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Distance learning in Higher Education during the first pandemic lockdown : The point of view of students with special educational needs

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Special issue

The lesson learned:
What we have learned
from the pandemic
and how to innovate
schools and universities
in order to overcome it

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Distance learning in Higher Education during the first pandemic lockdown: The point of view of students with special educational needs

*Fabiola Silletti**, *Giuseppe Ritella***, *Barbara Iacobellis**, *Cristina Semeraro**,
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Abstract

The study investigates the perspective on distance learning (DL) of a sample of students with disability. Participants ($N= 198$; 62% females) completed an online questionnaire. The results highlight that students perceive both advantages and barriers, which vary as a function of the type of disability. This seems to suggest that DL potentials should be evaluated in relation to the specific vulnerabilities and educational needs associated with each type of disability, which might be accomplished by adopting the Universal Design for Learning framework. Also, it may be that the impact of DL depends on the discipline as well as on the teachers' digital competences, which can make a great difference in the quality of the online lesson and in the overall didactic experience of students with SEN.

Keywords: College Student; Distance Learning; Covid-19 Pandemic; Online Survey; E-Tutoring

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Introduction

The Covid-19 pandemic has had a strong impact on education. Indeed, over 91% of the world's student population has been facing challenges related to their education since the start of the pandemic (Affouneh et al., 2020). Teachers have been forced to overturn their usual teaching practices and suddenly embrace distance education with variable results (Ritella & Sansone, 2020). Distance Learning (DL), also referred to using a variety of labels (e.g., online learning, e-learning, distance education), indicates a particular type of learning where teaching is independent of the physical co-presence of the teacher and learner (Guelfi & Shehay, 2011).

With the pandemic, DL became essential to guarantee both the continuity of education and the students' safety. However, in several cases, the change has been limited to a transposition of the traditional methods of teaching into virtual classrooms (Baldassarre et al., 2020), rather than a transformation of teaching practices, which is necessary for the successful integration of technology (Hakkarainen, 2009). This has led some authors to define this type of schooling as "Emergency Remote Teaching" (Affouneh et al., 2020).

Several studies were carried out to examine the students' perception of DL during the pandemic. These studies highlight both advantages, mainly related to easy access to online content, and disadvantages related to technological infrastructures, teachers' digital competences, and increased loneliness, anxiety and learning difficulties (Bao, 2020; Fatoni et al., 2020; Fu et al., 2021). A particularly important and uninvestigated issue in this research area is the impact of DL on students with special educational needs (SEN), who cover a range of needs including but not limited to physical or mental disabilities (United Nations Educational, Scientific, and Cultural Organization [UNESCO], 2011¹) and represent a steadily growing population in higher education (Pavone, 2018).

In order to address the needs of SEN students, it is important to adopt theoretically informed frameworks such as the Universal Design for Learning (UDL), which provides a set of principles and guidelines

¹ UNESCO (2011), Revision of the International Standard Classification of Education (ISCED), p. 83

for inclusive education (Rose et al., 2006). The three main principles are to provide multiple, flexible methods of 1) presentation, 2) expression and 3) engagement. The emphasis on flexibility is typical also of individualized approaches to learning, where each student can select learning objectives and activities based on their own cognitive and motivational characteristics (Dietrich et al., 2021). Such flexibility is expected to increase the accessibility of learning environments. Indeed, according to the IMS Global Learning Consortium (2004) “accessibility is determined exactly by the flexibility of the education environment and the availability of adequate alternative-but-equivalent content and activities”. According to this approach, accessibility is the ability of the learning environment to adjust to the needs of all learners, including those with SEN.

Interestingly, research suggests that several technical tools designed to improve accessibility show a limited impact on practice, and that to increase accessibility in practice their use should be combined with the adoption of pedagogical tools such as the provision of tutoring programs (e.g. de Anna & Covelli, 2018): This improves accessibility if combined with specific technical tools. E-tutors (ET) can be a strategic resource for universities, as they are crucial both for the perceived quality and the acceptance of DL by learners (De Metz & Bezuidenhout, 2018). Nevertheless, there is not yet agreement in the literature about the role and function of ET (Li et al., 2017).

