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SENSE OF PRESENCE ALTERATION WHILE USING LEARNING MANAGEMENT SYSTEMS AT UNIVERSITY DURING THE LOCK DOWN

ALTERAZIONE DEL SENSO DI PRESENZA CON L'UTILIZZO DEI LEARNING MANAGEMENT SYSTEMS ALL'UNIVERSITÀ DURANTE IL LOCK DOWN

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Abstract

From the first lockdown, several Italian universities created the conditions to maintain lectures schedule by using just one video conferencing software able to connect students and professors. Indeed, many universities have worked assiduously to face the challenge of this forced video-digitization due to the pandemic emergency within a short time and with practical solutions, till they were able to fully use the video-conferencing platforms, that sometimes they already had but they were only used in sporadic cases. This work tries to bring out the experience happened at the University of Salerno regarding this issue and encourage to reflect on the sense of presence in remote synchronous teaching taking account of three different perspectives (objectivity, subjectivity and intersubjectivity) essential during the teaching-learning process.

Molti atenei italiani hanno rapidamente creato le condizioni, a partire dal primo lockdown, perché i docenti potessero fare lezione nelle ore e nei giorni previsti dall'orario del corso con piattaforme di videoconferenza, mettendo gli studenti in grado di accedere alle lezioni in maniera semplice attraverso un'unica interfaccia di accesso. Molte università si sono adoperate senza sosta per raccogliere la sfida della video-digitalizzazione imposta dalla pandemia in tempi brevi e con risposte dal carattere pratico, potendo finalmente sfruttare pienamente le piattaforme di videoconferenza che in molti casi già possedevano, ma erano usate solo in casi sporadici. In questo lavoro si cerca di far emergere l'esperienza pratica e alcune riflessioni teoriche maturate presso l'Università degli Studi di Salerno

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riguardo questa tematica ed in particolare a quella cura verso il processo di insegnamento-apprendimento che transita su un canale multimediale, di streaming video in tempo reale, che deve tener conto del senso di presenza nella didattica sincrona a distanza facendo emergere quei fattori di oggettività, soggettività e intersoggettività necessari nell'agire didattico del docente.

Keywords
Distance Learning, Sensoriality, University Teaching, E-Learning, Learning Management System, Special Educational Needs Didattica A Distanza, Sensorialità, Didattica Universitaria, E-Learning, Learning Management System, Bisogni Educativi Speciali

1. Introduction

The pandemic emergency - due to Covid-19 - has involved our lives and led us to change our habits and lifestyles, to rethink structures and procedures, to question paradigms and ancient certainties, now considered as acquired and consolidated. However, for schools and universities the pandemic has represented an important opportunity to question the model of higher education and to experiment with new forms and ways of implementing it, in all its tragic drama. The relentless pace of events required a rapid and effective response in terms of the practices and tools necessary to continue teaching activities. Starting from the beginning of March, the universities in Northern Italy were the first to suspend classroom activities, followed by all the other universities in the country. The reopening itself, scheduled for April 3rd, has been postponed several times due to the continuous increase of contagions, pushing more and more in the direction of a reorganization of long-distance activities. In fact, in a short period of time, all training institutions have accelerated distance learning equipping themselves with adequate systems and platforms. The main objective of the first actions implemented was to guarantee teaching continuity. From the very beginning, universities have been committed to ensuring that the pandemic emergency does not have a negative impact on the natural course of students' university careers. All the teaching activities planned for the lectures have been converted to distance mode, guaranteeing educational continuity to a university population of over 1,800,000 students enrolled in various degree courses, masters, PhD and specialization Courses. Professors and all the technical staff have not been limited to providing continuity to lectures and exams but has tried to represent a point of reference for tens of thousands of young people disoriented by what was happening. Tools were provided, such as tutorials and guides, that could represent precise references for students from outside the university, foreigners and participants in Erasmus projects. This was the real challenge that the universities were called upon to face. To be ready and prepared to completely change a context, such as the educational one, which has always been based on the centrality of the relationship between individuals. The suddenness and effectiveness of the response have given the measure of the adaptation that the University, thanks to its background of research, experimentation and teaching has been able to put in place with system markings. The activities were also compared through problem solving/challenge activities attracting the possibilities of the virtual deployed in a pedagogical thinking that has shifted the focus on the experiential, sensory dimension of learning. In this, the theoretical framework of the Pedagogy of the Body has offered an interesting reading lens because it focuses on bodily experience lived at a distance, thus allowing the integration of digital experience from an embodied perspective (Caruana, Borghi, 2013; Gomez Paloma, 2017).

