

Hybrid Digital Learning Environments for College Student Education

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Abstract. Through the analysis of specific constructs such as multiliteracy, multimodality and multimedia, this article seeks to form an innovative teaching proposal within school and training systems. The issues of digital learning environments and distance learning are investigated to provide teachers with useful tools for post-COVID teaching practice. The model that the University of Foggia is imagining (and that could be the reference for a strategic multi-annual plan) starts from the assumption that the goal is a hybrid university where there is a large amount of digital innovation and therefore significant digitisation of processes. The UniFG formative interventions on the use of technology in university teaching will take the form of a series of non-compulsory courses aimed at all teachers, which will aim to provide the skills necessary for the smart use of digital technologies in the perspective of a general system innovation and not of specific courses.

Keywords: Hybrid technology, digital learning environments, media education, Teaching learning center, E-learning center

1 Defining Categories and Application Constructs

In the international debate, the use of multimedia applied to teaching in educational and academic contexts has a large space. The sudden acceleration towards distance learning has led to a rethinking of the role of e-learning and digital learning environments within university contexts.

The fundamental categories for understanding what is happening in online education are mainly two and have been designated with the concept of *multi-literacy* [1] and *ubiquitous learning* [2]. The concepts of multimedia literacy and multi-literacy are linked to the alphabetisation of a plurality of languages that characterise contemporaneity; while in the past, for a long constitutional tradition of the West, alphabetisation was mainly centred on reading-writing or arithmetic, in the nineties the authors of the New London Group (1996) [3], indicated to schools and teachers a way to rethink teaching and learning methods in a multi-literacy perspective, i.e. orienting the didactic intervention towards the alphabetisation of a plurality of communication languages such as videos, images, graphics, comics and video games, which characterise the experience of contemporary student learning.

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The concept of multi-literacy is actually linked to a transformation of the role of students and learners. In this perspective, according to Cope and Kalantizis [4] the student must be actively involved in the learning processes, and therefore not passively receive the information from the teacher, as it happens in the transmission models of the frontal lesson, often slavishly translated in the first experiments, even in DAD. During an *ex cathedra* lesson, each teacher explains to a community of students that by definition are not very reactive, because they do not share yet the symbolism and horizon of meaning of the teacher. According to our authors, a truly effective method must be strongly characterised by interaction: in this way, the students are involved in the learning process and enrich the didactic tasks with their own experiences and interests, so they are not in any way a blank slate to be filled with content.

In this perspective, the student takes on a new role by entering the educational process: the set of knowledge and skills of the learners are brought into play in the educational relationship that is experienced through the digital medium. The new figure of the learner is redefined as a 'knowledge producer'; he or she is not the recipient of an information flow but constructs knowledge together with the teacher and the class group, primarily through a collaborative dynamic between peers [5]. It is therefore necessary to develop the ability to process a wide range of information resources that are available in the ecosystem of the info-sphere and in everything that surrounds real life [6].

The subject is at the centre of an enormous flow of communications and must share knowledge with the peer group, through a collaborative dynamic that is essential in the learning processes of today's school. In fact, to be born in a strictly digital context means being trained to work effectively in collaborative groups (this means that the student already has the necessary skills to work in groups and in pairs and to carry out projects among peers, etc. thanks to the playful and cooperative logic of media technologies) and to build symbolic horizons which differ from those used during frontal lessons, in which the main channel of knowledge transfer has a transmission nature and communication is unidirectional [7]. In this second didactic mode, study and especially learning are carried out in a somewhat isolated and individual manner.

The analysis proposed in this contribution is devoid of value judgments, since polarising by simplifying these two worlds (frontal and innovative teaching) makes the speech arid; it would be instead beneficial if each methodology could influence the other to improve contemporary teaching practice.

The practice of reading in the traditional Gutenbergian model involves a strong concentration of the reader on the different parts of the text, which follows the linear logic of the practice of reading from right to left. The archetypal model of didactic communication involves the teachers explaining their lessons from their chairs to many students and the students, through this process of transfer of information, taking notes, sedimenting the knowledge through study and repetition at home and deepening the topics covered on the textbook.

This process is isolated and very different from the scenario designed by multi-literacy: digital and innovative teaching structure interventions starting from the *push* logic, typical of virtual environments, in which information reaches the student in direct and immediate forms. The pupils do not go to the source of knowledge as in a library, but the information reaches them through unexpected and unpredictable forms [8].

