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DIGITAL TEACHING IN UNIVERSITY: LIGHTS, SHADOWS, PERSPECTIVES

DIDATTICA DIGITALE IN UNIVERSITÀ: LUCI, OMBRE, PROSPETTIVE

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Abstract

The presented study aimed to examine the students' perception of online learning, during the COVID-19 pandemic period, at the Mediterranea University (Italy). Two target groups were involved: 80 students attending specialised teaching courses and 273 undergraduate students of the Degree in Primary Teaching Education. The findings demonstrate a favorable perception on online learning during COVID-19 emergency among students. The study suggests that students should be more involved in Faculty Development actions and that is a necessary training for the teachers to promote "flexible" learning by using different shapes of technologies in online learning and to develop a new type of knowledge and ability to re-think the forms of *mediation* in distance learning and transform disciplinary content into digitalized disciplinary content.

La presente indagine mira ad esaminare la percezione degli studenti sull'apprendimento online, durante il periodo della pandemia COVID-19, presso l'Università Mediterranea (Italia). Sono stati coinvolti due target group: 80 studenti frequentati corsi di specializzazione per l'insegnamento specializzato e 273 studenti frequentati il Corso di Laurea in Scienze della Formazione Primaria. I risultati dimostrano che gli studenti hanno percepito in modo favorevole l'apprendimento online durante l'emergenza COVID-19. L'indagine suggerisce che gli studenti dovrebbero essere più coinvolti nelle azioni di Faculty Development e che è necessario formare gli insegnanti alla promozione di un apprendimento "flessibile" utilizzando diverse forme di tecnologie per l'apprendimento online. In conclusione, occorre formare i docenti universitari a sviluppare un nuovo tipo di conoscenza e capacità per ripensare le forme della mediazione nell'apprendimento a distanza e trasformare i contenuti disciplinari in contenuti disciplinari digitalizzati.

Keywords

Distance learning, Higher Education, Student Voice, Flexible Learning, COVID-19

Apprendimento a distanza, istruzione superiore, voce degli studenti, apprendimento flessibile, COVID-19

1. Coronavirus crisis and higher education institutions: challenges and opportunities

The coronavirus crisis has challenged higher education institutions (UNESCO-IESALC 2020) determining a strong impact on the internal and external processes of digitization of teaching and learning.

The World Health Organization declared the COVID-19 outbreak as a pandemic on May 11, 2020. As a result, governments had issued directives that imposed the compulsory suspension of the attendance of degree courses, including the Italian government (D.P.C.M. of 9 March).

The pandemic has placed academic teachers in front of the need to re-think the forms of *mediation* in distance learning (Perla, Scarinci, Amati 2021) through technology and re-design their action, considering that technology has no longer simple tools for the transmission of knowledge, but *opportunity*:

- To improve the students' learning outcomes offering wider choices, a higher level of personalization, adaptive and *flexible learning* (Li, Wong, 2018).
- To organize, in an alternative way, curricular activities normally carried out in presence, such as internships, stages or workshops (Agrati, Vinci, 2021);
- To rethink didactics: technologies are 'amplifiers' of learning spaces and opportunities for learner-centered strategies, that can ensure greater accessibility of learning environments and resources (Garrison, Vaughan 2008; Lee, McLoughlin, 2010).

As we know, online learning cannot be seen as a mere, extemporaneous transposition of teaching in the presence, but requires different teaching approaches, tools and skills (Bonaiuti et al. 2017). The choice of *learning tools* appropriate to distance learning – i.e.: *tools for resources producing*, *for synchronous live teaching*, *for asynchronous teaching*, *for self-regulated learning*, *for knowledge construction*, *for learning analytics*, *for practice and evaluation*, *for resources and class management* (Huang et al. 2020) – is fundamental to promote actively the construction of knowledge through collaborative online interaction, comparison tools, feedback and flexible evaluation, opportunities to reflect on one's own learning process through a variety of tools (i.e.: presentation, research papers, team projects, peer assessments, tests, E-portfolio).

