



Country Report

Mapping teaching and learning practices and infrastructure in
response to the COVID-19 crisis in Italy.

Data analysis and interpretation.

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0. Pre-Covid-19 Status Quo of digitalization of HE/VET/Universities in Italy

0.1 Introduction

For what concern HE/VET, since early 2008 the Italian Government (MIUR) has launched a series of programs to stimulate the digitalization of the educational system.

Despite the funding and actions promoted by MIUR and implemented at school level for speeding up the process, before the pandemic the schools were still affected by several structural constraints preventing the digital transition, such as the lack of high speed connections and the lack of suitable school infrastructures (i.e. laboratories). Moreover, from a methodological viewpoint, teachers were not prepared to facilitate the transitions. Most of the training provided focused on how to use specific tools rather than on new pedagogies for digital learning, and a cultural resistance of both teachers and governance toward digital teaching and learning practices was still prominent. The teaching mindset remained strongly characterized by an “in-presence approach” built around the centrality of the classroom as a ruled environment.

The pandemic was an opportunity for HE to unleash different modes of thinking about the reconfiguration of the school in a “blended mode”, mediated by digital devices and/or platforms.

The digital transition of universities is in itself a systemic process, closely linked to the digital transition of the entire society and the production system.

In particular, the digitalization of Italian universities has been generally formulated within the same framework and set of measures designed to promote the digital transition of the Public Administration as a whole.

The university system has now to face new challenges, such as students and teachers’ international mobility, new types of research projects, as well as the need to achieve higher quality standards so as to be up to par and competitive with other HE organizations at an international level. Lastly, Universities need to improve their operational organization top-down, starting from the governance, so as to become more efficient and proactive in achieving their performance goals¹.

An important boost to the digitalization of universities is coming from the implementation of the PNRR (The Italian Recovery Plan) which dedicates a specific line of intervention and a considerable amount of funds (Mission 4), to the university and research system.

The Covid-19 pandemic has forced universities into a whirlwind computerization, which has showed some critical issues as well as new opportunities. Universities proved to be quick and efficient in dealing with the emergency, however in a full operational situation they are still struggling to reorient programs, teachings, methods and studies, administrative processes.

To summarize, the university system, whose development is at present subject to the pressure from the growing and changing needs of the production system and the ongoing social, cultural and demographic change, is facing some systemic obstacles to achieving to the digitalization. Such obstacles appear to be connected with three main organizational challenges:

¹ “Come cambia la governance. Università italiane ed europee a confronto”, Fondazione CRUI, 2015 (The Foundation of the Italian University Rectors)

- Adaptation to new organizational and service models
- Availability of managerial skills and cultures to support and manage change
- Innovation, pedagogical-wise, of training and teaching approaches and methodology

1. Pre-pandemic status quo - Case study: HE/VET/Universities

To draw up this report we used a methodology that took into consideration quantitative elements, through questionnaires, and qualitative elements through interviews.

We started by drawing up a mapping of institutions at National level and we asked to some of them if they were available to participate to our project through questionnaires and interviews. For the questionnaires we turned to teachers and students and for the interviews we turned to administrators, teachers, IT and/or specialized staff who dealt with the digitization of institutions before, during and after the pandemic.

For our analysis we have intercepted a total of seven institutes including four universities and three HE/VET and we made 20 interviews (of which 8 governance, 3 IT, 8 enabling services), 12 surveys to teachers and 57 surveys to students.

1.1 Luiss Business School

Luiss Business School is the School of Business and Management of the Luiss Guido Carli University. Its mission is to promote the development of professionals capable of leading the change and innovation processes. The teaching methods are based on the close link between teaching and applied research, experiential activities and academic excellence, in order to meet the real needs of the business community.

For Luiss Business School we interviewed Francesca Mastrogiacomì, Professor of Practice and rotating Chair of the Teaching and Learning Lab, a committee that deals with the digital and learning experience where Francesca coordinates the production and design efforts from both strategic and digital product development for: Executive Programmes, Masters and Asynchronous Programmes.

The Teaching staff and students did not partake in the survey; therefore, all information regarding the teaching and the students' experience was drawn from the interviews with the Governance.

Motivation and drivers

Starting from 2018-19 Luiss Business School designed the Faculty Digital Transformation Programme to renew pedagogy starting from the professors. Over the years, investments and the production of digital teaching materials have been increased by a unit created ad hoc called Digital Factory which consists of a digital video producer that produces audio and video materials. Over the years, the Digital Factory has been supported by an office, called LuissX, which deals with digital marketing for the promotion of online and offline programmes and which is made up of four instructional designers for the delivery of digital materials.

Barriers and obstacles

From the interview emerges that training institutes should make investments in terms of people, software and resources to develop new ways of working within the organization. Governance must have a strategy that disregards the Covid-19 pandemic.

1.2 Politecnico di Milano

Politecnico di Milano is a public scientific-technological university which trains engineers, architects and industrial designers.

The University has always focused on the quality and innovation of its teaching and research, developing a fruitful relationship with business and productive world by means of experimental research and technological transfer.

Research has always been linked to didactics and it is a priority commitment which has allowed Politecnico di Milano to achieve high quality results at an international level as to join the university to the business world. Research constitutes a parallel path to that formed by cooperation and alliances with the industrial system.

For Politecnico di Milano we interviewed Massimo Tadi, Associate Professor of the ABC Department in the Master of Architectural and Building Engineering.

Moreover we submitted a survey test to the students that attends Prof. Massimo Tadi's lessons.