The Italian educational system has a long tradition of inclusive education promoting the inclusion of students with all types of SEN (Savarese & D’Elia, 2018). In particular, as specified in the Ministerial Directive issued on December 27th 2012, SEN students include three main sub-groups: Students with disability, students with learning disorders and students with socio-economic, linguistic or cultural disadvantage. In this article, we focus specifically on the first two of these subgroups, that is, students with disability and with learning disorders: According to the Italian law, when these conditions are certified, students can have access to individualized support during their academic career. To date, the research conducted during the pandemic on the perceptions of students with disability is scant.

According to Kendall (2020), students with disability had to face a challenging paradox: Due to their frequently vulnerable physical condi-

tions, the restrictions have been lifesaving, but at the same time they had a tremendous negative impact on the quality of their lives. The difficulties reported in some studies match the ones found among the normo-typical students, but are exacerbated (Sutton, 2021), as confirmed also by a large investigation conducted by the Association on Higher Education and Disability in US Colleges. From the relational standpoint, students with disability seem to experience difficulties in communicating with instructors and peers and to undergo greater psychological distress compared to the normo-typical group (e.g. Sutton, 2021).

In contrast, the only study available on Italian students with disability points out the strengths of DL, such as facilitated interaction with teachers, which in face-to-face instruction is often reduced due to the shame of speaking in public, and the possibility of being able to resort to Google in real-time when encountering unclear terms or concepts. Also, students seem to value the possibility of accessing the recordings of lectures (Biancalana, 2020). Unfortunately, this study suffers of an extremely small sample size.

The scenario that emerged when the pandemic forced Universities to move all educational activities online for several months offered a unique opportunity to investigate the perspective of students with SEN with respect to DL. The present study aims at contributing to the current literature by exploring the disabled students' perceptions of DL, including the perception related to the ET service implemented at the University of Bari. In addition, we test whether these perceptions vary as a function of the type of disability, which should be expectable, given the different educational needs associated with each condition. Thus far, this issue is uninvestigated.

Research questions

The research questions that guided the study are summarized as follows:

1. How was DL perceived by students with disability?
2. Did the perceptions vary as a function of the type of disability?
3. How was the ET service perceived by the students?

Method

Research context and participants

The sample consisted of 198 Italian university students with disability (38% male and 62% female) enrolled at the University of Bari, which counts approximately 40.000 students. 172 out of 198 had an average age of 25.26 years old ($SD=4.65$), while the remaining 26 students were over 40 years old. The sample is heterogeneous in terms of the types of disabilities (Figure 1), degree course (Figure 2) and degree levels (Figure 3).

The data collection was carried out from July to October 2020, after the first lockdown due to the Covid-19 pandemic. During the lockdown a massive organization was required to implement all the courses online, using Microsoft Teams. Guidelines, video tutorials and assistance services were set up to support academics, technical-administrative staff and students in this transition. At the same time, strategies to support students with SEN (approximately 2.5% of the total population) were implemented, such as video recording of lessons, peer e-tutoring, guidelines for accessible and highly readable didactic contents, and support to sign language interpreters.

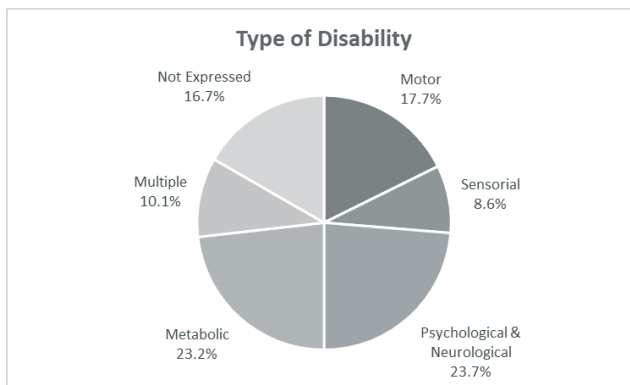


Figure 1. Distribution of the sample with respect to the types of disability, according to the ANVUR classification system (2020). Accordingly, learning disorders were included in psychological and neurological disorders.

