Towards a hybrid ecosystem of blended learning within university contexts

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Abstract

The socio-health emergency of covid-19 has affected the use of distance learning. The massive use of technologies and digital media in higher education has profoundly revolutionized the perceptions of the actors involved and creating innovations within practices that are already in use. Starting from the didactic experiences in digital learning environments that have already been tested in recent years, it was possible to summarize in a single model the trajectories of future experimentation in e-learning for universities. The purpose of this article is in fact to propose an overall ecosystem of blended learning for university teaching, within the new phase of resumption of activities in the post-covid world. The key elements brought into play by the pandemic concern training, i.e., (1) users, (2) market rules and (3) didactics, further modified in relation to time, place, technology and teaching content (for practical purposes, we will call these last four categories *extrinsic characteristics of the educational process*), which are affected by the contextual needs that have emerged. The result is a proposal for the application of a hybrid ecosystem of higher university education.

Keywords 1

Learning models, hybrid technology, elearning, university, blended learning

1. Contestual Introduction

Although social interaction has a fundamental role in the development of mental processes, it is metacognition that plays a major role in the management of behaviors and the implementation of problem-solving strategies. From the point of view of educational innovation, the covid-19 pandemic went through two very distinct phases: in the first phase, there was an enthusiasm for technological solutions in which the educational and professional systems were united towards a common goal; the second phase we can call 'fatigue in the pandemic', the Anglo-Saxons call it pandemic fatigue. It is experienced by all: from discussions with students, teachers, and administrative staff of the University of Foggia, tiredness with the professional situation can be detected towards solutions that until recently were considered with enthusiasm. These groups have liked distance learning, it has basically worked, but now the idea of having to remain at home and all the related stress, all the heaviness of this dark period, which the media coverage has not made better, has become overwhelming [1]. The debaters are not in agreement, even on health issues; clearly, this uncertainty has had an impact on the quality of work.

Within the training institutions, there has been a huge amount of funding allocated without supporting programming that is specifically oriented towards innovation or pedagogical experimentation. The pandemic came like a tsunami hitting a cardboard fort that in the academy we used to keep out this digital technological wave that was sweeping the world. The tsunami of the

pandemic forced us to realize that even higher education, even the university, must get involved in the digital revolution [2].

Then all the rhetoric about the liturgy of the classroom, about attendance, about exams that must be done in a certain way, about relationships, immediately collapsed when hit by this pandemic tsunami, which produced different reactions. During the webinar "Covid or post- covid ? Governing the Unexpected in the University", held on November 20, 2020, a student asserted that "a pandemic reveals infinite new worlds", and there is truth to this statement: there are infinite new worlds, and then he commented, "[this is] great for students". So, the learners will not want to go back: that is, after this experience, we will not return to yesterday's university: it has been shown that it is possible to ask for a virtual reception, where you do not have to wait two hours in an uncomfortable corridor; perhaps the exams can be done in different ways, where the lessons can be enjoyed in a hybrid, complex fashion [3]. Training specialists have been saying this for years, but it has now been made manifest. The university of today, and that of tomorrow even more, will find itself in front of a user who will ask for and demand services because it has been shown that those services could be provided in times of crisis. Therefore, by articulating them, by studying something that can be done in a sophisticated way, the competition between universities will become somewhat evolutionary [4].

It is clear that not everything that is new is positive and that not everything that has marked a thousand years of university tradition must be thrown away, obviously not, because suggesting such would be superficial. Much of the rhetoric that accompanied the university as a place with so many barriers to entry is now questioned. Within this rhetoric, the question of telematic universities re-emerges, which in Italy has been substantially delegated to private industry, which, however, is enjoying enormous success (the numbers are impressive) and which until recently, until the pandemic, conventional public or private universities, but conventional nonetheless, almost did not participate, having an extremely marginal role in the telematic dimension. This will be an emerging theme in the near future: public and private will be mixed in this single market; this means that there will be more competitors in the same market and therefore the rules of the training market must be redesigned [5].