This educational and didactic approach to digital media can be a valuable resource with respect to an important challenge that the pandemic has brought to confront: not to lose unity in the relationship between thought and action. This is a fundamental building block for the University to aspire to maintain itself as a place (even remotely) of learning that shapes and transforms. Recourse to experiences mediated by the use of digital technologies has made it possible to cultivate the exploratory habitus necessary for questioning and rereading things through the sensitive and sensory dimension. Every action taken in this perspective has required

from many people a spirit of service and hard work. The change to which we have all been called has become an awareness shared and understood by the entire university community. A community in which the transmissive-reproductive paradigm of the teaching/learning processes, moving towards transformative, dialogic and reflective modes has led to the emergence of meaningful relationships, born from the combination of distance and presence and aimed at developing creative skills. It should certainly be recognized that the Italian university as a whole has been quicker than other institutions in adapting its offerings to the new situation. The reason is quite simple: in the university, experimentation and research are carried out, and the future is anticipated, even in teaching. Despite the understandable differences between the various universities, in most cases the rectors have moved towards mixed solutions, which have allowed for synchronous and asynchronous teaching and the use, when possible, of specific platforms for e-learning. The University of Milan was among the first to offer its faculty the recording of lectures and the publication of videos on the University's e-learning platforms (Ariel and Moodle), also "urging" the faculty to proceed to the activation of personal web pages. It also gave the opportunity to do live web-conference lectures on the Microsoft Teams platform. With the worsening of the pandemic situation, the new didactic modalities were increasingly consolidated and the choice of recording and publishing lectures gave way to synchronous one. The University of Federico II in Naples, which boasts good experimentation in the sector thanks to the experience gained through the Federica platform, responded to the emergency by integrating the systems already operational with Microsoft Teams, achieving good success in reaching its approximately 60,000 enrolled students. The University of Salerno, even though it gave professors the possibility to choose between the recorded lectures (asynchronous) and the streaming (synchronous), then pushed decisively for the second solution. It quickly created the conditions so that professors, through the use of Microsoft Team, could continue to lecture during the hours and days scheduled in the course schedule. At the same time, it allowed students to access classes easily through a single login interface. The result was comforting. After an initial preparation phase, almost all of the master's, bachelor's and single-cycle degree courses were online, and the courses delivered via streaming were available in both synchronous and asynchronous modes. The teaching material was distributed for almost all courses on Microsoft Teams platform, Moodle and through the personal pages of the professors. The experience of the University of Salerno certainly represents an evolving model of modern teaching which, once the pandemic is over, will not be lost. The concept of interactivity, sharing and synergy between traditional and remote didactics will not fail, through the development of technologies suitable to generate and enhance the cognitive experiences of being, without this actually being true in a physical sense (Riva, Vatalaro, Zaffiro, 2009). The interaction with the network will be ensured through gestures, expressions, movements, just like in the daily interaction with the real world, for the benefit of universities, students and culture.