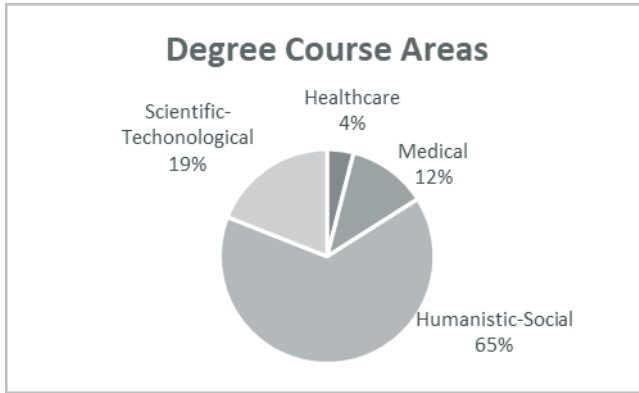


Figure 2. Distribution of the sample with respect to the degree course areas, according to the classification of the Italian Ministry of University.

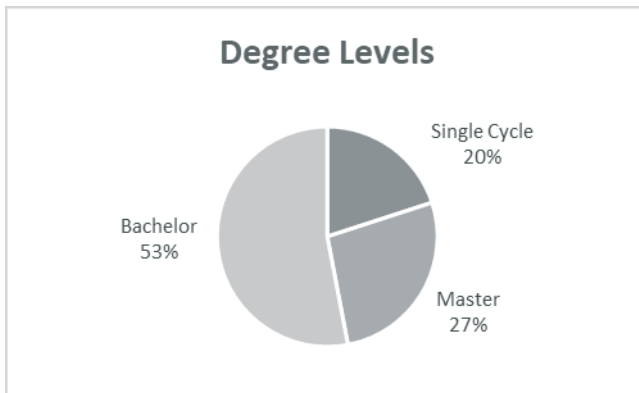


Figure 3. Distribution of the sample with respect to the degree levels.

Procedure

Immediately after the end of the II semester of the academic year 2019-2020, which was conducted in DL mode, an online questionnaire assessing students' academic experience and perception of DL was sent to all the students who were included in the university data-

base as certified students with disability. Students were instructed to answer genuinely, as the responses were anonymous. Informed consent for the treatment of the data for research was requested before submitting the answers.

Measures

The items of the questionnaire used in this study were developed based on surveys previously used by other universities to assess the perception of DL during the pandemic. In addition, we included some items on issues relevant specifically for students with disability. The survey was composed of both open-ended and multiple-choice questions. The first section of the survey collected personal information, such as sex, age, and type of disability. The second section included items related to the students' perceptions of DL. A specific section of the survey concerned the students' experiences with the ET service that was implemented by the University for students with disability. The answers to open-ended items were coded according to a coding scheme that was built using a bottom-up procedure, i.e. starting from the content analyses of the answers, instead of being theoretically driven. Due to limited space, we will focus only on items mostly relevant to our research questions.

Data Analysis

We ran descriptive statistics for the items of interest. When possible, we cross-tabulated these answers with the type of disability in order to test whether there was a significant association between the two distributions. When chi-square tests (χ^2) were significant, standardized residuals for each cell, describing the distance between observed and expected frequencies, were explored in order to identify which values of each distribution were significantly associated. Because these are expressed in z-values, those lying outside of ± 1.96 are significant at $p < .05$ (Field, 2013). We excluded from the cross-tabulation analyses 33 SEN students, due to the missing information on their disability conditions.

Results

Perceptions of Distance Learning

The first 7 items of the survey asked respondents to express their agreement with statements concerning the comparison between DL and Classroom Learning (CL) on a 5-point scale. Answers on the end points (agree/strongly agree and disagree/strongly disagree) of the scale were aggregated, in order to have a clearer picture. Results show that 37% of the students thought that DL promoted better learning than CL while 24% disagreed. Similarly, 37% of the respondents found studying more motivating and interesting in DL while 24% disagreed. When collapsing the results from these two items by the type of disability, in both cases we found that DL was perceived positively especially by students affected by multiple disability ($\chi^2=16.41$ and 17.87 , $p<.05$, respectively).