As it was underlined by Dhawan (2020), there is a need, especially during crises, to re-think the processes of teaching, design and evaluation *with* and *through* digital media, weighting *strengths* (time flexibility, location flexibility, catering to wide audience, wide availability of courses and content, immediate feedback), *weakness* (technical difficulties, learner's capability and confidence level, time management, distractions, frustration, anxiety and confusion, lack of personal/physical attention), *opportunities* (scope for innovation and digital development, designing flexible programs, strengthen skills, an innovative pedagogical approach) and *challenges* (unequal distribution of ICT infrastructure, quality of education, digital illiteracy, digital divide, technology cost and obsolescence) of online methods of teaching.

2. Research design: aims, method, data collection

Student perceptions towards distance learning during the COVID-19 outbreak at the Mediterranea University were investigated[1]. Specifically, the primary research question was: what are the implicit representations of the students about the role and effectiveness of distanced learning, the critical issues and strengths connected to it?

The survey aimed to make explicit the perception by students of the changes that distance learning has imposed, to evaluate the level of satisfaction of university students with regard to distance learning and to take any proposals for improvement by students, for post-emergency teaching COVID-19. As Unger and Meiran (2020) argued it, while many studies have com-

1 During the emergency phase of COVID-19, academic training activities at the Mediterranea University have been redesigned in remote mode through the Microsoft Teams application program.

pared teaching methods in an increasingly utilized online learning environment, little is known regarding students – one among the group affected by emergency situations – during crises as COVID-19.

The exploratory survey involved two target groups:

- 80 students attending specialised teaching courses;
- 273 first- and second-year students of the Degree in Primary Teaching Education, aimed at preparing teachers of kindergarten and primary school.

At methodological level, the investigation is part of the *frame* of the analysis of educational practice (Altet, 2002; Perla 2011) and is inspired by the student-voice theoretical perspective (Fielding, 2012), that enhances the student "voice", often ignored by teachers and political decision-makers, capable of offer significant information for the improvement of teaching practices.

Two tools were used for data collection: the first tool is a questionnaire (composed of closed and open-ended questions and administered to students through Google Forms), the second consists of reflective writing.

Here only the qualitative analysis of textual data (open-ended questions and the axial coding of reflective writing) are presented.

3. Qualitative analysis of textual data

All textual data - both the open answers of the questionnaire and the reflexive writings - were analysed in a triangulated manner by two researchers through processes of codification of textual corpus inscribed in qualitative research methods (Richards, Morse 2009). More specifically, the textual data were analysed by means of *axial coding*, a process of emergence of semantic categories, starting from an in-depth reading of the textual data, on the basis of relationships between labels of a logical, ontological, equivalence, functionality (Strauss, Corbin 1990; Perla 2011).

Through interpretative processes of content analysis, the most frequent semantic categories associated with distance learning and the advantages and disadvantages connected with it have been identified.

3.1 Lights, shadows and perspectives of distance learning in universities: data analysis of the first target group

The first target group involved is 80 students attending specialised teaching courses. 71 students answered the questionnaire, with a response rate of 89%. As for the preliminary analyzes on the sample master data, the majority of respondents – 78,9% - are female; the average age is 39.

32,4% attended the specialisation course to teach in high school, 39,4% to teach in secondary school, 28,2% to teach in kindergarten or primary school. 56,3% state that they have already taught.

Five open questions were used:

1) *In relation to your technological expertise, what would you like to receive training support on?*: the findings show a training need relating mainly to the relationship between technologies and distance learning (video editing, animation bases, online platforms, Teams, creation and management of virtual classes, interactive whiteboard, Office, PowerPoint); to a lesser extent in terms of the number of responses, to inclusive technologies (compensatory software, assistive technologies).

2) *In your opinion, what are the "lights" (positive elements) in relation to the DAD provision of university courses?* the macro-categories emerging from the analysis are summarised below (tab. 1).