2. The challenge of video-digitization forced by the pandemic

Starting from April 2020, almost all training institutions quickly tried to equip themselves with remote teaching systems. The choices were made with understandable differences between the various university institutions, rectors opted for articulated solutions, which would allow both synchronous and asynchronous teaching and the use, when possible, of specific platforms to favor the teaching-learning process, among them there were: Microsoft Teams, Google G-Suite for Education, Cisco Webex, WeSchool (which included Jitsi meet), GoToMeeting and Zoom emerged. On the other hand, platforms that do not include the possibility of activating videoconferencing, such as Edmodo, were soon abandoned. Despite the difficulties, some universities suggested uploading their video lectures to the University e-learning platforms that were already available (usually Moodle), when possible.

In April the lockdown extensions followed one another, the emergency became a stable reality and the solution of video lessons to be uploaded to the university platform became difficult to manage from an organizational point of view. This struggle was not only due to any gaps to

tachers' digital skills gap, or to those of the university staff, but was related to an accumulation of hours required for the video editing. Later, the choice to switch to synchronous videoconferencing lectures became the new norm for many universities. In this regard, during the hearing at the Culture and Education Commission of the Chamber on 9 April 2020, the Minister of the University, Gaetano Manfredi, actually not still Ministry but with another institutional role, recalled that the effort of the Italian universities of not interrupting the teaching activities and graduation sessions had positive results throughout the country: more than 94% of courses were delivered online and as many as 30,000 degrees discussed despite the lockdown. In summary, it could be agreed with the then Minister that Italian universities have worked tirelessly to face the challenge of forced video digitization, imposed by the pandemic, in a short time based on practical solutions, and finally being able to fully exploit the platforms of videoconferencing that in many cases universities already possessed, but were used only in sporadic cases.

3. Digital Teaching guidelines

Starting from what has been expressed and reflecting in a broader sense, even schools - like universities - have moved from face-to-face teaching to distance learning. In fact, there are a number of publications, *vademecums* and ministerial circulars that suggest teachers and students make good use of information technology and telecommunications to encourage e-learning. Some of these documents can be cited for their clarity of presentation.

For example, it is here appropriate to cite the "Guidelines for Integrated Digital Didactics" (DDI), offered by the MIUR, provided in the Recovery Plan. The document reported the operational indications to be adopted by these institutions and it also reports the experience acquired during lock down. Because of the health emergency, the Law Decree of March 25, 2020 (n. 19, article 1, paragraph 2, letter p) aimed to provide the possibility to carry out "remote" teaching activities in schools of all levels, throughout the national territory. Two months later, with Decree Law no. 34 of May 19, 2020, further interventions were financed to enhance teaching, such as: equipping schools and students with the necessary tools for the use of distance learning modes, adopting measures to promote school inclusion and adopting measures to combat early school leaving. Integrated digital education was proposed as an innovative teaching-learning methodology, representing a mixed teaching method that integrates the traditional school experience in presence and digital tools. In fact, the design of teaching activities considers the sustainability of proposals with reference to the context and a general level of inclusion. Another very useful document was The Compendium developed by SIREM (Italian Society for Research on Media Education) for distance teaching at the time of Covid-19 which provides schools and universities with operational suggestions for adopting and experimenting with forms of distance teaching. The document points out that online teaching does not mean transferring teaching by modifying only the tools; e-learning presupposes specific skills required of the teacher in terms of both technologies and online teaching methodologies. School and university are educational spaces that promote the interaction between teaching-learning and the teacher-learner relationship: dialogue and reciprocal exchange of information promotes the relationship and distances the idea that e-learning is only a container of materials and notions. Many Italian universities have organized distance learning and each university manages its own telematic tools with implementation strategies. But how should a good lecture be prepared that takes into account everyone's technical knowledge? The SIREM Compendium tries to answer this complex question and identifies guidelines that provide information on the didactic organization of each work session. In detail, the web page of the compendium refers to three documents in Portable Document Format (PDF): the first one is for schools, the second one is for universities and the third one collects useful links on the subject of distance learning. Distance learning must include work phases that allow students to interact with each other and with professors; the problems that may arise are not technical since the various tools available are specific to each learning environment or other external channels available (e-mail, messaging such as Whatsapp or Telegram, web 2.0 tools). From an educational point of view, it is impor-

tant to identify interactive activities in the process of fostering the educational relationship: the reception phase, exposure/presentation, feedback, activities and debriefing. The compendium outlines the various ways in which the distance phases can be implemented. The structure of the document should not be understood as a rigid rule, but variable and flexible with respect to the specificity of each discipline, the context and the audience of students.