Motivation and drivers

In Politecnico di Milano, the strategy to implement the digitization of pedagogy, began seven years ago. The innovation of pedagogy has passed through innovative teaching forms (i.e. flipped classroom, courses shared with other universities). The pandemic permitted to rethink about the involvement of students during the lessons that could not be held in presence because they must be at home. Fortunately, Politecnico has given the technological support and tools to be able to bring all the educational programmes online in a short time, also digitizing all the in-presence classrooms.

The survey we submitted to Politecnico's Students confirms that the University was prepared to the digital acceleration that we saw during the pandemic.

Barriers and obstacles

For years Politecnico has been innovating teaching methods that pass from an in presence approach to an online one that is characterized by advanced mode of interaction with specific tools. Interaction requires a series of communication tools and methods that frontal teaching does not have. There is a problem related to how to create interaction and how to dialogue with students by involving them during the lessons.

For what concerns the opinion expressed by students we can notice also others obstacles regarding the fully online teaching regarding the connection or to have a silent place where follow the lessons.

1.3 Università di Bari Aldo Moro – Facoltà di Psicologia

Public university located in Puglia. To this day, the mission of the University primarily focuses on in-presence teaching. However, it features a Distance Learning Center (the ADA Center - University Services for E-learning and Multimedia), an interfaculty multimedia laboratory supervised by the University Coordinator on behalf of the Dean.

There are several deputy e-learning coordinators. In the Psychology department, the Head of the Bachelor's Programme – a full professor – also acts as Deputy. In this dual role, she coordinates a group of colleagues who are active, on their own initiative, in the development and dissemination of teaching alternatives to the traditional frontal instruction method. The group's activity mainly involves sharing good practices and analysing specific issues, with the aim of creating tangible tools and collaborative solutions. The coordinator has tried to formalize the good practices gathered so far, for example by creating user stories.

The enabling services, both from an IT and administrative point of view, are coordinated in a centralized way. Both before, during and after the pandemic, the ministerial policies are transmitted by the central office to all departments, whose coordinators look after, together with the administrative staff, the application and possible adaptation of the same directives to their respective characteristics and needs. All interviewees are part of the Psychology department and mainly deal with administration and data processing for academic and research purposes, as well as for the University's third mission. The latter include applying participating in research funding calls, as well as stipulating agreements or partnerships with regional, national and international bodies. Equally important is the orientation provided to both inbound students (regarding the educational offer of the University) and those who are finishing their studies (regarding future career opportunities).

As for IT services, the University IT specialists are tasked with supporting the administrative officers. In addition to the specialists, a considerable amount of professors and officers, especially the from the central administration, mainly deal with the university's IT service. In fact, the administrative staff refers to them as if it were an operational unit.

Motivation and drivers

Before the pandemic, distance learning was part of the University's strategy on a theoretical level, in that the Governance had set the goal of implementing the first steps for the digitalization of the University's offer by first experimenting on specific courses. This procedure was the basis for the extension of distance-learning policy during the pandemic. Before the outbreak, the study group negotiated with the Governance and managed to have two IT specialists trained on distance learning, more precisely on how to conduct and facilitate webinars. Such initiative proved useful in persuading a number of colleagues who were initially skeptical towards such opportunity.

Barriers and obstacles

The agency of the study group is however quite limited. Before the pandemic, it asked the department to set up a tutor specifically intended to support distance learning, but the request was not successful due to lack of funds.

1.4 Università UnitelmaSapienza – Università degli Studi di Roma

Public telematic university located in central Italy. Because its programs are offered entirely online, many processes of the educational, administrative and communication areas were already digitized from the start. Following ministerial directives, since 2019 the University has further invested in the standardization and adaptation of digital teaching.

The didactic coordinator of Unitelma is in charge of training both faculty and tutors. In addition, the Coordinator defines the teaching model, therefore the methodologies and technologies to be adopted, in particular with regards to the following tasks:

- The design of the curricula on both a macro- and micro-level, (that is, from each curriculum in its entirety to each single class)
- Skill assessment and final evaluation

The operative units of such initiatives, covering the governance, management and implementation of educational and IT services, including tutoring are :

- The IT, Strategic and Commercial Systems Area (ASISCO)
- The Degree Courses Teaching Support Area.

The departments were created in 2018.

In particular, ASISCO is a multifunctional office, as it deals with brand communication, marketing and at the same time with technical support and IT services. The manager mainly works with the faculty concerning the upgrade of Unitelma's platform, based on Moodle, or the creation of online events. ASISCO often interfaces with students too, with regards to technical aspects of the platform and the events.

In addition to the ordinary communication tasks, which are mostly internal and revolve around the management and upgrade of the curricula, work groups are set into place to work specifically on projects related to the area objectives. These projects are launched at the beginning of the year and can concern small groups within the same area, collaboration with other areas, or both.

The Teaching Support Area also deals with the accreditation and quality assurance procedures in compliance with the parameters given by the National Agency (ANVUR, National Agency for the Evaluation of the University and Research Systems) which provides specific criteria regarding e-learning standards.

In coordination with ASISCO, the Teaching Support Area manages the preparation of the Moodle platform year by year, so as to update the curricular portfolio. This activity includes the creation and adaptation of pages and contents over time.