In such immersive contexts, the learning methods can be experienced beyond the pre-established schedule of formal education, since the allocation of traditional school time (typical of nineteenth and twentieth centuries) is overcome by the *always-on* logic, that is, the ability of digital technologies to always be online. Therefore, the modalities and forms of learning are activated beyond school times (and spaces, contextualising contemporary situations), from the outside to the inside of the classroom (or even just outside the school) in a circular and imperfect process, in which the pieces of knowledge enter the formative dynamic of the students [9].

In the context of digital revolution, the traditional system of knowledge has completely exploded and the effects can be traced, for example, in the undermining of the authority and value of the teacher's role [10]. Even the system of formal educational agencies (schools and universities) are affected by this process of epistemological crisis, since there are (and there will be) many other educational agencies that undermine their uniqueness.

From the point of view of democratic access to information, we are facing a revolution of extraordinary significance, described through the concepts of multi-literacy and ubiquitous learning, which explain this multiplication of educational agencies.

2 Digital learning environments

Studies on digital learning environments [11] linger on three interpretative categories that are the foundation of e-learning systems: the meaning of digital revolution, the category of media literacy and the category of multi-modalities.

The contemporary debate has brought back the effects of digital revolution in formative and educational contexts. Until a few years ago, the introduction of digital technology in teaching or in the workplace was still adopted with resistance by professionals, even though discussions on didactic and technological innovation were very present in scientific studies, especially in the Italian context. Today we are facing a change of perspective and perception, especially due to the undeniable support that digital technologies have provided in the emergency phase [12] in relation to the study and work perspectives of the subjects.

Returning to the two subsequent concepts of multi-literacy and multi-modalities, they concern the form taken by the digital medium today; by multi-literacy we mean the set of a plurality of alphabets available to the new digital media which perform the task of communicating a message through multi-modalities, that is, a plurality of forms. Multimodality, on the other hand, is an instrumental concept relating to the plurality of forms that communication can take within a media context. Media integrate multiple tools to communicate the same message in a plurality of languages [13].

After these brief indicative definitions that focused on the basic concepts of media education, we will move on to didactic innovation, which is the main topic of this contribution. The advent of the medical emergency has rekindled the debate on the educational possibilities of distance learning and on the (no longer postponable) reflection on

didactic innovation in formative contexts; the latter now needs a descriptive and explanatory moment at the same time to redefine its peculiar forms and traits.

As a structural element of formal education, didactic innovation should not be improvised and should comply with a series of flexible and adaptable characteristics (Table 1): in the first instance, innovation in the school landscape must (1) accommodate diversity. In other words, this syntagm means and represents the possibility for each subject to be able to learn in relation to their own styles, times and educational needs. Respect for educational diversity can be achieved through the principles of individualisation and personalisation of learning, a reflection of the socio-constructivist vision that began with Vygotskij and considers 'learning' the result of interaction and social construction [14].

In addition to accepting diversity, didactic innovation must also propose a critical and situated knowledge (2). This second construct encompasses the principle according to which the teachers must not only make the teaching materials available for the fruition of the lesson or share significant information, but also give their pupils the opportunity to investigate the proposed topic. Knowledge must in fact be situated, that is, it must be linked to the context, and therefore contextualised; it cannot be only theoretical content detached from the socio-cultural background of the learner.

There must also be a *gradatio* in forms and contents and an educational consequentiality of the lessons [15]. The qualification of the critical term, however, is related to the competence that the students must possess and put in place, especially in relation to their critical sense towards the sources and messages they consult. In the Anglo-Saxon context, critical thinking is considered a higher or second level thought that arises and develops from the acquisition of basic skills that represent its precursors [16].

Four characteristics of didactic innovation

Acceptance of differences

Critical and situated knowledge

Punctual design

Integrated global approach

Table 1. The peculiar characteristics of didactic innovation

There are several elements of change that characterise this new universe of dematerialised communication of digital education, some of which have been discussed in depth in this essay. The discussion ends with the analysis of a further defining construct of digital representation systems.

The affordances of participation in contemporary media are changing and this represents a change of perspective in media education studies [17]. The term 'affordance' defines the 'invitation to use', that is, what actions an object suggests to the user who approaches it. This invitation (to use) does not belong either to the intrinsic properties

of the object or to the user's gaze, but arises from a distributed relationship (affordance) between object and user.