4. Learning Management System within the university environment

Given the current health emergency, university teaching has had to face various changes and requests aimed at changing professors' programs and lectures by putting in place new technological resources. To support distance learning, various LMS (Learning Management Systems) have been used such as Microsoft Teams, Moodle, Google Meet, Zoom, Edmodo software, which are part of a larger category of online platforms, namely CMS (Content Management System) that allow the management and production of content aimed at delivering different forms of teaching. Generally, LMS have common characteristics, as they allow students to register (i.e. allow them to create a personal account which is associated with the courses they must follow during the current academic year) and upload teaching material, but each software has own advantages and disadvantages. An example of a platform with a high degree of customization is Moodle, in fact it is possible to modify the source code to create new features, on the other hand, Edmodo does not require installation (on a university server or hosted which in general requires time and technical skills) but you can only take advantage of the features available in the software without allowing users to make changes. Zoom is among the most used for its multiple functions, it allows the participation of 100 users and 49 videos on the screen, but security and privacy issues have been found subsequently resolved with regular updates (Singh & Awasthi, 2020). In fact, in this period of distance teaching it emerged that students have encountered difficulties in distance teaching due to the change in teaching methods of face-to-face teaching (Riva, 2020). To understand these difficulties, it is necessary to specify that face-to-face teaching is based on three main pillars: 1) the physical place where the training takes place; 2) the teacher and learner relationship; 3) the interaction between the class and the teacher (Ibidem) 3) which undergoes changes with the remote interaction. Research in the neuroscientific field has highlighted the importance of these three dimensions within the relational process. Psychological studies (Moser et al., 2015) have focused attention on the concept of place, as it has been shown that individuals develop an affective dimension with places, making a difference from the concept of space intended as the available surface. The mind is able to intuitively identify the places present in space thanks to specific neurons, called position neurons, also called, by analogy to the systems installed on smartphones that locate space, "GPS" neurons (UVA, 2017) i which are capable of creating a map of the places that surround us (Ibidem). The mind constitutes the autobiographical memory from the places identified by these neurons, building a sense of belonging to specific contexts. In other words, places are generators of experience that systematically organize memories and social identity, assuming a fundamental role in autobiographical memory. Neuroscientific studies (Riva, 2020) argue that the LMS used to deliver distance learning, such as Microsoft Teams and Zoom, are not identified by our mind as digital places, so they do not have a significant impact on autobiographical memory and in social identity (Ibidem). Failure to activate GPS neurons in distance learning makes all lectures seem similar to students since it does not generate a sense of place. However, there are some technologies, such as virtual reality and augmented reality, which can activate position neurons. Neuroscientific research has also focused attention on another aspect that characterizes face-to-face teaching, namely the relationship between teacher and learner. In the didactic field, the construction of an empathic relationship between teacher and student, based on the mirroring of our brain, plays a central role. The mechanisms of mirroring and simulation make use of the activation of mirror neurons, which is a class of neurons that allow us to intuitively understand the emotions and intentions of others. In distance learning the mirroring processes are limited, as haptic communication and proxemics are lacking. Among the LMS used for distance learn-

