# Elementa

*Intersections between Philosophy, Epistemology and Empirical Perspectives*

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# Universal Design for Learning and Inclusive Teaching: Future Perspectives

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## Abstract

*This contribution aims to reflect on the didactic and methodological changes brought about by Distance Learning, with particular regard to the concept of Inclusive Teaching. During the last year, in fact, the epidemiological emergency dictated by Covid-19 has led to the emergence of new needs, imposing a redesign of tools and resources in use. All this has had a strong impact on students with disabilities and Specific Learning Disorders (SLD), who, in addition to having fewer digital skills than their European peers, were suddenly forced to follow lessons at home without the physical support of the teacher. It was necessary, in fact, to think and re-think about the design of inclusive educational interventions. From a methodological and conceptual point of view, Inclusive Teaching is linked to the concept of Universal Design for Learning (UDL), an inclusive psycho-pedagogical approach that aims to break down the barriers that exist in learning processes. During the pandemic period, one of the major challenges that scholars have begun to consider is applying the UDL approach, generally used in in-person classes, lectures and online courses.*

*Keywords:* disability; distance learning; inclusion; technology; universal design for learning.

## Introduction

As of March 2020, as a result of the epidemiological situation dictated by Covid-19, 90% of students had to leave their school and university desks. Institutions promptly responded to the health emergency by offering alter-

native solutions to face-to-face teaching. It is precisely in this particular historical period that the term Distance Learning was born, a concept that differs from that of Distance Learning, understood as "a mode of delivery of training activated on an emergency basis in order to replace the training in presence following its suspension due to the effect of the Prime Ministerial Decree of 04/03/2020" (Tamborra, 2021).

The application of Distance Learning, however, has brought to the surface problems and contradictions already inherent in the school system, especially in terms of Inclusive Teaching; it has not in fact increased inequalities, but has made them emerge. The pandemic, in fact, has closely touched students with disabilities and with Special Educational Needs, who have had to face a double challenge linked both to the emergency situation and to their condition of fragility.

With this in mind, it has become even more relevant to study how teachers can apply the Universal Design for Learning online approach, starting with designing for inclusive learning environments (Rao, 2021).

## 1. Universal Design for Learning: tools to ensure Inclusive Teaching

Universal Design for Learning (UDL) is an inclusive psycho-pedagogical approach that aims to break down barriers in learning processes (Capp, 2020). It aims to address three crucial teaching challenges:

- valuing diversity;
- inclusive education;
- the critical and conscious use of ICT (Information and Communication Technologies).

This approach was born in the 80s in the United States in the field of architecture to design buildings and environments accessible to all, eliminating architectural barriers. Subsequently, the concepts related to accessibility began to extend into the educational field. Specifically, CAST – Center for Applied Special Technology – in the early 1990s, thanks to Anne Meyer and David H. Rose, began to research, develop and articulate the principles and practices of UDL, with the intent to propose, through the use of technology, innovative solutions for the learning of students with disabilities in compensatory and dispensatory modes (Meyer, Rose, & Gordon, 2014). Thanks to technological advances and their diffusion, CAST then proposed a method of action applicable to all students, suggesting flexible objectives and methods (Munafò, 2020).

CAST defines UDL as "a set of principles and guidelines for the development of programming that seeks to give all individuals equal opportunities to learn" (CAST, 2018). The ultimate goal of UDL is to ensure the implementation of personalized training curricula, respecting diversity and individuality, eliminating the classification of students with specific learning disorders, which in fact does not allow the implementation of the very concept of inclusion. The real challenge is both to propose an effective model for the creation of educational objectives and flexible approaches that can be personalized and adapted, and to create an inclusive learning environment that helps each student develop his or her potential (James, 2018).

The aim is therefore to encourage participation, involvement and learning starting from individual needs and abilities. The principles of UDL were developed based on neuroscientific research. According to Meyer and colleagues (2014), when a person performs a learning task, whatever it is, it is possible to identify three neural networks involved in the learning process, which correspond to the (*Fig. 1*):

- "What we learn", referring to the knowledge network;
- "How we learn", referring to the active strategy network;
- "Because we learn", referring to affective networks.