The Area also provides practical orientation to new faculty members which is subsequently strengthened through further training. Meetings with the area officers are set so to provide faculty practical support regarding interactive teaching activities, that is, activities specifically targeting the students' needs to consolidate the knowledge acquired through the use of video lessons, textbooks. In this sense, officers act as facilitators because they provide a brief overview of the platform

settings, while the teaching staff can freely choose the most appropriate teaching methodologies. Finally, the area deals with the tutoring of teachers and students.

The Teaching staff and students did not partake in the survey; therefore, all information regarding the teaching and the students' experience was drawn from the interviews with the Governance and the Enabling Services managers.

Motivation and drivers

Teaching-wise, from 2019 the University has expanded their team and implemented a range of methodological innovations to enhance both their teaching methods and curricular programmes. Ministry requires University to carry out compulsory internal training for the teaching and didactic support staff in all departments; The University has chosen to focus on two key roles:

- The Teaching Coordinator, charged of providing internal training
- The tutors.

The training provided by the Teaching Coordinator are the following:

- A curriculum design course for the teaching staff, focusing on the programmes, focusing on both the design of the courses in their entirety, and the structure of each class;
- Two training meetings a year, featuring guest lecturers, focused on sharing best practices and peer-to-peer teaching.

The tutor is seen as the “beating heart” of the teaching activity. Complementing the course designed by the teaching staff, the tutor manages and provides assistance to all remote interactions and activities on the platform, which are the heart of the learning experience. ASISCO and the Teaching Support area coordinate of three sets of tutors:

- The Program tutors, who provide information and guide the students in managing and planning his / her career.
- Disciplinary tutors, who support the student in the classroom, provide practical orientation and information
- Tutors in charge of conducting webinars and supporting both teachers and students. Such tutors are charged of orientating the students toward the best way to study the subject, clarifying the teacher's requirements, and explaining the activities that are planned as part of the program. At the same time, they support the faculty in the design of interactive teaching activities.

The Didactic Coordinator is tasked with training the tutors by strengthening their skills in managing and monitoring the teaching activities, as well as in motivating students.

Before the health emergency, in 2019, these trainings were provided in presence.

Barriers and obstacles

A number of cultural barriers or biases impede the integration of tutors into the staff, as well as the optimization of their skills. Most notably, a hiring commission will expect of the candidates a good knowledge of the subjects related to the fields of specialization of the departments and the faculty;

whereas a specific set organizational and methodological skills would be sufficient to carry out the tutoring activities. Consequently, new hires often are unexperienced because their educational background in a specific disciplinary area is prioritized over prior tutoring or working experience. Such choices come from a generalized confusion of the content expert with the teaching methods expert.

There are also areas for improvement in the tutors' teamwork skills, because most of their daily tasks are run independently and remotely, thus precluding opportunities for informal exchange, for sharing of knowledge and tools among colleagues, and enhancing the risk of experiencing work-related stress. Furthermore, generally in the academic field, the teaching staff is generally not prone to workgroup, with the exception of those colleagues with professional experiences outside the academia and in roles involving collaboration between colleagues.

1.5 Fondazione ITS Logistica Sostenibile

Fondazione ITS Logistica Sostenibile proposes itself as a special School of technology, has an autonomous legal configuration in the form of the Foundation of participation, and is appointed to carry out two-year post-diploma courses of high specialization for the training of High-level Technicians in the technological area of logistics and mobility of goods for the economic development and competitiveness of our territorial system.

For Fondazione ITS Logistica Sostenibile we interviewed Giuseppe Bardelli, general coordinator that deals with organization and learning.

Moreover, we submitted a survey test to two teachers. Students did not partake in the survey; therefore, all information regarding the students' experience was drawn from the interviews with the Governance and the Teaching Staff.

Motivation and drivers

Before the pandemic they had no strategic plan regarding the digitization of education, they only used Skype for one-to-one meetings but not for lessons.

Fondazione ITIS Logistica Sostenibile deals with projects financed by external entities, that many times are public entities, with fixed rules and one of the aspects on which the Region has focused in recent months is the return to in-presence lessons allowing institutions to make a maximum of 25% of hours online. Talking about strategy is complex, it is important to have tools and skills to be able to manage the digitization of teaching.

Barriers and obstacles

In March 2020, when began the lockdown that forced us to stay at home, they were not ready and able to face a situation of this type also because the courses of the Foundation are characterized by practical and laboratory lessons and therefore an alternative distance learning system was not thought of yet. They have been forced to use tools to bring all the education programmes online and this has led teachers and administrators to specialize also in the field of digitization.

1.6 Fondazione ITS Kennedy – Alto Adriatico

Vocational Education and Training Institute (VET) located in Friuli Venezia Giulia, North Eastern Italy, offering degrees in software architecture, digital innovation for the 4.0 industry, digitally-driven management communication, and production technologies, among which mechatronics and IoT. Head of the Fondazione (Foundation) is also responsible for the didactic planning and is supported by a didactic coordinator. In addition, by virtue of his professional skills, the Head supports the IT area by monitoring and analyzing data referring to the engagements and the activities on the Institute's digital platform. The governance of services, and in particular the systemic management of IT services, is carried out in partnership with the Management of the University Consortium (host institution of Fondazione ITS Kennedy).

The management of the enabling services concerns three main areas. The administrative manager follows the selection, enrollment and orientation of inbound students, as well as the financial reporting and the management of the strategic partnerships. The manager is supported by didactic tutor who is actually in charge of managing and of ensuring the quality of the training courses.

The third area concerns specific IT services. The IT governance is led by the President, with the support of an IT specialist with regards to the design of services as well as of the digital tools.