ing, it was found that Zoom favors the mirroring process as it offers the possibility to see all the students' faces during the lecture, unlike the Microsoft Teams software which allows you to view a limited number of faces. Recently, in the neuroscientific field, the existence of a biological marker related to synchronization processes has been discovered through the introduction of a new technique called hyperscanning (Dikker, Wan at al. 2017) which allows to measure the brain waves of the subjects involved in activities. shared. The experiment made it possible to verify that a synchronization of brain waves is created in classroom and this is directly proportional to the involvement during the lecture and social dynamics (Ibidem). This study demonstrated how the synchronization process is generated by the shared attention (exchange of glances and face-to-face interaction) present in the class and that it is an effect of how the group is able to work together (Riva, 2020). The transition to distance learning has questioned the three pillars that characterize face-to-face teaching, as it does not allow for the construction of social identity and the mirroring process within the classroom. In fact, distance learning seems to be functional when a teaching methodology is applied that alternates individual study activities with activities with the teacher, or when there is an alternation or in some cases a reversal of traditional teaching in which the teacher prepares the materials. in-depth study for the class and the learners study independently and then confront themselves with the teacher and the class group. This does not mean that distance learning does not offer training to students but some tools that support the training activity are missing. Therefore, in some cases, distance learning does not seem to be advantageous, especially as regards the relational dimension, but the best solution could be blended teaching, i.e. the integration of online teaching as a complement to face-to-face teaching when this the latter is possible at a regulatory level.

5. The sense of presence in synchronous distance learning: objectivity, subjectivity and intersubjectivity interplay

Even though the third media age has already begun (Rivoltella, 2018), both the pandemic emergency and the wide use of digital devices brought about many concerns on the new teaching-learning process professors and student had to quickly adapt. Both teachers and scholars reflected over how it was possible to let all the students be engaged and to favor their participation by exploiting the potential of digital during lectures. Intuitively, the sense of presence and the degree of participation could be reduced by technical problems of connection and the use of the platforms or, in some instances, by difficulties related to the absence of face-to-face interaction whether with peers or with professors (Arenghi, Bencini, Pavone, & Savarese, 2020). Furthermore, these complexities could bring out digital inequalities (Hargittai, Hsieh, 2013) that hinder school and social inclusion and favor the manifestation of Special Educational Needs (Altomari, Montesano, Straniero, 2020; Arenghi et al., 2020; Chiappetta Cajola, 2020; Vinci, 2020).

For this reason, it is now necessary to make clear which factors may connect the "presence" and the "participation" to the inclusive process within e-learning environments. According to Ainscow (2004), the inclusive process is mainly associated with "presence", conceived not only as a place where students are educated but also in terms of perseverance and accuracy, they usually attend classes; but to the "participation" too, which is about the quality of school experience, and to the educational success at last. During the pandemic emergency, all these factors may be compromised by nonsocial restraints due to technical or other problems and hinder full inclusion but also the teaching-learning process. Considering to traditional lectures, mainly given in physical settings, presence is often associated to physical and objective elements or to observable behaviors within a delimited space (that of the classroom). In fact, as Schloerb states (1995), the physical presence is objectively identifiable as «the existence of an object in some particular region of space and time. For example, this text (in some form) is physically present in front of you now» (Ivi, p. 68). Taking into account both Ainscow observations (2004) and those purely objective considerations, a teacher who usually works within physical or virtual classrooms may simply write down or download information about students' perseverance and accuracy using specific functions of the LMS they are using. However, this interpretation does

not seem to be sufficient to fully understand the sense of presence in didactic contexts. The latter, in fact, is characterized by a multiplicity of physical, social, individual factors (for example cognitive, emotional, social) that may mutually interact and favor or hinder the teaching-learning process (Sibilio, 2020) and full participation of all students. Researchers use to start from a more subjective meaning of presence and divide it into two types (Sacau, Laarni, Hartmann, 1992; Nicovich, Boller, Cornwell, 2005). There would be the physical and perceptive dimension, that intercepts the sense of being placed in a virtual space, on the one hand, and a social dimension, understood as the perception of the possibility of perceiving the other and interacting with him/her or the environment, on the other. As regards the first dimension, according to Riva, Valataro and Zaffiro (Riva, Waterworth, 2003; Riva, 2008; Riva, Vatalaro, Zaffiro, 2009), recent discoveries in the cognitive field allow us to describe presence as a mechanism of selection, adaptation and coupling between perception and action. This typology would let the self to "be there" within a specific environment (in real or in virtual) and to intentionally act by exploiting its *affordances* (Gibson, 1979). In the case of digital platforms, this is possible through the medium of some functions associated with some "buttons" to raise your hand or write in chat to intervene, share documents, create instant or scheduled meetings with colleagues to start cooperative learning activities or create opportunities for discussion.

