between the members etc.) able to change the quality of the student’s teaching-learning experience? What role does the teacher play in this educational mediation process?

In the field of pedagogical sciences, the focus on learning space is not a new topic. From «Don Milani to Montessori and Dewey, from Freinet to Malaguzzi, anyone who has felt the need to follow the student-centred approach has come to the conclusion that the chair and its location on the predella are the emblem of a hierarchical relationship» (Mosa and Tosi, 2016, p. 9).

However, both in a scholastic and university scenario (albeit with few positive exceptions), this really desired change is not, in most cases, achieved. If we observe a school or university classroom, we instantly grasp that the

most common setting of the classroom is still the traditional-transmission one. However, problematizing this argument, the use of a traditional physical setting of the classroom should be considered as an “independent variable” compared to the teaching methods of the teacher. According to Trichero (2014), for example, even the “traditional lesson” can be effective; everything depends on how it is carried out by the teacher: «the frontal lesson is effective when it is interactive, structured with actions aimed at maximizing the effectiveness of the information transfer and the construction of valid mental representations by the students». (Mosa and Tosi, 2016, p.11).

In our reflection, the theme of the student’s and teacher’s agency takes a relevant value. The agency of the students develops when they are involved in the whole learning process, in the choices regarding the way and the reasons why they are learning (Wenmoth, 2014). Evidently, using the words of Wiggins and colleagues (2016), a better understanding of how students perceive their learning environments and on why they do or do not choose to engage in an activity will help to increase the best practices of the active learning’s didactic design.

At the same time, we agree with Sloan (2006) when he emphasizes the need to better understand the way in which physical, social and knowledge structures, as well as available resources, norms and curricula, are able to facilitate or hinder the teacher’s agency. Career development paths need to be designed to create true opportunities for transforming teacher practices. That is why the main goal of professional development is to transform teacher practices in order to increase learning opportunities for all students.

### **Architectural design Vs educational design?**

A recent study by Steelcase Education (2014) reports that the design of learning spaces has a physical, social and psychological effect on students. The findings of this survey underline that policy makers from educational institutions, architects and designers should know that investing in solutions, which are intentionally designed to support active learning, can create more effective classes and greater involvement in students.

However, authors like Temple (2008) emphasize the lack of systematic and empirical studies that examine the classroom as a physical space and its connection to teaching and learning. Brooks (2011), in addition, argues that the connections between classroom design, pedagogy and teaching-learning strategies should be further explored.

It follows from this that, concerning the subject in matter, it is possible to identify two different views in the pedagogical research.



On the one hand, some researches show that the creation of active settings would lead to an “improvement” of students’ learning. In this case the focus is – above all – on spaces’ design in “architectural” terms. Changing the physical setting guides and shapes the teaching strategies that teachers might implement in a specific “learning space”. In this case it is necessary to invest in furnishings, technologies and structures that set up the learning environment.

On the other hand, instead, some researches emphasize that the main variable – which is able to influence the above mentioned “improvement” (in terms of students’ learning, engagement and performance) – is the pedagogical-didactic design of active learning (Stoltzfus and Libarkin, 2016). The pedagogical-didactic design is the most important feature of effective education even with respect to where active learning takes place (in or outside of the classroom). In this second case a significant investment is required, in terms of training (initial and ongoing), on teachers’ didactic skills and knowledge of both didactic models and teaching-learning strategies and methods which can lead to different learning objectives. From this point of view, the learning space has to be set up taking in high consideration the didactics activities’ needs.

An attempt of synthesis, between those above mentioned approaches, is well described by Perks (2016) in the following statement: we would argue that the alignment of design and pedagogy is a central consideration to any classroom modification and both need to be considered in tandem. In other words, changing the physical environment of the classroom appears to be worth doing if the change corresponds with subsequent changes to pedagogical practices.

### **Some pedagogical recommendations for the construction of active learning environments within the University context**

In the “Universal Design of the learning spaces”, some interesting recommendations proposed by Walker and colleagues (2011) and by Stoltzfus and Libarkin (2016) are summarized and readapted. These recommendations should guide the process of designing and implementing the Disabled Students Support Office foreseen in the MUSE project.

- In higher education (HE) contexts with sufficient financial resources, the “administrators” (e.g. department heads etc.) could consider the possibility of renewing the learning spaces by implementing Active Learning Classroom (ACL)<sup>8</sup> and Flexible Learning Space (FLS) where enable the promotion of

<sup>8</sup> ALC is the term often used to describe the student-centered, technology-rich learning environments at the University of Minnesota (UoM). UoM ALCs feature large round tables with places for nine students. Each table supports three laptops, with switching technology that

active learning activities in order to improve the results of student learning and increase student wellbeing.

