



Building More Resilient Education Systems: Innovative Experience and Lessons Learned during the COVID-19 Pandemic

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Leading the change or missing the opportunity ?

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Distinguished colleagues, chair, ladies and gentlemen good morning, Let me introduce myself, I am Alfredo Ronchi Secretary of the MEDICI Framework of cooperation. MEDICI foundation was established in 1995 to promote and support the use of ICTs in the field of culture and education. I would like to thank the UNESCO Institute for Information Technologies in Education for the invitation to contribute to the round table “Building More Resilient Education Systems”.

Before dealing with the interesting and current topic I would like to point out that today we will discuss about the crisis in the field of education generated by the pandemic but we could extend the discussion even to natural or human disasters, warfare, criminal events and more. In the educational environment similar situations will impact pupils and young people from kindergarten to university including hospitalised and disabled guys.

Last but not less relevant, education sector faced some problems far before the pandemic due to the existent gap between traditional courses and new generations' interests and abilities.

I will focus my presentation on the sector I better know, education at University both degree and PhD levels, this at national level and, with some support due to colleagues cooperating with MEDICI, at international level.

Generally speaking the response of Universities to the pandemic was quite good and the switch to distance learning including exams and degree was prompt and



generalised. Similar but less sophisticated solutions are in use in middle schools and colleges, no specific solutions both for kindergartens and some primary schools.

Now is the time to think about the future organization of the education system by taking advantage from the experience gained and adopting the best solutions to achieve a resilient education.

What do we mean as resilient education system? A system that, in the event of a crisis, will ensure 100% of the performance or a sufficient level of “education continuity”? and what about infrastructures ? Think about a general long-lasting electricity black out, as it may happen in case of natural disasters, or simply a hacking attack to the network infrastructure, how to ensure “education continuity”? Probably a similar situation is very difficult to be solved.

Apart from these extreme circumstances that, by the way, have been solved in some cases. One of the aspects to be carefully considered is an affordable and easy access to the network infrastructures both wired or wireless. Strictly connected to this we find, in general, a significant market penetration of ICTs due to smart phones, tablets, and laptops. Of course, a good network infrastructure and diffuse computational resources are not enough, a key role is played by human factors, mentors' literacy in digital-media (we assume a proper skill in pedagogy and didactics) as well as digital awareness of students. Lastly but not least, availability of quality content and easy access to professional digital libraries.

We must not forget the key role played by social media, they were already a powerful tool among students both as information providers and social life active means, but on the occasion of the lockdown they became much more relevant to empower cooperative learning.

Anyway, as a positive follow-up of the present crisis we can envisage different benefits: first of all, the acceleration of the switch to distant learning on the way to an improved resilience of the educational system but even an empowered knowledge transmission and acquisition from the end of the crisis onward.



Distant learning is nowadays de-facto based on digital technology, typical approach, was and still is, to port to digital means traditional formats based on texts, still images, sometimes video clips. These applications are suitable for both live lectures or on-demand lectures, of course on-demand lectures offer a limited interaction mainly based on Q&A. Anyway, I would like to point out the relevance of video recording lectures, this feature enables students to attend courses even if they are in a different time zone.

On live video lectures systems mentors are sometimes displayed in small windows offering a very limited opportunity to interact with students. Students themselves are represented by a list of names or few boxes usually without live video to do not slowdown the connection. More articulated solutions are based on a true control room connected to different video channels: speaker, blackboard, slides, visual content and more. A similar apparatus enables a customised lecture putting the focus, time to time, on a more effective combination of channels. Required technological and human resources, including direction, are for sure relevant. Different attempts to get closer to a more articulated on-line lecture were developed though the time.

We must adequately consider the different format due to different topics: anatomy, mathematics, physics, literature, etc. All previous approaches, of course, refer to a typical ex-cathedra lecture having a limited interaction with students, if we consider subjects that require a higher interaction such as design or architecture, that are much more maieutical processes, these solutions are not applicable.

Researchers are looking for better solutions, some technologies are enabling new communication formats. Virtual reality, for instance, offers the opportunity to let humans interact with intangible objects bridging the gap between the two methods in cognitive sciences the perceptive-motory and symbolic-reconstructive.

Today, people have the opportunity to create digital objects, a new class of objects from an ontological point of view. They can be infinitely duplicated and transmitted or accessed world-wide. A typical example is represented by virtual laboratories enjoyable by big number of users ideally all-over the world.



With the spread of the coronavirus, the education system is facing a new crisis, extended school closures may cause not only loss of learning in the short term, but also further loss in human capital and diminished economic opportunities over the long term.

Before the outbreak of the coronavirus pandemic, the world was already dealing with a learning crisis, traditional education methodologies were already outdated. An educational and communication divide was already on stage between millennials (generation Y) and the educational system. It is a common understanding that recent generations represent a discontinuity if compared with the past ones. Such discontinuity or, if preferred, singularity is recognised both by adults complaining because their children do not pay attention or are getting bored by learning and, by adults, that discovered new skills and capabilities in young generations.

People that grown up playing video games, browsing the Internet, chatting and looking for help on line in communities, they use technology seamlessly. A new model for communication processes is required.

Young are used to receiving information really fast. Their brain seems to be able to process information in parallel and multi-task. So, they prefer direct/random access to information and content. Graphic and Video content are longer preferred than text. They use to look for support and buy things on line, and use to belong to one or more communities.

This is a side effect of their special skills acquired in hours and hours of digital tasks. Social psychology offers compelling proof that thinking patterns change depending on an individual's experiences. A sufficiently long training may activate this phenomenon. In fact, some researchers believe multi-sensory input helps kids learn, retain and use information better. So the Apple motto "think different!" is much more than a motto.

As already outlined a renovated approach to education it is not only a matter of network infrastructure and computers, it's a matter of humans so both students and teachers need to adapt to collective online learning, improve emotional and behavioural self-regulation.



Having the evidence that traditional didactic doesn't match with young's expectations we need to take advantage from the additional need to make educational activities more resilient to start reshaping the system in order to fit with both requirements: resilience and generation Y compliance.

Education system must cope with such requirements and take advantage from similar new skills even if there are some "side effects" that must be amended or at least mitigated. Direct access to information and related hyperlinks may create some drawbacks, among the others, a kind of "surface knowledge", many times more suitably identifiable just as "information", without the required contextualization and logical connections with other items, plus the risk to lose the logical path related to the key topic.

The overall effect is to create "archipelagos" or even "islands" of "surface knowledge" without connection with the rationale background or deep knowledge on the specific topic. In addition to this both the social networks and online resources could provide fake or unreliable information many times in absence of critical thinking on the student's side. So, in parallel with the setup of education innovation, that is nowadays led by ICT, we must improve student's critical thinking and technology awareness. The latter includes specific knowledge about potential risks associated to an improper use of technologies.

Mentors need to upgrade their knowledge in ICTs possibly bridging the generational gap as much as possible that means to use social media activating a tight and multilateral interaction with students. Leading the change having proactive approach to the natural evolution of the content domain. Time will solve this problem, in fact the early generation X is coming on stage.

On the client-side students quickly learned how to use, sometimes everyday tools, as educational means. Accordingly, with the typology of the education institution chatting apps were used or multipoint conferencing systems.

To conclude the global lockdown represents a unique opportunity to bridge a number of gaps and reshape our future, thinking out of the box, identifying what is useless,



deleting biases due to customs, rethinking processes and protocols. Education system can take this opportunity to develop a new approach to improve its resilience and “generate deep knowledge” in millennials.

This is the time for action, the question is “Leading the change or missing the opportunity?”

Thank you very much for your attention
большое спасибо за ваше внимание