Motivation and drivers

The Institute's digitalization strategy has been in place since 2011. It has undergone a major push since 2015 and then accelerated in response to the pandemic. Since 2011, students have been equipped with a notebook and, since 2015, the use of Google services has been formalized. As of today, teachers, students and staff use services such as workspace, meet, classroom, and other to carry out a wide range of tasks on a daily base. Moreover, teaching and management documents since 2015 are stored on Google Drive.

The teaching methodology was relatively adaptable to the needs of the transition even prior to the pandemic, as it was already based not on frontal instructions and homework, but on practice and learning. The teachers act and are consulted as collaborators of the didactic managers in case of specific needs or initiatives. Teachers cooperate with and support the management by sharing good practices and technical knowledge of the digital tools.

Barriers and obstacles

Governance and teachers were prepared for the possibility of teaching in a hybrid form, but in reality they had never taught lessons in asynchronous mode, as such modality was not allowed by directives of the ministry.

1.7 Fondazione ITS Alessandro Volta

VET Institute located in Friuli Venezia Giulia, North Eastern Italy offering a wide range of specializations. Among these, the main teaching areas concern on the one hand digital design and 3D animation, and on the other the biomedical field. The Institute has several interactive

laboratories equipped with specific instrumentation, including an operating room and x-ray instrumentation. There are also diagnostic imaging departments. Each laboratory is supervised by a specialist in the field.

In addition to the DiDean of the Foundation, there is an educational area followed by the administrative manager and by two didactic coordinators, one of whom also takes care of the helpdesk. Both coordinators are also in charge of the tutoring activity.

The Institute's Governance also includes a communication manager, an IT services manager, a technical-scientific manager of all laboratories and a supervising specialist for each laboratory.

The current IT manager oversees the Institute's computer systems, namely the network and server systems. He has 15 years of experience working on networks and was hired in 2020 to implement the Eduroam service in both locations of the Institute. He subsequently took over the management of the systems. He currently works remotely from abroad.

Motivation and drivers

The didactic services area underwent a substantial reorganization a few months before the lockdown. In addition to the three current appointees, eight other supporting officers contributed to the first steps of the digital transition and subsequently provided additional support during the lockdown. The team consisted of two people per course: one in charge of managing communication, the other administration.

At the same time, in 2020 the previous manager set up the frame of the current digital platform, testing its functionalities and creating the user profiles. To do this he collaborated with the manager of the didactic area, defining the settings of platform to be used. Thus the platform was at first created so as to function as the Institute's internal infrastructure.

In the capacity of the technical-scientific manager, the previous IT specialist had also set up the working groups for each of the Institute's laboratories. Finally, the didactic coordinators were enabled as administrators of the groups and tasked to organize and manage them. As administrators, they additionally instructed the students on the settings of the platform and conducted technical tests with them.

Barriers and obstacles

The institute's situation throughout the pandemic was overall critical in that, when the lockdown went into effect, the academic year had already started and therefore all courses and internships had to be guaranteed.

2. During and post pandemic status quo

2.1 Luiss Business School

Policy

There was already a digital strategy before the pandemic that started in 2018-19. The governance of the School already had a defined strategy regarding the digitization of education with the objective

of modernizing teaching focusing on students and using digital tools to change the pedagogy. With the pandemic this strategy has taken an acceleration causing the creation of other formats of education called Flex Programmess. This process is going on and, in June, the School launched the Online Programmes. Nowadays, the digitalization of education is strategic for a Business School like Luiss Business School but it should also deeply framed in the new way teachers make lessons and students learn. There should be a vertical adaptation on how to train people.

Motivators and drivers

During the pandemic, Luiss Business School structured a digital unite that deals with the development of educational programmes as well as the digitalization of the school creating tools that have the objective of facilitating the lives of students and of the ecosystem (i.e. administrative staff, teachers). The evolution was moving from internal resources to outsourcing based on peaks. From a strategic point of view, the School used the flip learning methodology to redefine the digital material and make it become a driving force in practice. With the pandemic the digitization of education was massive because the percentage between asynchronous and synchronous has reversed. They went from a 20% flip classroom with digital material provided in advance and then discussed in class face-to-face, to a system that was for the 80% digital (webinar, asynchronous material always anticipated). Having a strong strategy before the pandemic, the School could use tools that already had only expanding their functionality.

The latest effort was to relaunch the Digital Teaching for Learning in conjunction with the Digital Learning Lab to train teachers and to have an educational offer for students as well.

For platforms there is Moodle and Fires for some programs such as online programs. The objective was to digitize the historical offer.

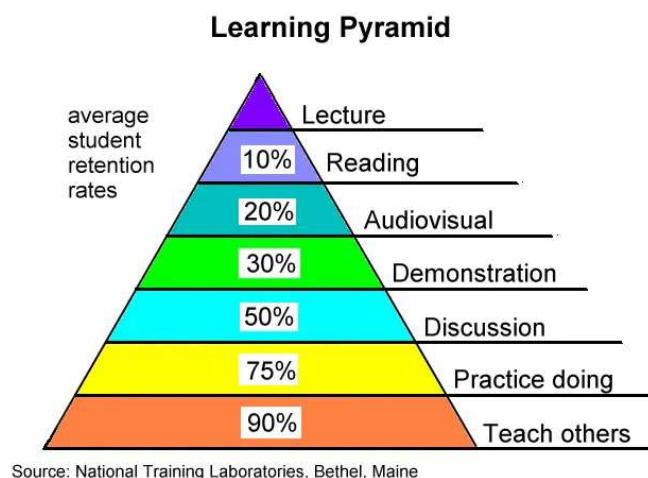
Obstacles and lessons learnt

Platforms must be guided by experience and pedagogy. The challenge is to find the right balance to make the learning experience effective for students in the context and moment they are living. It is a tripod: technology, content and pedagogy. These things have to be in balance.