Conversely, most students did not agree that DL enhanced the quality of the relationship with peers (41%) and professors (36%), while 24% and 28% agreed that this was true for peers and professors respectively. No significant interaction was found with the type of disability on these items. The 61% of the participants responded that DL made lessons more accessible for them (vs. 20% who disagreed) and the 45% agreed that the online lessons increased the opportunities to interact with professors (vs. 28% who disagreed). When asked if they need support during DL, 78% disagreed, but when this distribution was collapsed by type of disability, a significantly higher percentage than expected of students with sensory disability expressed the need for support ($\chi^2=18.21$, $p<.05$), suggesting that these students were requiring more support than their peers.

When asked about perspectives for the future, 41% of the students would not abandon completely the DL mode (vs. 30% who would return to CL only), and 52% of them would not want to keep the DL mode only (vs. 25% who would like DL only). Instead, the majority (67%) would want to keep the hybrid mode (vs. 18% who did not agree to adopt the hybrid mode). We also found that more students with sensory disability than expected answered

“I do not agree nor disagree” with the mixed model in the future ($\chi^2=16.59, p<.05$).

The open-ended questions of the survey investigated the features of DL that they would like to keep in case of a hybrid mode in the future, as well as the strengths and weaknesses of DL. The most frequent features of DL that the students would like to keep were related to the didactic organization and strategies (such as availability of materials and video-recorded lessons online, easiness to reach virtual classrooms and professors, simultaneous access to lessons, clear guidelines for the use of the platform), the online availability of professors, colleagues and materials, as well as easier participation.

Regarding the perceived strengths of DL (Figure 5), the areas with the highest frequency had to do again with didactic organization and strategies, accessibility and participation. Answers were coded in the category of Accessibility & Participation when referring to the usability of the learning materials, to the easy access to learning resources, to the possibility of participation in educational activities even when feeling sick or being unable to reach the university facilities, etc. Additionally, 19.7% of the students highlighted socio-emotional strengths

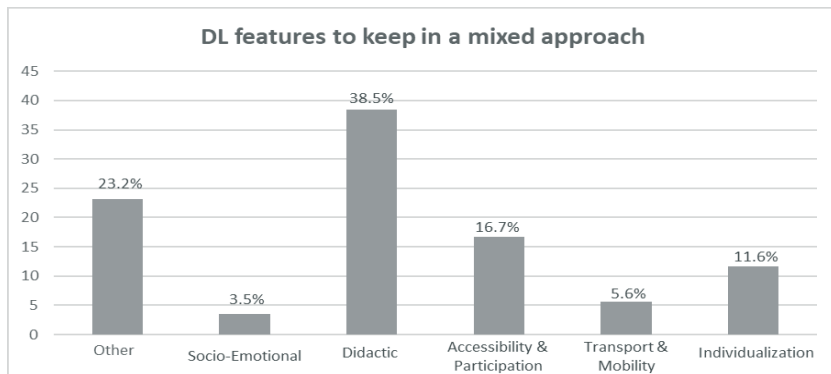


Figure 4. Distribution of categories of DL features to keep in the future.

Note: Students could write a text, therefore, each answer could be coded in more than one category.

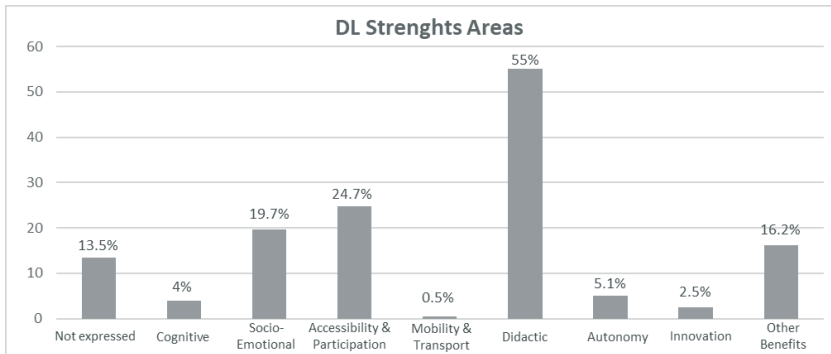


Figure 5. Distribution of categories of perceived DL strengths.

Note: Students could write a text; therefore, each answer could be coded in more than one category.