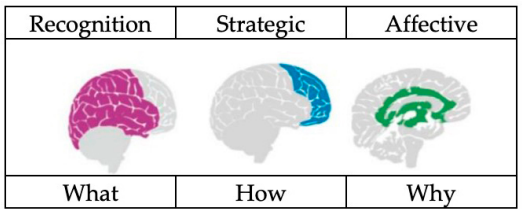


*Figure 1. – Three Learning Networks (Munafò, 2020).*

Based on these neuroscientific elements, the three principles of UDL emerge (Munafò, 2020). CAST, in fact, proposes guidelines that "can be applied to any discipline or domain to ensure that all learners can access and participate in meaningful, challenging learning opportunities" (CAST, 2018). The three core principles, therefore, are (CAST, 2018):

1. Providing multiple means of representation – the "what" of learning: this means that there is no single mode of representation that is optimal for all learners, as providing options for representation turns out to be critical.
2. Provide multiple means of action and expression – the "how" of learning: as each student uses a different means of action and expression.
3. Provide multiple means of engagement – the "why" of learning: as each student is involved and motivated differently in learning processes.

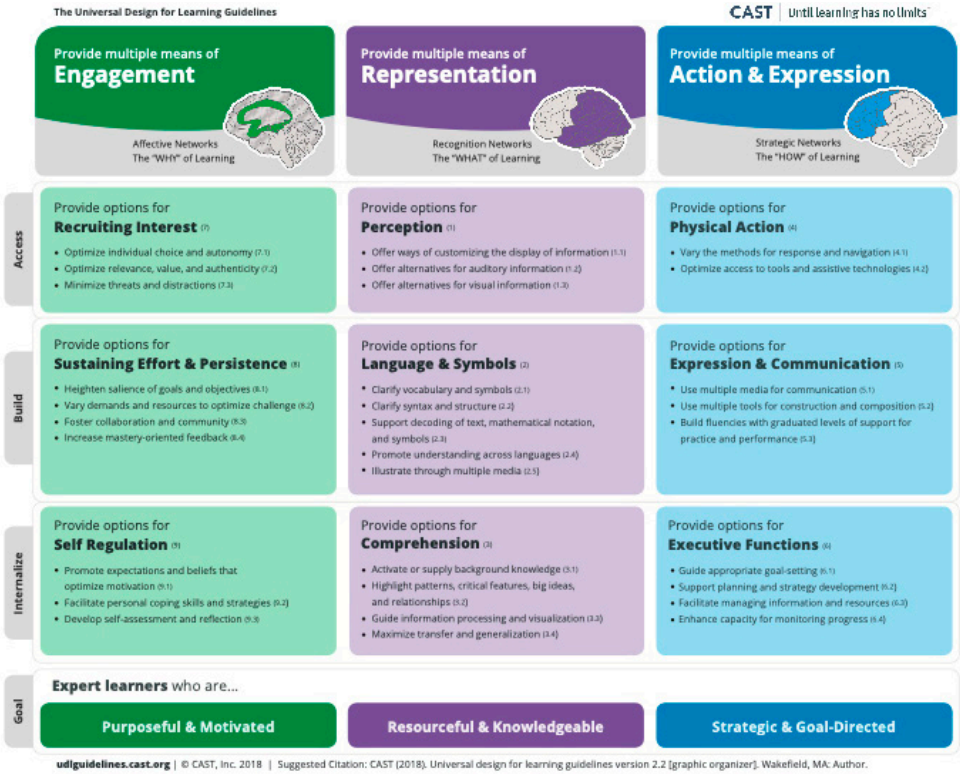


*Figure 2. – UDL guidelines (CAST, 2018).*

In short, the UDL philosophy is based on the idea that there are multiple ways to represent knowledge (principle one), multiple ways in which students can demonstrate their knowledge and understanding (principle two), and multiple ways to engage students in the learning process (principle three). Within the three principles of the UDL, there are 9 guidelines and 31 checkpoints (*Fig. 2*); these provide teachers with specific pedagogical strategies to break and break down barriers during the learning process. The principles, guidelines, and checkpoints are organized from the most general to the most specific (Capp, 2020).