2.2 Politecnico di Milano

Policy

For some years Politecnico has adopted the blended classrooms methodology and, in particular, flipped classrooms. This has led to a revolution in teaching that is no longer frontal: in fact, the frontal part of the lesson lasts about twenty minutes because students have to do theirs assignment before the lesson itself. Professors give students digital materials of different nature (i.e. video, presentations, papers) that are provided in advance and permits students to know the topic of the lesson before. To verify if the students do what is asked, it is necessary to implement innovative techniques in the mode but traditional in substance: students have to complete an initial test that measures the level of acquisition of preliminary information; at this point, they come to the frontal lesson that lasts twenty minutes and in which the teacher can deal with specific topics. In Politecnico the lessons last twenty minutes according to the Learning Pyramid.



2

During the lessons, the teachers divides the class into groups in which multiple activities are done with a predetermined time and then students are asked to become teachers by showing others the result of what they have worked on. After that, students have to complete another test, the exit test, which has a series of questions that are used to understand the level of acquisition of the activities that took place in the classroom. As last activity the students publish the results of their team works in the Facebook page of the course.

Motivators and drivers

Concerning the tools, those used were those of seven years ago when Politecnico started to change strategy. When the pandemic arrived, the problem was that the process of engagement of the students, which was all based on coexistence and physical interaction, had to go totally online. From this, the necessity to renew the pedagogy working on an interface that had to be shared with people who were in different places. Politecnico, then, had developed a series of new skills because the interaction could no longer be physical and there was the necessity to create different spaces that were online reproducing the in-presence activities. The pandemic made possible to develop these new skills reproducing the same interaction that the students and teachers had in presence.

The pandemic gave outsiders the opportunity to understand that it was very easy to interact and this greatly changed the interaction between courses and the outside world.

In the survey students have expressed their satisfaction regarding the online services that the University gave them.

Obstacles and lessons learnt

For the future, the challenge is to put together the best of what people were forced to do during the pandemic by taking a technological leap of years. Everyone is much more technologically prepared. There is a heritage that has developed unconsciously with a sudden leap.

² The Learning Pyramid: studies show that varying your study methods and materials will improve your retention and recall of information, and enhance your learning experience. The "learning pyramid", sometimes referred to as the "cone of learning", developed by the National Training Laboratory, suggests that most students only remember about 10% of what they read from textbooks, but retain nearly 90% of what they learn through teaching others. The Learning Pyramid model suggests that some methods of study are more effective than others and that varying study methods will lead to deeper learning and longer-term retention in <https://www.educationcorner.com/the-learning-pyramid.html>

Today the presence in a physical space by the students, after two years of being at home, has decreased the desire to go to the in-presence classroom.

The challenge is to understand what is the wealth of experience, knowledge, potentiality that we have acquired declining it to the best we were used to previously.

We asked to students, from now on, if they prefer online or in presence classrooms: the majority of them would prefer blended classroom.

2.3 Università di Bari Aldo Moro – Facoltà di Psicologia

Policy

With regards to teaching practices, during the pandemic the University received very strict and precise instructions from the Dean because the request was to standardize distance teaching. The Dean therefore decided to use Microsoft Teams, the platform so far used for staff meetings whenever working from home, although some faculty members already used it to give lessons. With regard to IT support services for distance learning, 75% of the researchers and teachers interviewed took advantage of the possibility of using a device provided by the University. In the case of students, however, there was no possibility, but in most cases not even the need, to request the devices.

The staff was given instructions on how to use it and operation management passed into the hands of the Central Office. The general guidelines set by the Central Office were very instrumental and technical, and focused on the use of the platform, whereas there was no indication of the teaching method best suited for teaching classes remotely, or evaluating the students. That being sad, and besides experiencing more limitations, with the arrival of the pandemic and the directives of the University, the faculty involved in the study group continued with the experiments informally, on its own initiative.

Motivators and drivers

The study group also discussed how to make the assessments more dynamic, for example involving the students in the definition of the assessment criteria and tools. The group also included people who were very critical of distance learning, and the exchange was quite constructive.

From an administrative point of view, the transition initially consisted in the simple transposition of paper documents into digital ones. The staff feared losing track of documents and information; on the other hand, with the construction of a common base of knowledge, the officers have realized the advantages of a digitally-driven process, and now the administration is proceeding towards an almost complete digitization. Such transitions allows for the creation of archives of previous procedures that are very useful in the onboarding process of new colleagues and in keeping track of the activities.

The digitization of the initiatives for the third mission was also a success. Orientation for superiors has been transposed online, reaching an audience of students up to almost ten times larger than in the case of previous face-to-face initiatives, welcoming participants even outside the province.

Obstacles and lessons learnt

Overall, the digital transition has led to greater collaboration and interaction between colleagues, especially for the sharing of good practices. It has also enabled significant time optimizations, and brought forth more practical tools to manage existing processes. At the same time, there have been some setbacks relating to the centralization of the policies on teaching, as requested by the Ministry and implemented by the Dean.

From the viewpoint of didactic experimentation, most activities of the faculty study group on experimental didactics were suspended during the lockdown.