Table 1. Axial coding: "lights" (positive elements) of distance learning

Macro categories	Emerging categories
Democratisation of knowledge	easy accessibility, immediate use and sharing of content and documents, use of the service in any place/time, favouring those living in unfavourable economic and/or geographical contexts
Ergonomicity	cost saving, time optimisation, convenience of staying at home, no need to travel, better reconciliation of study and work, combining a high level of education with family life, less stress, ease of use, convenience
Learning support	flexibility, iconic support, multimedia, fewer distractions, greater concentration, being able to review lessons while studying, being able to organize one's own learning environment, experimenting with methods of communication common in the labour market
Improved classroom interaction and management	more informal and less vertical classroom climate, more intimacy, feeling of a 'face-to-face lesson', more participation, not feeling observed, overcoming the barrier of shyness, 'always being at the first desk', creativity in overcoming the limits of distance
Continuity	to be able to 'continue everything' even in crisis situations, emergency teaching, health safety

3) *In your opinion, what are the "shadows (critical elements) in relation to the DAD provision of university courses?* The macro-categories emerging from the analysis are summarised below (tab. 2).

Table 2. Axial coding: "shadows" (critical elements) of distance learning

Macro categories	Emerging categories
Technical problems	poor internet connection, technical problems, loss of time
Relationship and socialisation	lack of interaction and physical/visual contact, lack of non-verbal communication, lack of physicality in the class group, poor interpersonal knowledge, difficulties in human relations, dehumanisation of the educational process, 'cold' relations
Inequality	inequalities linked to the possibilities of access to technological tools, different technological skills, having to share the work-work environment and the family-private environment
Low learning effectiveness	lectures without the use of iconic or interactive media, difficulties in practical activities, attention lapses, distractors in the home environment

4) *What do you expect regarding the distance organisation of laboratory activities?*: students' "expectations" concerning the distance delivery of the workshops can be summarised in a few macro-categories, such as *concreteness* (practical cases, simulation of real activities and innovative teaching strategies, creative and stimulating activities), *organisation* (punctual, clear, flexible), *tutoring* (ad personam and group), *cooperation* (group activities, exchange of ideas, interpersonal exchanges), *involvement* ('reducing distances');

5) *Do you have any suggestions and/or proposals for improvement in relation to the distance delivery of university courses?* The results of the analysis show a high number of macro-categories, summarised below (tab. 3), relating to educational and organisational improvement (lower, however, are the proposals for technical improvements).

Table 3. Axial coding: suggestions/proposals

Macro categories	Emerging categories
Didactic-organisational	Time flexibility, working groups, enhancement of practice, use of practice sheets, case studies, active teaching, reference tutors, optimisation of the timetable, use of asynchronous lessons and handouts, experiential activities, greater use of feedback and verification of participation, greater interaction
Technician	User-friendly platforms, creation of classrooms and virtual rooms for small groups, basic video tutorials on Microsoft Teams, technical support

3.2 Features, functions, organizations, advantages and disadvantages of distance learning: data analysis of the second target group

The second target group involved is the entire population of students of the first and second year of the Primary Teaching Education Degree, consisting of 314 students. 273 students answered the questionnaire, with a response rate of 87%. Almost all the respondents - 96.3% - are female; the average age is 25. 65.2% are first year students, 34.8% of the second year.

As it can be seen from the following summary tables, the analysis shows a high differentiation of meanings associated with distance learning, as well as many advantages and disadvantages associated with it (tab. 4):

Table 4. Axial coding: distance learning (categories).

Macro categories	Emerging categories
Distance learning features	Originality, Interactivity, Dynamism, Modularity, Flexibility, Versatility
Distance learning functions	Facilitator tool, Planning of educational activities, In-house training, Online exams, Peer education, Learning by doing, Reasoned and guided construction of knowledge, Educational innovation, Decision support for emergency situations, Promotion of new communication methods, Development of new skills, Development of new ways of knowledge sharing
Distance learning organizations	Social context, New innovative teaching methods, Educational relation, Empathy, Continuous learning, Social learning, Information, Cultural experience, Cooperative learning, Meaningful learning, Forma mentis, Resource, Educational response to the right to education, Laboratory learning, New educational frontier, Digital solidarity, Digital literacy, Humanization, Accessibility, Coding, Teacher education, Teacher as Facilitator, Tutor
Distance learning advantages	Review and listen to the recorded lessons, Commute trip reduction, Continue to study in emergency situations, Time-cost optimization, Bridge the gap (or reduce distances), Communicating through technology, Develop new formae mentis, Interaction in distance education, Breaking the barriers of time and space, Maintain the continuity of social relationships, Share educational content, Managing study time, To be able to do remote exams, Learn according to personal rhythms, Make more time for yourself, Be able to learn in a cooperative way, Experiment with new ways of learning, Develop cognitive skills, More flexibility, More accessibility of teaching material