Gunther Kress [18], a scholar of multi-modality, noticed that the affordances of contemporary media are changing, since digital technologies allow a new relationship and therefore an unprecedented space of relationship and cognition between users and virtual objects. Digital media are immediately usable and this invitation to use offered by their interfaces opens scenarios that were previously unthinkable.

3 Project proposal of a hybrid system of administrative and didactic services at UniFG

The model that the University of Foggia is imagining (and that could be the reference for a strategic multi-annual plan) starts from the assumption that the goal is a hybrid university where there is a large amount of digital innovation and therefore a great digitisation of processes.

For example, it is expected that a digital-oriented student-centred model would allow the student to perform all the typical functions of online secretariat without physically entering the offices. A progressive digitisation not only of administrative processes, though, but also of teaching and learning tasks [19]. To achieve this, a great deal of open education, open knowledge and open access to consult libraries resources and teaching materials are needed.

The most significant change, however, does not lie in the modifications of the processes, but in a different representation of the student's and the teacher's roles [20]. As they are imagined in the UniFG model, the students are at the centre of a system of hybrid services, partly digital and partly face-to-face, which allow them to be active, i.e. stimulated in their agencies and supported in that capacity that makes them the protagonists of the process of building knowledge through stimuli provided by the university.

For example, the student could choose to do a typical and conventional Erasmus, moving to another city, or a virtual Erasmus, attending distance courses through the platforms of other universities. This hybridisation already exists and it has already been regulated by the academic bodies of UniFG.

Another evidence of the progressive educational hybridisation concerns the accreditation of courses that are provided by other universities through distance learning modes, even from abroad, in the context of the twelve credits of each student's optional course of studies. Therefore, the students can choose to follow MOOCs (Massive Open Online Courses, learning programmes developed on platforms such as *Edx*, *Coursera* or France Université Numerique), and have them automatically accredited within their twelve credits. All of this means 'blowing up' the campus and putting the students at the centre of a range of services.

It doesn't mean just being at the centre of services, formative opportunities or experiences offered by the university, however, but it also indicates context-specific orientation: the university becomes a mediator and places itself around the students to facilitate

their relationship with the outside world. Much of this 'outside world' means digital experiences that are found in the ecosystem that surrounds the physical structures of society, and in which the students are not left alone, but accompanied in their choices through hybrid career advisors (i.e. carried out in person or remotely) who also guide them through tele-consultations of psychological or counselling nature.

Thus, the medieval idea of the university as a collector of resources that may be present within the single local institution is overcome, converting it into the idea of the university as a multiplier or catalyst of educational experiences that are guided but also accessible throughout the digital ecosystem. An idea of university, therefore, which opens itself to the outside, which introjects the potential of the context and which safeguards the role of the student as an active builder of knowledge and that of the teacher who, in a renewed perspective, becomes increasingly skilled and a facilitator in the planning of knowledge and support paths for students [21].

The hybridisation of services and systems must be a part of the process of modification of the traditional learning environment; for many years, international experiences have shown the effectiveness of blended learning environments that combine face-to-face and distance learning [22]. These experiments primarily concerned teacher formative courses, to train and motivate them in the use of digital technologies during their lessons [23]. The challenge of this experimentation is to apply this blended logic in a systemic and adequately designed form to university courses.

Evaluation is another macro theme of educational research [24], that is, how to measure the effectiveness of learning during distance learning and e-learning courses. Among the possibilities, some have chosen the traditional face-to-face exam or a series of recursive feedback during the course of studies, others the structuring of tests that are truly practical and applicative. It is now no longer possible to derogate an answer to this question in terms of efficiency and effectiveness. Universities must organise training initiatives for teachers that go in the direction of structuring what the emergency experience has made manifest, to avoid a phase of rejection of digital technology applied to teaching.

It should be made even more clear that, in addition to distance learning, technologies allow for the structuring of much more complex and sophisticated activities, aimed at improving the quality of teaching and learning. The perception of technology as a practical tool to be used exclusively in emergencies is a reasoning bias that must not be supported; the educational challenge is to make people understand all the affordances of these tools [25]. The UniFG formative interventions on the use of technology in university teaching will take the form of a series of non-compulsory courses aimed at all teachers, which will aim to provide the skills necessary for the smart use of digital technologies, in the perspective of a general system innovation and not of specific courses.

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