Most importantly, technologies have radicalized opposing biases and behaviors, thus experiences: the teaching staff who were familiar with more interactive methodologies and had a more digitally-prone mindset, and who therefore were also familiar with suitable tools and methods, kept on relying on such resources. This choice took place in a very autonomous way, all the while respecting the Ministry's policies. On the other hand, those who had not experimented with this type of modality, relied instead on the frontal instruction method and their experience with remote teaching was quite negative. Such polarized experiences brought forth a paradoxical effect, that is, the biases against distant learning were reinforced with the pandemic, and often enhanced by exhaustion due to the prolonged use of the PC and software such as Zoom.

Similarly, the obsession of controlling the students during tests and evaluations emerged from the policies and in some teachers, with the assumption that cheating and break the rules would be a common practice.

From an administrative point of view, with the digitization of workflows and documents, the transit of papers, even though it still exists, has eased. In the management of administrative flows, the university has seen both improvements and informal learning initiatives, as well as a stronger impact of initiatives related to the third mission. At the administrative level, several staff members had no prior experience of using the software adopted during the emergency. In fact, at the beginning the problems were mainly related to the lack of skills, which was overcome through self-learning and informal exchange of information between colleagues. Another obstacle was the occasional inability to make the same software and digital tools work with the devices available remotely. Post-pandemic, training has now been structured to respond to needs.

Finally, limitations attributed to digitization in general emerged, specifically concerning the career orientation events that took place online, in that it is difficult to quantify how many participants are actually interested in the offer.

Post-emergency, the University has asked for feedback not only from the faculty but also from students. Findings show that distance learning is a point of no return for many students, who now are struggling to go back on site. In particular, those with cognitive and physical disabilities have greatly appreciated distance learning, seeing it as more personalized and accessible. The same is true for students with fewer opportunities to attend courses while living off-site.

The next steps to undertake are not yet clearly formalized. The University will probably go in the direction of blended/hybrid teaching, a strategy for which it seems necessary to introduce supporting roles, such as a tutors, as well as to enhance the existing IT enabling services, which is currently perceived as lacking (for example in terms of technical assistance).

2.4 Università UnitelmaSapienza – Università degli Studi di Roma

Policy

Being an online University, the implementation of the teaching activity has not undergone many changes. The only exception concerns the students' evaluation: the pandemic has impacted the way the exams are conducted because, not being able to organize the sessions on site, the University had to set up its own system and a procedures to be able to carry them out remotely.

With regards to teaching strategies and methods, on the other hand, there has been a great effort towards innovation, and trainings have been further enhanced especially for tutors. Following the lockdown, on-site activities, including staff training and administration shifted to remote.

Motivators and drivers

As for the coordination of teaching, in the last year one and a half years the University has further increased the number of training sessions, also involving subject matter experts from other universities. The initiative has enhanced the teaching and support staff's skill level. Moreover, thanks to the tutors, the teaching offer is now much stronger and more interactive resulting in a greater engagement of the students.

In terms of digital tools, prior to the emergency Webex and Google services were used exclusively by teachers and officers for internal purposed. The pandemic has offered the opportunity to update and share technical and digital knowledge especially with regards to teaching or technical support.

Obstacles and lessons learnt

The faculty's involvement in interactive and blended teaching in all academic fields remains difficult. Especially senior faculty members such as professors are reluctant to be trained on teaching methodologies.

In this new academic year the University has opted for blended internal trainings and meetings. This strategy allows for keeping a functional, time-saving approach to internal communications whenever most convenient, all the while providing the opportunity for the faculty and staff to connect, share knowledge and provide support in more flexible, context-oriented setting and even in informal, collaborative ways, and thus to elaborate shareable, practical outputs.

From a methodological point of view, there was a step backwards in the evaluations due to regulatory constraints. However, teachers have certainly found new teaching methods through training as well as through informal exchange opportunities. To summarize, the pandemic provided an opportunity to better manage some IT tools and to cope with the constraints imposed by the Ministry.

2.5 Fondazione ITS Logistica Sostenibile

Policy

The Foundation is very small and has two offices, one in Bologna and the other in Piacenza. They have no employees but they use staff training centers that are part of the Foundation. There is not a dedicated staff that deal with the digitalization of education. Within the Foundation, there is an IT service which gave support, during the pandemic, to the digitalization of educational programmes.

They use two different products: in Piacenza Cisco Webex and in Bologna Go to Meeting. By doing funded training they must follow the rules of the funding body related, for example to reporting, so they used products in which the reporting was easily readable by the funding body and therefore also validated by the funding body.

Motivators and drivers

The Foundation realized that some of their users has become accustomed to the online tools and ask to maintain, after the pandemic, this mode of teaching. This facts regards students and teachers that has to travel to follow the lessons that prefer to stay home to spend less in terms of time and money. Nevertheless, teachers keep on preferring the in-presence methodology because of the better interaction with the students.

This reflects also the fact that teachers do not have the same digital skills and for some of them is more difficult to create lessons that can be transmitted fully online. The online lesson must also be managed with a certain interactivity and if there is no interaction the risk is to have a detachment regarding the contents. The lesson learned by pandemic period is to have tutors that follow the online lessons to understand which professors can manage or not the online mode.

Having educational programmes that are interactive and laboratorial the Foundation used platforms that has permitted to pass this modality from the in-presence mode to the online one.

After the pandemic the Foundation, following the rules of the funding entities, had to come back to a total in-presence mode but the acceleration of the digitalization of education permitted them to better manage the meeting that they can to online and the presence of some professors that live abroad or far from the Foundation.