Distance learning disadvantages	Inability of teachers to use technological equipment, Lack of practical educational activities, Absence of a group size, Lack of sharing spaces, Poor attention and concentration, Lack of direct contact, Lack of emotions, Difficulties for students with disabilities, Poor Internet connection, Lack of a computer, Problems of socialization, Lack of social interaction teachers-students, Problems for families: lack of IT tools and IT skills, No gesture, lack of feedback, loneliness, Digital marginalisation

4. Findings

From the personal reflections of the students that emerged from the qualitative textual analysis, it is clear that the provision of distance learning represents, especially in times of emergency, the only possibility to guarantee the right to study.

There are many recognized advantages of distance learning: the possibility of better organizing one's learning according to personal rhythms, optimize time and costs, reduce travel and commuter distress, break down space-time barriers and limits, increase the participation of working students, review and listen to the lessons recorded on the platform, support learning also through more informal modes of interaction and test new teaching methods and new teaching activities based on participatory and cooperative learning, the development of a new forma mentis and the ability to build, maintain and strengthen social relationships.

According to the students, the experience of distance learning allowed the "democratisation of knowledge" due to easy accessibility, immediate use and sharing of content and documents, use of the service in any place/time, favouring those living in unfavourable economic and/or geographical contexts.

There are also disadvantages or "shadows", including: the lack of direct contacts and empathy, poor socialization opportunities, the difficulty of expressing emotions, poor teacher-student interaction, technical problems, the difficulty of organizing cooperative activities, the difficulty in sharing spaces and organizing practical teaching activities aimed to develop problem solving. In particular, according to the students, distance learning could represent an important criticality for students with disabilities, especially in communication and due to the absence of a tutor as a facilitator.

This data - which is linked to the relationship among distance learning, social differences and inequalities - offers a starting point for work and an interesting perspective, that is, a review of teaching design models according to multimodal, flexible, adaptable, accessible and inclusive approaches.

Among the disadvantages reported, there is also the difficulty of families and, above all, the "inability of teachers to use technological equipment": this data is very significant, as it shows how it is necessary to implement teacher-training actions in the use of teaching technologies in universities.

This evidence is also confirmed by the answers concerning the proposals for improvement, almost all of which are of a didactic-organisational nature and linked to the teachers' professional skills in flexibly managing time, space, work groups, tools and didactic mediators (especially active ones), use of feedback and formative assessment tools.

5. Discussion and conclusion

The findings demonstrate that there is a need to invest not only in the digitization of schools, but also in the professional development of teachers and the training of trainers: a dynamic and transformative process, capable of involving different stakeholders at various levels, including the political one.

To promote "flexible" learning by using different shapes of technologies in online learning, is necessary for teachers to develop a new type of *sophisticated* knowledge and the ability to

transform disciplinary content into *digitalized* disciplinary content (Perla, Agrati, Vinci 2019), or rather knowing how to select, adapt and transform didactic materials: these are operations that are part of the complex work of mediation and didactic mediatization (Damiano 2013; Agrati 2020).

Furthermore, the study suggest that students should be more involved in *Faculty Development* research and actions: many of the lessons learned from student perception and attitude surveys (Angelova, 2020; Arora & Srinivasan, 2020; Hebebci, Bertiz, Alan, 2020) can be helpful for educators and universities to design learning programs that engage students in an online environment.

In conclusion, the survey carried out and clarified some findings, which are capable of orienting further development prospects, in the fields of research as well as design of teaching approaches, and teacher training:

- the review of teaching design models, according to inclusive, multimodal, flexible, adaptable, and accessible approaches;
- the necessity of implementing strategies of Faculty and Staff Development at the University, through formative programs specifically oriented to educational technologies and to plan online teaching activities in terms of higher flexibility and effectiveness, using different organizational modes of online teaching, in synchronous and asynchronous mode;
- the opportunity to deepen, with further investigation as well as through an analysis of teaching practices in University, to what extent the didactic mediation is modified by online teaching.

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