## 2. Inclusive Teaching and Covid-19. What changes?

From a methodological and conceptual point of view, UDL is linked to the concept of Inclusive Didactics (Maffione, 2020). Heidrun (2019) defines Inclusive Teaching as the set of actions "for the design, implemen-

tation and evaluation of educational practices that activate the learning and participation processes of all pupils. The ultimate goal of Inclusive Teaching is to enable all students to achieve educational success, eliminating any potential barriers that may hinder it (Maffione, 2020). Being, therefore, a teaching of all students, the recipients of inclusive teaching are not only students with special educational needs, but every student in the class group, welcomed and valued by the teacher, based on their individual specificities.

Due to the health emergency caused by Covid-19, school and university activities have undergone a radical change (Rossi & Tateo, 2021). In fact, since March 2020, 90% of students have had to leave their school and university desks. This has led to a rapid response from countries around the world, which have invested in distance learning solutions using various online media and platforms (Mascheroni *et al.*, 2021).

The term Distance Learning refers to "a training delivery method activated on an emergency basis in order to replace face-to-face training following its suspension as a result of the Prime Ministerial Decree of 04/03/2020" (Tamborra, 2021).

Distance Learning has resulted in the emergence of new needs, which require a redesign of tools and resources in use. It was necessary, in fact, to think and re-think the design of inclusive teaching interventions. It is inevitable that all this has had a strong impact on students with disabilities and with Specific Learning Disorders – SLD (Arenghi *et al.*, 2020). With the term SLD, we refer to neurodevelopmental disorders that affect the ability to read, write, and compute correctly and fluently that occur with the onset of schooling. The complexity of the disorder is not yet fully understood; however, research is working towards this end (Peconio, Doronzo, & Guarini, 2021).

The Covid emergency has placed every teacher in front of an unprecedented educational challenge: to guarantee the right to study of all students by implementing effective distance learning (Maffione, 2020). Especially in the case of students with specific learning disorders, teaching technologies assume a fundamental role as they allow to adapt the content in the form and to use compensatory or dispensatory tools (Peconio, Doronzo, & Guarini, 2021). As the data of the research carried out by the European Commission (2019) entitled "2nd survey of schools: ICT in education" highlight, the real problem actually lies in the low digital literacy of teachers, who found themselves unprepared to deal with this emergency phase. Teachers have not been able to use technological devices correctly and efficiently. In fact, as stated in the latest ISTAT report "School inclusion of pupils with disabilities – A.S. 2019/2020" (2020):

> Training in specific educational technologies for pupils with disabilities is still not very widespread, although it is essential for the proper use of the tools to support teaching, both in presence and at a distance: in one school out of 10 no support teacher has attended a specific course for the appropriate use of these technologies; in 61% of schools only some teachers have attended courses, while in the remaining cases (28%) all teachers have attended at least one course. In line with the levels of training, the use of educational technologies by teachers for support has not yet reached maximum diffusion: there are less than 60% of schools in which all teachers use these tools. (ISTAT, 2020)

In addition, the same report shows how the activation of the DL has made a delicate process such as school inclusion more complex. Among the reasons that have made it difficult for pupils with disabilities to participate in Distance Learning it is possible to find (ISTAT, 2020):

- the severity of the pathology (27%);
- the difficulty of family members to cooperate (20%);
- socio-economic hardship (17%);
- the difficulty in adapting the Educational Plan for Inclusion (IEP) to distance learning (6%);
- the lack of technological tools (6%);
- the lack of specific teaching aids (3%).

These data, although negative, should not represent a defeat, but a starting point to reorganize teaching for pupils with SLD and with special educational needs (Peconio, Doronzo, & Guarini, 2021).

## 3. Promoting inclusive online education: future perspectives

In terms of "inclusive teaching" Distance Learning has not increased inequalities, it has brought them to the surface. The teaching of these months has been not at a distance, but one of emergence (Crescenze & Rossiello, 2021). Indeed, as Hodges and colleagues (2020) state, the primary goal in these circumstances is not to design a robust educational ecosystem but rather to provide temporary access to education and to respond quickly to educational needs during an emergency or crisis. There is no doubt that Distance Learning has brought a series of consequences and changes to traditional teaching practices; it follows that it cannot be considered as a simple parenthesis. Regarding Inclusive Teaching, one of the major challenges that scholars have started to consider is applying the UDL approach, generally used in face-to-face classes, in online classes and courses. Indeed, it has become even more relevant to study how teachers

can apply UDL online, starting with designing for inclusive learning environments (Rao, 2021). To ensure that technology tools are used to support all students in both online and classroom learning environments, it is necessary to consider their use as part of an intentional design process, using a proactive design process that explicitly integrates UDL (Rao, 2021). In doing so, teachers will be able to support all online learners, including students with disabilities or other students who experience challenges in the learning process. Designing distance learning pathways with UDL methodology means being able to include multiple types and modes of learning, providing materials that can support students' specificities, providing multiple opportunities for engagement and assessment so that students can demonstrate their mastery of learning (Lachheb, Abramenka-Lachheb, & Huber, 2021).