Obstacles and lessons learnt

There has been an important information from those who work on the digitalization issues, that permit to acquire new skills that they spend also today. In fact, they are able to provide one more service in their programmes: in the didactic planning they are now inserting remote interventions by professors; i.e. if there is a person who has specific skills for a course, he can intervene remotely using the skills acquired during the pandemic and the platforms used. The pandemic has allowed them to insert a new training method.

2.6 Fondazione ITS Kennedy – Alto Adriatico

Policy

By the beginning of the lockdown, the Institute's digital transition was already underway. The teaching staff had already been largely trained in the use of Google tools and the platform; the students were already prepared for the change and equipped with the necessary devices, and the teaching materials were already shared on the online platform and via email.

Moreover, the methodology was already focused on "learning by doing", interactive and practical and therefore more easily delivered at a distance. Thus, the Institute's strategy was to integrate internal tools and resources already in use, maintaining the existing key principles with the intent of keeping the student at the center of the learning process. These additions to the existing method concern the formalization of practical instructions for teachers, the creation of resources for the micro-planning of each lessons, and the optimization of the platform in terms of access, functions, and contents. In addition, where necessary, the institute provided both teachers and students with portable devices to carry out and follow the activities.

Motivators and drivers

The first step towards the transition in the context of the health emergency was made with teachers with more experience in distance learning. The Didactic Board shared a practical handbook for teachers. The guidelines aimed to share language and tools to use and access and use instructions; the document created a common base of knowledge and of use procedures and good practices among teachers.

For a first two-week period, only expert teachers delivered the lessons. Subsequently, the didactic coordinators drafted with them the guidelines for the use of the tools focusing on topics such as security procedures and issues, the management of multiple credentials, and access. They also offered advice on the digital tools best suited for remote classes. Once all teachers were provided with the guidelines, the normal calendar resumed.

The guidelines also normalized micro-design methods, for example for the structuring of 4-hour classes. Particularly important were the tools to define the structure of the lessons in terms of sequencing of explanations, demonstrations, exercises, and so on; of interactive resources and activities, so as to counteract a generalized decreased attention, and the teachers' struggle in reading "the room", that is, the non-verbal and paraverbal feedback of the students.

The shift to distant learning proceeded on a trial-and-error base, first with expert teachers, then by setting up and standardising the formats and delivery methods. the Institute Board decided to go forward with the pandemic response in advance: students were invited to a preliminary online appointment in the virtual classroom, on Google meet, a few days before distance learning was officially launched.

As for the use of the platform, each of the seven training courses has a reference site that connects the user, via a link, to the folders stored via Google Drive, which are shared by the teachers among themselves, with the students, and by the students among themselves. The didactic managers have also used this platform to share updates on the COVID emergency. All content was entered according to a specific hierarchy based on the needs of users: a link to the calendar, followed by all links for teaching materials uploaded by teachers. At the bottom of the page, there is a folder where

students can upload their assignments or projects and the links to the prospectuses of attendance and evaluations. For safety reasons, students were only guaranteed reading permissions.

All online lessons were held with the support of tutors linked together with the teachers, and monitored on a sample basis by the regional superintendents. Both teachers and students had the opportunity to use a device supplied by the Institute to follow the lessons.

Obstacles and lessons learnt

Compared to face-to-face lessons, online classes were found to save time; however, they were more distracting for students and stressful for teachers. In general, the students were overall satisfied with the teaching activities, with the evaluation methods and the overall the services offered by the institute. In the future, the Institute would like to experiment with the hybrid mode, which was precluded by the Ministry to VETs, but not to other entities during the lockdown.

The best performing teachers in distance learning were those with medium experience, while the others were more resistant to changing their way of working. For this reason, too, the Governance intends to collect and analyze the feedback from teachers on distance learning, to review the micro-design of the lessons, based on the trial and error conducted during the pandemic. A possible output would be a set of methodological guidelines on the sequencing of activities and the use of tools to retain the students' attention and motivation.

Finally, the importance of formalizing student activities on the platform emerged. Possible next steps in this direction involve selecting the appropriate tools to monitor the activities carried out by the students, especially in the evening or at night, which for the moment cannot be registered. Based on such findings, the didactic managers plans to formalize these activities and possibly embed them in an asynchronous course.

2.7 Fondazione ITS Alessandro Volta

Policy

After the lockdown, with regard to the reorganization of courses, the governance postponed the closure of the school year to the following school year; the teachers were thus able to anticipate all the theoretical contents of the courses, postponing the laboratories to a later moment, when gatherings would be possible again. Furthermore, the Governance anticipated the theoretical units of some second-year courses. Some teachers experimented with the asynchronous teaching as well.

Teachers had to transfer all face-to-face lessons to the Office 365 5 platform first, and Microsoft Teams began to be used as well. The IT manager created an account for each student and for each tutor, and groups for each course. He also organized the live lessons so that a tutor or didactic coordinator would be always present, as per regional policies. The Institute also provided teachers and students with devices to attend classes; the students of the institute made use of this service, as did half of the teachers interviewed.

Many evaluation procedures and tools have changed as well. Some teachers converted the tests into questions. Having a limited number of hours for the individual modules, however, there were not enough resources, nor time, to interrogate all students; therefore in these cases the queries have

been transformed into online tests using the Form application or dedicated files. On the other hand, cross tests have continued to be used according the same tools, contents and modality.