2. Towards a complex model of higher education

We need to change the rules of the market because in the last ten years the rules of the so-called training market have reached their limit of resistance and no longer work.

In the Italian context, the initial accreditation rules, the periodic accreditation of study courses, have changed twice; now we are working on the third edition of these rules, and we need to understand precisely how to organize such a complex system. If we think only of the 100 Italian universities, there are private telematics, traditional private ones (such as Cattolica, LUISS, etc.) and conventional universities such as the polytechnic system (which also have different areas of specialization), with the system of polyclinics (which also have different areas of specialization). This system must be rethought in light of what is happening: the market must be changed.

The market must also change because there are new players, which are not only our universities but foreign players who are entering our market - private companies, such as Google, are offering courses, offering diplomas, and offering the possibility of accumulating credits with training experiences that come from multiple sources. I can follow a MOOC by Metid, a MOOC by Federica, and a MOOC by EdX, organize them together and in the end find myself a sort of master after having completed a patchwork of learning experiences [6]. Will this be possible? Does it make sense for this to happen? It is necessary to understand what the rules would be for this situation to happen, but a model of this nature, which therefore undermines the very idea of the three-year degree plus two, of the rigidity of the master, this idea requires new rules, along with a rethinking of how we bring educational content to the training market. Naturally, the student who sees that these paths are feasible will ask himself why he is not allowed to pursue them; that is why once he has entered a university course he cannot switch to another course for a year. This might seems trivial but today I cannot do it myself: I have to enroll in a university and if I realize that my path is not going well, I have to give up my studies and move to another university. I can't get three credits there and then move to another university that provides the courses I am interested in. This situation requires different rules for the game [7].

Revising the structure of the rules and developing innovative visions are both necessary conditions to face a historical problem of the university system, which is the number of graduates. In Italy, for example, the percentage of graduates stands at 27% amongst people between 30 and 34 years of age, while the European average is 40%; there are countries where almost 60% of people in that age group are graduates. The relationship between students-teachers does not reward us because we have few teachers compared to students enrolled in Italian universities, the overall system of investment in universities does not work and the distribution rules do not reward innovation; these rules tend to keep the system immobile. These mechanisms conflict with each other: the pressure of students, new players entering the market, a market that is rigid, that tries to keep itself and that holds up as long as there is the legal value of the qualification and all the barriers to access to other players in this market [8]. This dynamic preserves the current system, but the tsunami of the pandemic (or the pedagogical emergencies in general) has shown that this system is based on barriers; a fort cannot be changed.

3. An overall model

In response to the pandemic and the future of higher education, Selwyn et al. believe that the infrastructure for digital education that we choose to erect in response to the current crisis will re-define public education for decades. And this is precisely the answer that the following article wants to propose for post-Covid education policy. The University of Foggia has started a profound process of reflection by considering a theoretical proposal that can respond to the multiple needs that have emerged from the actors involved. An innovative model of universities must focus on three main elements: the porous university, the transferability of skills, and the new professionalism of professors [9]:
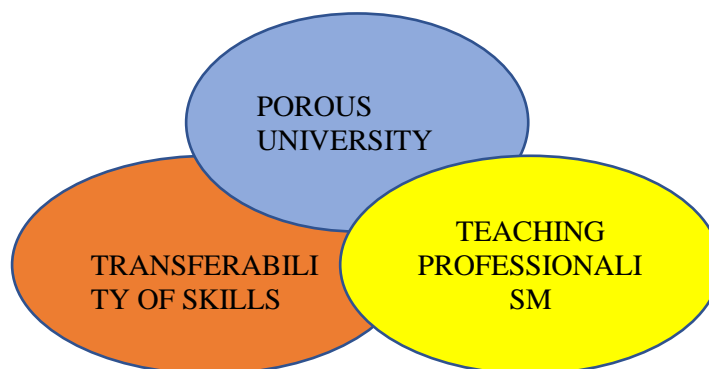