Implementing the principles of UDL requires technology-based learning environments and digital tools. Digital tools for teaching include:

- hardware: such as laptops, mobile devices etc.;
- software: such as applications or extensions;
- technology-based environments: e.g. websites or e-learning platforms.

In the light of what has been said, therefore, it is necessary to think and re-think about new ways to make distance learning inclusive. It is useful, therefore (Maffione, 2020):

- choose the right IT tools and appropriate communication modes based on the specific needs of the learner;
- make content accessible through activities to customize or individualize study materials;
- differentiate and/or simplify the working methods of the activities, according to the didactic and educational goals to be pursued;
- ensure constant feedback and "remote" guidance for times of difficulty and/or psychological stress.

Another fundamental aspect to ensure inclusive teaching even at a distance concerns the use of peer tutoring: this allows the involvement of the whole class by encouraging students to feel part of a group even in the absence of teachers; never as in distance learning the resource of the proximity of peers can make the difference (Fantozzi, 2020).

It is necessary remember the need, especially in distance learning, to provide for the use of compensatory and dispensatory tools, which may consist, for example, in the use of speech synthesis software that transforms reading tasks into listening tasks, books or digital vocabularies and concept all students according to a truly inclusive pedagogical vision: in this sense the UDL "forces" schools and institutions to review not only teaching methods but also learning environments and spaces.

## Conclusion

In the light of what has emerged, there is no doubt that there is a need to reinvent and reshape the design of educational interventions. All this is possible only through the experimentation of new teaching and learning strategies, able to put at the center the principle of inclusion. Therefore, it is appropriate to focus on the specific needs of each pupil and to use methodologies that respond to different needs (Peconio, Doronzo, & Guarini, 2021).

To do this, it is necessary to experiment and apply UDL also at a distance, as it is the only approach able to facilitate the personalization and individualization of training paths, providing a differentiated proposal offered to all, eliminating the classification of students with special educational needs which in itself is not inclusive; UDL, moreover, allows the use of various educational and didactic means to enrich students' learning from the beginning.

The negative data analyzed and emerged in this contribution, should not be a defeat, but a starting point to reorganize the teaching for students with SLD and special educational needs, remembering that technologies are able not only to improve the environment but also to shape what is learned, changing how we learn. Providing different spaces and places to learn increases opportunities to meet individual needs.

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## Riassunto

*Il presente contributo ha l'intento di riflettere sui cambiamenti didattici e metodologici apportati dalla Didattica a Distanza, con particolare riguardo al concetto di Didattica Inclusiva. Durante l'ultimo anno, infatti, l'emergenza epidemiologica dettata dal Covid-19 ha comportato l'emersione di bisogni nuovi, imponendo una riprogettazione di strumenti e risorse in uso. Tutto ciò ha avuto un forte impatto sugli studenti con disabilità e con Disturbi Specifici dell'Apprendimento (DSA), i quali, oltre ad avere meno competenze digitali dei loro coetanei europei, sono stati costretti improvvisamente a seguire le lezioni a casa senza il supporto fisico del docente di sostegno. È stato necessario, infatti, pensare e ri-pensare alla progettazione di interventi didattici inclusivi. Da un punto di vista metodologico e concettuale, la Didattica Inclusiva si lega al concetto dell'Universal Design for Learning (UDL), un approccio psico-pedagogico inclusivo che si pone l'obiettivo di abbattere le barriere che vi sono nei processi di apprendimento.*

*Durante il periodo pandemico, una delle maggiori sfide che gli studiosi hanno iniziato a considerare è applicare l'approccio UDL, generalmente utilizzato nelle lezioni in presenza, nelle lezioni e corsi online.*



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