Finally, so as to ensure continuity, the didactic coordinators contacted partners involved in the to the internship programs in order to and adapt the activities according to the new needs and limits set by the context. The Institute managed to keep the programs more or less unchanged whenever collaborating with IT companies; however whenever practical activities were involved, especially if related to technical equipment, the internship was turned into a project work.

Motivators and drivers

In order to address the specific criticalities created by distance learning, at the beginning of September October 2020 the Institute organized a training course for teachers and tutors on how to effectively communicate within the setting of online lessons.

Secondly, coordinators and teachers also talked with colleagues who also work within the university, so as to understand the methodologies set in place in the academia to carry out exams, and to draw an example from them.

Obstacles and lessons learnt

Overall, the service was guaranteed, but in terms of governance and teaching, a large margin for improvement has been perceived.

In particular, the online tools used for teaching and especially for carrying out the assessments have had a different performance according to the subjects of each class and course. For more elaborate subjects in which more articulated answers where required, teachers and students experiences both time- and tool-related problems.

Secondly, at the end of the pandemic, the administrative and coordination workflow with the region has again turned to the use of physical documents, despite a generalized opinion among the Governance and staff that it would be managed digitally. The need to receive training and have references to know and adapt to the current requirements for data processing has also emerged.

3. Accounts from Teachers and Students

Both in the case of teachers and students, the most used devices to attend online classes were laptops, followed by desktops. A minority of the students also used smartphones.

Students perceived an improvement in the teachers' digital skills, but this perception is not shared by the teachers themselves, who consider their skills level unchanged compared to before the pandemic. Conversely, teachers perceived an increase in students' digital skills, while only half of the latter share this opinion; the remaining 50% consider their skills unchanged compared to before.

Teachers noticed and had to cope with a drop in student motivation, linked to lower opportunities for interaction and connection difficulties, which strongly contributed to the increase in student distraction.

The same issues are reflected in the experience of the students, who were easily distracted and suffered from little interaction with teachers, while also facing connection problems and the lack of

interaction between peers. Two other diverging points are relevant between teachers and students: the first concerns the lower perception of students of their decrease in motivation; the second concerns the increase in stress related to online activities, reported by a third of teachers but marginal for students.

In conducting the lessons, the most effective strategies according to the teachers consisted in shortened lessons and in group tasks. Others, such as the flipped classroom, followed by online Q&A sessions, work sessions in small groups in the presence of the teacher, and personalized support were perceived as the less effective.

Students equally appreciated the tasks to be completed in groups and considered the flipped classroom to be the least effective activity; unlike the teachers, however, they indicated that they preferred work sessions in small groups in the presence of the teacher and a structured work plans anticipating the moments of interaction and open discussion.

In general, both teachers and students are satisfied with the quality of the lessons and services provided by the institutions during the pandemic. The strategies implemented have signaled a strong perception of practicality in online lessons, but also the need to reduce connection problems and to improve the overall quality of interactions.

Moreover, both teachers and students consider online lessons to be more flexible and time-saving, but at the cost of causing more distraction than face-to-face and making group work more difficult. On the other hand, they considered them neither more interesting nor more collaborative.

In light of these common perceptions, there is also a common expectation and request to continue with blended programs - preferred by over 40% of students and teachers. However, whereas teachers report on-site courses as an equally desirable option, students see hybrid programs as an option only second to blended learning. Furthermore, the surveys show that students do not wish to go back to a single mode of attendance: only 21% of students want to return completely on site, and no one wants to follow the course exclusively online (an option considered by 11% of teachers).

4. Conclusion

To summarize, the findings show pandemic gave a boost to the digitalization process of the Italian educational systems. The interviews and surveys highlighted a general satisfaction with the overall quality and efficiency of the services provided throughout the pandemic, especially with regards to the provision of devices and the implementation of the digital platforms. However, there are still some cultural and organizational blockers preventing a systemic transition, for example the skepticism of the teaching staff towards more interactive ways of structuring their courses and classes , and the overall reorganization of the activities in a remote mode. On the other hand, teachers and tutors in HE and especially VET institution demonstrated a stronger commitment to rethinking their teaching and evaluation practices, with the aim of providing a more student-centric, engaging learning experience for their students.

Moreover, based on their experiences – as shown in chapters one to three – all interviewees highlighted specific subjects, methods as key enablers for achieving an effective digital transition of their respective organizations, which they would look forward to be trained in. Such enablers are:

- **Governance**
 - Integrating AGILE methodology in curriculum design

- Digital Teamwork
- **Enabling services**
 - Digital communication and problem solving in support of administrative and service-related workflows: techniques and tools
 - Digital engagement for events and partnerships: techniques and tools
- **Teaching and Learning**
 - Digital communication and engagement for remote learning: techniques and tools
 - Collaborative learning activities
 - Course design
- **IT services**
 - Policies on cyber-security and data treatment, as per national and EU policies
 - Major software and platforms updates

Overall, the most relevant choices to be observed highlight the need for strengthening soft and transferrable skills, such as communication and problem solving, that the pandemic redefined or expanded in terms of remote or blended working as well as learning settings. Equally important seem to be a periodical update on the technical features as well as best practices, as well as a specific upskilling of the teaching staff (namely, tutors and faculty within the university system) with regards to more interactive, dynamic, and inclusive ways of engaging with students. The impact of more engaging methodologies seems to stretch beyond the adaptation of traditional academic teaching to virtual settings, towards a comprehensive redefinition of goals and modalities to achieve meaningful, sustainable learning experiences.

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