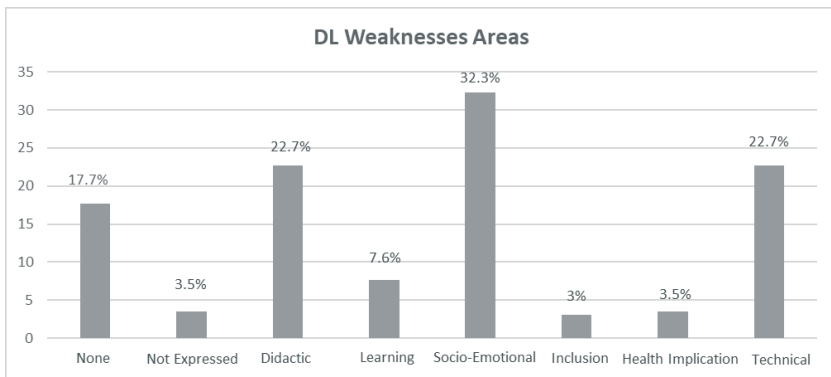


Figure 6. Distribution of categories of perceived DL weaknesses.

Note: Students could write a text, therefore, each answer could be coded in more than one category.

related to DL, such as better communication, listening, sharing and easiness to intervene in conversations, make questions and interact with peers and professors. When collapsing the distribution of most frequent strengths with the type of disability, we found that students

with metabolic (36%), multiple (21%), and motor (21%) disabilities mentioned a significantly higher number of strengths in the Accessibility & Participation area ($\chi^2=9.71, p<.05$). No other significant association between strengths and disabilities emerged.

As to the perceived DL weaknesses (Figure 6), socio-emotional weaknesses were the most frequently reported. According to the data, DL increases loneliness, stress, anxiety, loss of interest, coldness, frustration, uncertainty, detachment, loss of social contact with peers and professors. Technical issues related to the quality of the internet connection and to the availability of technological devices were also mentioned by 22.7% of the respondents. No significant association was found with the type of disability.

E-Tutoring

Out of the total sample, 57 reported having a peer tutor during the DL semester. When comparing ET to face-to-face tutoring, 45.3% considered ET less effective (vs. 18.9% who considered it more effective). Open-ended questions investigated these students' perception of the ET strengths and weaknesses. The results concerning the pros and cons of ET (Table 1) show that in the "Socio-Emotional" and "Didactic-Organizational" areas the students identify more strengths than weaknesses. In contrast "Cognitive" is seen more as a deficient area. The cognitive area includes answers related to comprehension problems, lack of attention, and difficulties with studying. Due to the limited sub-sample of respondents, we could not collapse these answers as a function of the type of disability.

Table 1. Strengths vs Weaknesses of ET

Features	Strengths (%)	Weaknesses (%)
Socio-Emotional	28	23
Didactic-Organizational	21	11
Cognitive	--	11

Discussion

The purpose of this study was to examine the perspective of students with disabilities on DL, discussing how they perceive the strengths and limitations of DL, as well as collecting useful hints to improve it in the context of higher education. In particular, the first research question concerned the perception of DL by these students. The results highlight that they perceive both advantages and barriers.

As to the strengths, DL is perceived positively by the majority of the students, as it contributes to overcoming architectural barriers, allows them to attend lectures even when feeling sick and seems to reduce physical fatigue, especially in the case of metabolic, multiple, or motor disabilities. The didactic organization of DL was mostly appreciated, as it made DL more flexible, effective, simple, and practical if compared to the CL for a relatively high number of respondents. In addition, for 61% of the students, DL was perceived as more accessible than CL, which confirms previous research suggesting that DL can promote the inclusion of students with disability (Di Iorio et al., 2006). Furthermore, some students perceived socio-emotional benefits, as it seems that DL favored more effective interactions, greater serenity, minor stress, and less shame in asking questions during class, coherently with previous findings (Biancalana, 2020). Based on these results, it seems that the didactic organization of DL was perceived as sufficiently flexible for the majority of respondents, which is consistent with the principles of UDL. Nevertheless, the analysis shows that further work is needed to improve the inclusion of the students who emphasized the weaknesses of DL, which are discussed as follows.