Figure 1: The three characteristics of the hybrid university

These three founding principles for a new university model take into account both didactic experiences and technological advances, as well as the new challenges for the market and emerging teaching professions. The proposed university model is a hybrid model in which digital and in-person practices coexist in a system of reciprocal influence. It has become clear that the pandemic has not eliminated the opportunity for ongoing training processes but rather produced profound changes in those processes. First of all, the emergence and reaffirmation of the study of new subjects combined with sometimes innovative requests that require a diversity of practices aimed at reorganizing and planning curriculum, resources and tools appears clear. This drive towards innovation has clashed with the need to transfer the skills learned using these innovative methods to real work and social contexts. This might trigger a disruptive change in the rules of the training market (the requests of users are not linked to the complete study cycle, but they can be shaped on the basis of fragments of training enjoyed in different institutional contexts). The very professionalism of the teachers has changed and is self-formed in educational systems forcibly oriented towards innovative tools and learning models (sometimes hybrid) that are molded to contextual needs. The emergence of these three dimensions has

made it such that this vision has become derailed in being deployed in multiple-level action plans that are stuck in an integrated ecosystem of hybrid university education (see the following table). The key elements brought into play by the pandemic big bang concern training, i.e. (1) users, (2) market rules and (3) didactics, which are further modified in relation to time, place, technology, and teaching content (for practical purposes we will call these last four categories *extrinsic characteristics of the educational process*), which are affected by the contextual needs that have emerged.

Table 1 Elements of the hybrid university

Elements of training	Time	Place	Technology	Content
Users	Flexible profiling	Blended	ICT use and training	Responding to the world of work
Market Rules	Explosion of the standard years in courses adapted to the subjects	Blended simulation systems for the professions	Certified evaluation systems	Training reform (rigid structure of degree programs)
Didactics	Hands-on Blended courses - Peer evaluation	Classroom Laboratory E- learning platform	Learning Management system - Gamification	Flexible disciplinary teaching with respect to multiple integratable paths Professional teaching

This model tries to combine the analysis of the elements of education at stake and the extrinsic characteristics of the educational process, the starting point of the university education system is clarified as is the simple reasoning about future perspectives. As far as users are concerned, in the new hybrid university, flexible profiling is required that allows all age groups to access training, but that training must also refer to the world of professions. In the contemporary university system, the average student has completed a higher education cycle and must become literate with a full course of training for his professional career [10]. But it cannot be just that; the spread of online teaching as the main channel for delivering the training offered has shown the potential and contradictions of e-learning, as well as those for face-to-face teaching. Therefore, the process of rethinking training following this period of forced experimentation means providing blended moments where both online teaching and in-person teaching coexist. Technology becomes the main channel of communication with new

generations of students but also the tool through which the contents of knowledge are transmitted. Delegating this important task to new digital technologies also means providing training moments for the media that allow all the players involved to enter the training process. It is no longer conceivable to attend a university course or a lesson at school without the mediation of digital technology. Therefore, the contents must be oriented towards this new contextual need, but they must also be oriented to the real needs of the world of work. The paradoxical situation experienced in the last twenty years, that is, a disconnect between school programs and real life can no longer be allowed to occur because otherwise the subjects are forced to benefit from specific training in non-formal contexts other than universities [11].

The concept of *simulation* is strongly debated in contemporary specialist literature, as it refers to at least four different interpretative models: (1) systemic model: simulation constructs learning environments in which parts are related and can provide feedback to players. (2) A dynamic model in which the situation experienced by the player is not static but reacts dynamically to the player's behavior because the system and behavior evolve in real-time. (3) The simplified model is an incomplete reproduction of reality, which, however, represents its main characteristics as functional to the required learning. (4) Finally, the 'precise and valid' model reproduces a representation as similar as possible to the physical and functional. Finally, this whole process must be accompanied by a formative and authentic evaluation and profound revision of the contents included in this curriculum in relation to this reform. Born in the United States in the early 1990s, authentic assessment is part of the constructivist vein and aims to assess and test students' skills in authentic tasks and real-life situations. The third point concerning the effects that teaching can have on teaching professionalism will be addressed in the following section [12].