Most of the multiple interfaces have almost similar types of affordances thanks to the symbols the developers use (the like button is an example); therefore, the initial *break in presence* (Riva, Giuseppe; Vatalaro, Francesco; Zaffiro, 2009) gives the professors and the students the possibility to experiment the different functions of the interfaces for serendipity and to take advantage of its affordances. However, in some cases, it seems that social and emotional affordances decrease as well as teacher-students interaction; when all the screens are turned off, any bodily movement of the interlocutor may not be considered as a possibility for different types of actions, just as it happens for objects (Borghi, Gianelli, & Lugli, 2011). Usually, during the didactic interaction, verbal language, volume and tone of voice, gestures, eye-gaze, nods or even the smallest acts of inhalation and exhalation are completely coupled with the dynamics that arise in an inter-dialogic and interactive world (Linell, 2009); it offers "invitations to act" that sustain dialogue, discussion and didactic action. In fact, Sibilio (2020) argues that: «On a didactic level, action has to harmoniously coordinate different acts and functions to encourage interaction such as speaking, gesticulating, mimically and physically interpreting by creating a specific choral didactic agreement that is able to interact with several individuals, reducing any form of inference deriving from the actions of other individuals, objects, sounds, images, events» [author translation] (Ibid., p. 172). Nonetheless, some studies show that face-to-face and computer-mediated communication, even during online courses, have an impact on teacher-student interaction (Shalom et al., 2015; Tichavsky et al., 2015). The face-to-face modality implies immediacy, synchronicity in behavior and it is enriched with non-verbal cues that guarantee good interactive quality (Liu et al., 2019). Nonetheless, some authors also highlight educational success and improvements in cognitive and intellectual skills (Jensen, & Pedersen, 2016).

Vice versa, these signals and outcomes are absent, or sometimes negligible, when the interaction is mediated by the computer or when there is no possibility of using all the features of the LMS (Jensen, & Pedersen, 2016). The lack of social feedback may cause a unidirectional relationship when two agents may not be able to adapt their communication modalities (verbal and non-verbal), their knowledge to the new information received or tuning during the dyadic relationship mediated by the device (Liu et al.., 2019). Therefore, the availability, also technical, of students and professors in the activation of video cameras, the possibility of creating micro-working and discussion groups, may promote a neural and educational harmony and synchrony, and an intersubjective exchange between all the participants. Finally, a further factor that, according to cognitive research, should be considered a starting point for teaching is the emotional state of the student (Park & Lim, 2019; Damasio, 2002; Lazarus, 1982).

Pekrun, Goetz, Titz and Perry (2002) show that it may hinder or improve the learning process; therefore, it is important to take into account the emotions experienced by students within

e-learning contexts. To support this study, Park and Lim (2019) highlight that emotions influence the learning process, educational success and experiences of students; *vice versa*, success or failure may affect their emotional state, too. Emotions should be considered *intentional signals* (Vallverdú, 2015) that pervade the perceptual and cognitive sphere and that are useful both on a personal (eg modulation of actions) and social level (eg cooperation, request for help); as during online activities students may experience positive (enthusiasm, satisfaction, freedom, empathy, hope, joy, pleasure, pride, fun, satisfaction, etc.) or negative emotions (boredom, sadness, anxiety, fear, apprehension, shame, embarrassment, worry, anger, etc.). Hence, professors should support the students to develop empathic and educational-didactic skills that allow them to perceive these clues, these *emotional affordances* (Vallverdú & Trova, 2016). Considering the latter and what has been exposed so far, professors should carefully adapt their teaching activity by selecting vicarious strategies in order to respond to their students Special Educational Needs and supporting them to use the LMS to participate during all the activities.