Concerning the weaknesses, one third of the students complained about socio-emotional aspects such as feeling demotivation, anxiety, and social isolation or about technical issues such as the instability of internet connection, in line with previous findings (e.g., Sutton et al., 2020). Interestingly, we found that the same areas can be perceived both as weakness and protective factors by different students, which seems to suggest that we need to evaluate the potential of DL in relation to the specific vulnerabilities and educational needs associated with each student and type of disability. The case of the socio-emo-

tional aspects that we detected is a good illustration of such finding. Indeed, on the one hand the students agreed that DL allowed to increase opportunities for interaction with teachers and peers, and on the other hand they disagreed with the statement that the quality of relationships with teachers and peers improved with DL. This apparently contradictory finding shows that the construction and maintenance of social relationships during DL is a complex issue. One way to address it could be to re-design the learning environment and the pedagogical designs focusing especially on the third principle of the Framework for Universal Design for Learning (Rose et al., 2006), which might contribute to meeting the diversity of the students' needs on this issue. In addition, developing the teachers' digital competences seem to be a necessary step to enable a more flexible use of the wide range of the technological tools available. Indeed, previous research shows that teachers need to increase their digital competence, especially with respect to the pedagogical use of technology (Dias-Trindade et al., 2020).

Such an approach based on UDL could be valuable also for addressing the variations of the students' perceptions depending on the type of disability, which we detected while answering the second research question of this study. The results show some significant differences of perception depending on the type of disability. In particular, the most vulnerable type of disability, that is, the students having multiple disabilities (such as a combination of sensory and motor, neurological and motor, psychological and neurological) are those that seem to benefit the most from DL. Conversely, students with sensory disabilities seem to benefit the least, compared to their peers from DL. From our experience, in fact, these students were those who required most support. For example, those with hearing impairments required the presence of their sign language interpreter on the platform and the use of additional video channels to lip-read the professors and to have access to sign language by the interpreter. Also, some would have required subtitling that at the time was not available. Also, visually disabled students found it difficult to manage technology equipment on their own, and support to access the devices (e.g. to open video lessons) might have been necessary. Overall, the major criticism of DL

for sensory disabled students confirms the findings previously reported on a smaller sample (Biancalana, 2020).

In line with the biopsychosocial framework proposed by the International Classification of Functioning, Disability and Health (World Health Organization [WHO], 2001), the individual's global functioning can be deeply understood only in relation to the environmental factors, making a huge difference across different conditions. Our findings suggest that while acting as a facilitator for students with multiple disability, DL might be experienced as a barrier for students with sensory disability. These different experiences confirm the importance of implementing the differentiated approach (Tomlinson, 2014), which recognizes the plurality inherent in every learning context as an asset to be valued and considered in educational planning. The needs, interests, and learning profile of each learner should be taken into account to promote effective and inclusive educational planning (d'Alonzo, 2017; Folci et al., 2019).

The last research question concerned the students' experience with the ET service, which is thus far an unexplored field during the Covid-19 pandemic. Socio-emotional aspects and didactic-organizational ones were both identified as strengths and weaknesses, as a confirmation of what has been stated above. Previous research on e-tutoring suggested that the tutors can play an important role in supporting social relationships online (Della Volpe, 2015). However, in our case, the building of the relationship with the tutors during DL was perceived as less effective if compared with face-to-face tutoring. In our interpretation, this finding might be related to the fact that the e-tutors need to be trained and supervised in order to successfully build a positive relationship with students with disability in online settings, which might have been challenging for many of them.

Conclusion

Overall, the current study supports the claim that DL configures itself as an innovative modality that could potentially contribute to shaping educational practices in the future (Guerrini, 2020). In

this possible scenario, adopting a theoretically grounded framework for inclusive education, such as the Universal Design for Learning (Rose et al., 2006) and providing an adequate training for teachers and e-tutors should be crucial steps for addressing the needs of students with different types of disability. Indeed, the potential of this approach depends also on the digital competences of those involved, who should learn to flexibly use the wide range of tools that the technology provides to enhance the inclusion of DL (Rose et al. 2006), instead of treating DL as a passive transposition of CL on a web platform.

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