4. Teaching and teaching professionalism in a hybrid ecosystem of university education

Didactics is the central function of universities and higher education. Compared to the traditional training offered, teaching now operates in a hybrid system to orient itself towards professional and immediately usable course content. First of all, hands-on, blended courses that include face-to-face and online modalities. In the future (post-covid), it will be necessary to overcome an excessive reliance on face-to-face learning and develop a blended learning strategy that values flexibility, accessibility, and collaboration. Blended learning is not simply characterized by the fusion of the face-to-face model with online learning environments (e.g., shelves e-learning) [13]. In this new system, autonomy should be encouraged and developed. Digital tools provide support to facilitate learning; skills and abilities must be instilled in teachers by other teachers. To authentically teach online, more and more activities must be organized according to small group teaching methods. Among these activities, peer evaluation becomes indispensable. Self and peer assessment allow for the following considerations: 1) help students to understand and share the effectiveness and validity of these approaches, 2) guarantee the reliability of the judgment, and 3) optimize students' opportunities to learn from colleagues and from self-assessment. The effectiveness of peer and self-assessment is found in the development of critical thinking, communication, lifelong learning and collaborative skills. Peer-assessment is a more accurate method of self-assessment because, as pointed out by Hewitt [14], it plays an important role in self-esteem, which can, in fact, alter the results of learning: low self-esteem can cause a devaluation of the elements observed by the student and, conversely, high self-esteem would lead to an overestimation of the subject being evaluated.

In the contemporary situation, we still have a dichotomy between the physical learning environment and the digital learning environment; technology enters the physical space and the physical enters technology. The original definition of gamification given by Deterding et al. [15] is the use of game design elements in non-game contexts. Gamification is configured as a method that borrows its rules from the world of video games with the aim of applying mechanical recreational activities that do not directly have to do with the game. In addition to the components derived from video games,

gamification consists of mechanics and dynamics. By mechanics we mean points, levels, challenges, and rankings. The dynamics, in contrast, concern the player's interest in and commitment to engage in active behavior and compete with others. For the contents of this model, gamification provides help to produce disciplinary didactics that follow a flexible mode by providing multiple integrable paths, i.e., practical experiential learning skills, taught both in-person and online, must remain as a fundamental part of blended learning within higher education. Rather than one-way delivery to large classes, a blended approach should focus on alternating lectures and small group work. The methodologies, analyses and reflections read through peer feedback and practical support from the teacher focused on skills and activities relevant to the learning of the students are the last frontiers of the teaching profession [16].

5. Conclusions

Having reached this level of analysis of the existing university system, the rethinking I propose is not a superficial rethinking, but it must be radical to make the university system competitive. One wonders if one wants to increase the percentage of distance learning courses by 10 percent in the Italian higher education system. Compared to the world, this perspective is extremely limited because global universities are gaining ground in other countries [17].

It is not enough just to reflect; we must get our hands on our universities and propose models. In the case of the university, at the moment, the training of teachers is organized according to a classic but indispensable theme. Using all of the resources that we could put into this system, recovered from various funds, into a three-year course of teacher training that aims to train the entire teaching staff through long courses that would last about 100 hours per year. The goal would be to instill different skills in these teachers: there will be three different levels (junior, tutor, and senior) based on experience and talent. The cultural awareness to face the change, to prepare for the change, which in the case of a public university would require legislative intervention because the rules under which it operates must be changed. To face the change, on the one hand, there are technological investments, and, on the other hand, there is the investment in human resources [18]. However, first the teaching staff must accept this challenge to change the system.