- On the contrary, in higher education (HE) contexts with scarce economic resources, the greatest efforts of the HE “administration” should be directed in the ongoing training of teachers; in the creation of physical flexible learning spaces (with flexible furniture) rather than incorporate expensive technologies into the classroom (as in the case of Active Learning Classroom), in the training of didactic tutors able to maintain frequent and high quality interactions with students and teaching staff during lessons.
- Teachers who teach in a FLS and ACL should be aware that the decentralized nature of space can make traditional and expositional teaching techniques difficult. In these classrooms, teachers should know and apply a variety of techniques and approaches to active learning (e.g. peer instruction, questioning, collaborative learning etc.).
- University development programs – that are designed to support the redesign of courses according to ACL and FLS “approach” on physical flexible spaces – should merit ongoing or greater institutional support.
- In conclusion, we present further relevant recommendations that came to light through the analysis of the articles considered in this paper:
- Students from different demographic groups perceive the same class activity in different ways. Several students’ populations are disproportionately influenced by active learning activities. The underlying cultural factors – including gender, geographic location, socio-economic condition – strongly influence students’ involvement during their active learning.
- The dynamics of small groups and the enthusiasm of teachers, could influence students’ willingness and their inspiration to engage in complex learning activities.
- The inclusion of technology in the classroom, the remodelling of classrooms to facilitate interactions and the flipped classroom, is not a panacea that necessarily produces better results for students.
- Although the evolution of media and digital devices have allowed us to broaden horizons of knowledge as a process of progressive outsourcing of it (Ferri and Moriggi, 2016), we need to consider the didactic design as a central point of the teaching and learning experience. It is the physical

connects them to a fixed flat-panel display projection system, and three microphones. There is a centered teaching station which allows the instructor to select and display table-specific information. Multiple white boards or glass-surface marker boards are distributed around the perimeter of the classrooms. Retrived from: <https://cei.umn.edu/support-services/tutorials/active-learning-classrooms>

setting that is modified according to the teaching-learning needs, not the contrary. In other words, the notion of “improvement” of the physical characteristics of a learning environment has little meaning without some specific pedagogical objectives or an explicit understanding of the kind of learning environment that a teacher intends to create.

### **Information and Communications Technology (ICT) for inclusion at University**

The opening lines of this paragraph refer to the Article 30 “*Participation in cultural life, recreation, leisure and sport*” – *Convention on the Rights of Persons with Disabilities* (UN, 2008). The first point states that «1. States Parties recognize the right of persons with disabilities to take part on an equal basis with others in cultural life, and shall take all appropriate measures to ensure that persons with disabilities:

(a) Enjoy access to cultural materials in accessible formats [...]». (UN, 2008, p. 22).

At the moment, all the Member States involved in the MUSE Project ratified the Convention and endorse principles and values of inclusion and Education for All (UNESCO, 2000). In particular, among the main goals, we draw the attention to the No. 3 that states:

«3. Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life skills programmes». (UNESCO, 2000, p. 16).

In order to ensure the right of participation to all students, all the Institutions involved in the MUSE Project identified the following learning needs:

- training about the technology that is available and how it works (if possible, focusing on open source and free software);
- staff training about how to teach people with Disabilities and Learning Disabilities and how to adapt the learning materials according to their needs.

Considering these learning needs the University of Bologna organised three workshops (in Bologna, Alicante and Monterrey – Mexico) on the following topics:

- *Universal Design for Learning* (CAST, 2011);
- *open-source software* (to ensure access to digitised learning materials and to support independent learning);
- general criteria for documents’ *high readability* (in particular, to facilitate the use of analogue and digital learning materials).

### **First workshop: Universal Design for Learning**

In the first workshop, through the analysis of some evidence based researches' results (Hattie, 2012; Mitchell, 2008), the workgroup examined the most efficient inclusive learning strategies. In particular, the attention was focused on the UDL's principles: in fact, the UDL can be considered as a "compass" that can help enable obstacles and barriers to learning and ensure appropriate opportunities for participation. In other words, the UDL's principles can make an essential contribution to plan efficient teaching-learning paths, as well as *individualisation* and *personalisation* strategies. These could lay the foundations for the process of *empowerment* to begin, with specific regards to *capabilities* development.

The UDL guidelines (CAST, 2011) are based on three main principles:

- «provide multiple means of *Engagement*: specifically provide options for recruiting interest, for sustaining effort and persistence and for self-regulation;
- provide multiple means of *Representation*: specifically provide options for perception, for language and symbols and comprehension;
- provide multiple means of *Action and Expression*: specifically provide options for physical action, for expression and communication and for executive functions» (CAST, 2011, p. 5).

The main goal of the UDL guidelines is to provide useful strategy to create a learning environment that is accessible to all. This leads to the possibility to both enable obstacles and barriers to learning and identify facilitation teaching practices. These principles valorise the learners' creativity within the Be-Know-Do framework:

- dimension of *Being*: expert learners who are purposeful and motivated;
- dimension of *Knowing*: expert learners who are resourceful and knowledgeable;
- dimension of *Doing*: expert Learners who are strategic and goal-directed (CAST, 2011).

Therefore, during the first workshop the participants analysed examples of teaching-learning strategies and materials based on UDL principles in a perspective of knowledge co-construction and sharing.