6. Conclusions

As shown, the teacher *savoir-faire* (in organizational, technological, didactic and pedagogical terms) and the achievement specific digital skills, that allow both professors and students to successfully interact within remote environments, are fundamental; it is also clear the need to intervene on promoting the sense of presence and the degree of participation to have a positive didactic impact and spread the idea that professors and students digital skills may improve the teaching-learning process of any discipline. Furthermore, it is necessary to rethink distance learning for all those who have Special Educational Needs, regardless of legislative interventions, but also to take into account the needs of all students by starting to act in their own university in advance. In fact, students may not only have Internet connection problems, in contrast with those who limit the problem of distance learning to a mere technical one, but they also need to compensate the lack of much appreciated face-to-face interactions.

However, as Riva (2020) points out, unfortunately some LMS used within the university environment are not always automatically conceived as didactic environments, so they do not have a significant impact on the student's autobiographical memory and social identity (Ibidem); it may de-legitimize the teaching action and partially also the learning process, because the students may often get distracted, and they may not always want to interact freely and meritoriously with the teacher during the lecture. However, in this work it has been exposed, albeit in a non-exhaustive way, how digital technologies may activate real or simulated sensory-motor processes, in order to manage didactic activities that take place in a continuum between what is perceived during a long-distance relationship between all those virtually connected. In any case, when this relationship is not well established, the lecture is not perceived as such and the teaching-learning process does not regularly occur because the teacher becomes an element of the background sound, in some cases a real background noise, whereas the student may use his device for other personal activities (for example replying to his emails, reading the newspaper, visiting social networks) and may get distracted. Furthermore, the use of their own devices may frequently generate a cognitive overload due to the simultaneous use of the LMS with private messaging systems that de-concentrate the students, but this is a fact. We are facing the other side of the coin of the *Bring Your Own Device* philosophy and unfortunately it is a known problem and it also caused questionable decisions; during the written and oral exams in electronic mode that took place during the lock down, several universities took the decision to ensure students attention by blocking students' devices, via software, on the platform alone. Taking up the reflection of the previous paragraph and placing inclusive teaching at the center of this final consideration, during the distance teaching the students express both positive emotions already listed (joy, pleasure, satisfaction, etc.) and negative ones (sadness, anger, fear, caused by the lesson or by personal situations or simply boredom that emerges from certain behaviors such as the cameras turned off and the total or partial absence of questions); elements that must not be overlooked by professors in online teaching. The latter, on the other hand, should develop their

skills in terms of empathy and teaching methodologies to integrate their disciplinary teaching with appropriate and useful pedagogy and Didactics (both general and special) contents to promote those emotional affordances already mentioned (Vallverdú & Trova , 2016), by taking into account the flexibility, interaction and opportunity offered by the vicariance of use of technological tools (Sibilio, 2013, 2020) for teaching and general purpose. A suggestion could be to leverage the vicarious use of personal devices (think of the installation of systems for the visually impaired, systems for voice dictation, systems for subtitling lessons). At the same time, professors may modify their teaching activity to plan, modulate and harmonize their lectures according to students' Special Educational Needs in such a way that every single educational need is taken over by the teacher, analyzed and managed; avoiding prepackaged lessons that demean the teaching of a series of video lessons delivered in live streaming, without interaction and that in some cases (when the negative emotions of a student exceed the positive ones) induce the student to prepare the exam on the handouts and on recommended textbooks; this phenomenon causes a situation similar to that of having some students "not attending" lectures even if they are actually connected to it.

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