6. References

[1] G. Korkmaz, Ç. Toraman, Are we ready for the post-COVID-19 educational practice? An investigation into what educators think as to online learning, International Journal of Technology in Education and Science (IJTES), 4 (2020) 293-309.

[2] L. S. Neuwirth, S. Jović, B. R Mukherji, Reimagining higher education during and post-COVID-19: Challenges and opportunities. Journal of Adult and Continuing Education, 1477971420947738. 2020.

[3] G. A. Toto, P. Limone, Hybrid Digital Learning Environments for College Student Education. pp. 1-8. In Proceedings of the Second Symposium on Psychology-Based Technologies Psychology-Based Technologies 2020.

[4] M. A. O'Regan, Learning at a distance but not a distance learner: Meeting the needs of a diverse body of students post COVID-19. All Ireland Journal of Higher Education, 12-2 (2020).

[5] M. A. Peters, F. Rizvi, G. McCulloch, P. Gibbs, R. Gorur, M. Hong,... J. Quay, Reimagining the new pedagogical possibilities for universities post-Covid-19: An EPAT Collective Project. Educational Philosophy and Theory, (2020) 1-44.

[6] G. A. Toto, P. Limone, Research on a massive open online course (MOOC): A rapid evidence assessment of online courses in physical education and sport. Journal of Physical Education and Sport, 19, (2019) 2328-2333.

[7] M. Tesar Towards a Post-Covid-19 'New Normality?': Physical and Social Distancing, the Move to Online and Higher Education. *Policy Futures in Education*, *18*(5), 556–559. 2020.

[8] H. M. Mulrooney, & A. F. Kelly Covid 19 and the move to online teaching: impact on perceptions of belonging in staff and students in a UK widening participation university. *Journal of Applied Learning and Teaching*, *3*(2). 2020.

[9] C. Langston Entrepreneurial educators: vital enablers to support the education sector to reimagine and respond to the challenges of COVID-19. Entrepreneurship Education, 3(3), 311-338. 2020.

[10] G. A. Toto, & P. Limone Self-directed learning: An innovative strategy for sport and physical education. Journal of Human Sport and Exercise, 14(Proc4), pp. S568-S577. 2019.

[11] A. Becker A reflective analysis of articles published in the journal of Transformation in Higher Education (2016–2020): Beyond transformation?. Transformation in Higher Education, 5, 8. 2020.

[12] S. Kailani, R. Newton, & S. Pedersen Game-Based Learning and Problem-solving Skills: A Systematic Review of the Literature. In EdMedia+ Innovate Learning (pp. 1109-1119). Association for the Advancement of Computing in Education (AACE). 2019.

[13] K. Topping Self and peer assessment in school and university: Reliability, validity and utility. In Optimising new modes of assessment: In search of qualities and standards (pp. 55-87). Springer, Dordrecht. 2003.

[14] J. P. Hewitt The social construction of self-esteem. Handbook of positive psychology, (s 135147). 2002.

[15] S. Deterding, M. Sicart, L. Nacke, K. O'Hara, & D. Dixon Gamification. using game-design elements in non-gaming contexts. In CHI'11 extended abstracts on human factors in computing systems (pp. 2425-2428). 2011.

[16] K. Seaborn, & D. I. Fels Gamification in theory and action: A survey. International Journal of Human-Computer Studies, 74(2), 14–31. 2015.

[17] C. Mazza, E. Ricci, S. Biondi, M. Colasanti, S. Ferracuti, C. Napoli, & P. Roma A nationwide survey of psychological distress among italian people during the COVID-19 pandemic: Immediate psychological responses and associated factors. International Journal of Environmental Research and Public Health, 17(9), 3165. 2020.

[18] A. Parola Novel coronavirus outbreak and career development: a narrative approach into the meaning for Italian University Graduates. *Frontiers in psychology*, *11*, 2255. 2020.