### **Second workshop: Open source software**

In the second workshop, as a consequent deepening of the first one, the Bologna University researchers presented a suite of open source software to sustain both the students with Specific Learning Disorder (SLD) and students

with disabilities. In particular, the suite includes the Italian software called *TuttiXuni* by G. Serena. The interest shown by the workshop participants encouraged a *bottom-up* process that led to a further development of the software. Thanks to the availability of the programmer and the collaboration with Alicante University, *TuttiXuni* was entirely translated in Spanish – the name was changed from *TuttiXuni* to *LeeConMigoUni* – and equipped with speech synthesis for every language of the MUSE Member Countries. To this day, the *LeeConMigoUni*<sup>9</sup> software has these main inclusive characteristics:

- text to speech function;
- speech to text function;
- speech synthesis in English, Italian, Spanish, Mexican and Chilean;
- conversion of the text in mp3 format;
- reading of PDF files and noting on PDF files;
- creating a digital concept map starting with the text.

### **Third workshop: General criteria for documents' high readability**

During the third workshop, the MUSE members discussed the readability criteria that should be taken into consideration before exposing the students to learning contents. At European and International level, a lot of documents give practical suggestions to make texts more comprehensible and usable for all. Among all, we highlight the *Guidelines for Accessible Information. ICT for information accessibility in learning (ICT4IAL)*<sup>10</sup>, edited by the European Agency for Special Needs and Inclusive Education in 2015. Despite the linguistic peculiarities and differences of the contexts, it was possible to analyse, summarise and bring to the MUSE Partners attention the main indications that are recognised and accepted by the scientific community. In particular, the considerations were aimed at sharing useful criteria in order to create:

- high readability learning materials;
- high readability video-presentations (e.g. using PowerPoint, Keynote, Impress etc.).

In line with the principles of UDL, it is essential to provide multiple means of representation and present the information using a format that is flexible and adaptable to different perceptual features. In particular, a high readability digital document should have at least the following characteristics:

<sup>9</sup> “LeeConMigoUni” and “TuttiXuni” free download link: <https://sites.google.com/site/leggixme/todosparauni> (23/03/2018)

<sup>10</sup> The Guidelines are available at this link: [www.ict4ial.eu/sites/default/files/Guidelines%20for%20Accessible%20Information\\_EN.pdf](http://www.ict4ial.eu/sites/default/files/Guidelines%20for%20Accessible%20Information_EN.pdf) (23/03/2018)

- large fonts;
- font style: sans serif font such as Arial, Trebuchet, or Verdana;
- text and graphics also understandable when viewed without colour;
- background colour and text combinations that provide a good contrast;
- alternative text to describe the image;
- Line spacing of 1.5;
- Imagine in high definition.

Documents prepared to be accessible in alternative formats for people with visual impairments or reading difficulties are defined multimodal. These documents allow not only to adapt the parameters of the display, but also to facilitate their use through different (assistive) technologies – for example personal device, screen readers, text reading software or display braille. Word processors and open PDF files are the easiest to modify according to individual viewing preferences and to listen using screen and text reading software. Despite the difficulties to provide universally readable documents, the MUSE group agreed on the importance of providing teaching-learning documents in multimodal format. This first step fosters the removal of barriers that hamper the text accessibility: so that the content maintains the same quality as the original one and everyone – with their own specific peculiarities – is able to access the information thanks to assistive technologies or compensatory instruments.

## Conclusion

In this paper, we presented the activity carried out in the MUSE project's Work Package 2, titled "Modernization and Strengthening of Human Capital" and led by University of Bologna.

The overall objective of the MUSE Project is to *improve access, ensure learning conditions and develop employment opportunities* for HEs' Students with disability in LA countries via *modern inclusion* practices, cultures and networking. The main goal – in each institution of LA – is the creation of *Students with disabilities Support Centres* and long-term strategies for the access and retention of students with disability in HE system.

The presence of students with disability in the HE is an indicator of the level of inclusion of the education system: it is crucial to encourage policies that *mainstream* disability by removing hindrances, barriers and discrimination. The environment is a powerful element of containment of the deficit and represents a major factor in primary prevention to reduce the *situation of handicap*. In this way of proceeding, handicap is relative to the contexts (Oliver, 1992). "Handicap" as a permanent datum does not exist: it is the negative result of the interaction between a person and a context that presents physical, cultural and

political barriers. It is an interaction between features of the person and features of the context in which the person lives. In this sense, the need for taking a *twin-track approach* was stressed at international level: on the one hand, pursuing initiatives specifically target at persons with disabilities, taking into account their rights and specific needs; on the other hand, working to identify and overcome the barriers that persons with disabilities face in the social environment (e.g. physical accessibility, communication, attitude, legislation) and including persons with disabilities into all aspects of development (Italian Development Cooperation Disability Action Plan, 2013).

In conclusion, the European Cooperation is of fundamental importance to facilitate access and retention of students with disability in HE. In fact, thanks to that, Latin American partners have developed their own *Students with disabilities Support Centres* and their own Inclusion Plan. The three EU universities have had a support centre for more than 10 years and have the capacity to transfer the *know-how* gained. Not only that, but EU Cooperation is necessary to help LA universities' administrative and academic staff – who are strongly committed towards HE social inclusion – have an inclusive plan that is both efficient and sustainable (Caldin and Guerra, 2017).

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