ECOLHE

Empower Competences for Onlife Learning in HE

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Digital Technologies in HE: from the European vision to the university governance

Italian Case Study. University Roma Tre

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INTRODUCTION

On July 2020, the Council of the European Union issued a Recommendation on the 2020 National Reform Programme of Italy and delivering a Council opinion on the 2020 Stability Programme of Italy[1].

As part of a general analysis on the measures adopted by Italy to deal with the emergency for Covid-19, with specific reference to the education sector, the Council highlighted the current emergency also concerns the need to improve digital learning and skills, in particular with regard to adult workers and distance learning. To invest in education and skills is crucial for fostering a smart and inclusive recovery and to stay on course for the green and digital transition.

About it, results continue to represent an important challenge for Italy, in terms of education and training. Attainment of basic competences considerably varies among regions and the school dropout rate is well above the EU average (13.5 per cent, compared to 10.3 per cent in 2019), particularly for students who were not born in the Union (33 per cent). In a context of mobility restrictions, regional and territorial disparities risk worsening. In this framework, it is particularly important to invest in distance learning, as well as in infrastructures and digital competences of educators and learners (Petrucci *et al*., 2021).

Italy has also a lower percentage of science and engineering graduates than the UE average and the tertiary education rate remains very low (27.6 percent in 2019). Furthermore, in Italy, companies invest less in information and communication technology training for their employees, compared to comparable countries. The low participation rate of low-skilled adults in training is also worrying, given the decline of low-skilled jobs. Improving competences levels and retraining continue to be more crucial than ever to enable workers to acquire skills relevant to the labor market and to promote a fair transition to a more digital and sustainable economy. Therefore, the Council recommended the strengthening of distance learning and the improvement of skills, including digital ones.

In December 2020, the "Council conclusions on digital education in Europe's knowledge societies" were published[2].

The Council highlighted how an acceleration of the digital transformation of our knowledge societies is underway, as well as an increase in the availability of digital services and data. This transformation includes an evolving job market, the emergence of new job profiles and a demand for digital skills, in the context of 21st century skills.

[1] Recommendation for a COUNCIL RECOMMENDATION on the 2020 National Reform Programme of Italy and delivering a Council opinion on the 2020 Stability Programme of Italy. COM/2020/512 final. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0512.

[2] Council conclusions on digital education in Europe's knowledge societies (2020/C 415/10). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020XG1201%2802%29.

The growing influence of artificial intelligence will amplify the effects of the digital transformation of our knowledge societies, in a long-term perspective, and may offer new and promising opportunities for learning, teaching and training in the future. High-quality and inclusive education and training are essential to enabling everyone to understand, participate in and shape these developments.

The Covid-19 pandemic and the impact it is having on education and training systems and institutions in Europe highlight the urgent need for a better understanding and ongoing assessment of uses, benefits and challenges of digital technologies for education, as well as digital competence levels, in the framework of lifelong learning. The pandemic has further highlighted the urgent need to adopt a comprehensive approach to digital education. In order to meet current needs, inclusive and high-quality education and training require digital and non-digital forms of learning and teaching, including approaches such as blended learning and distance learning. These options offer the possibility of improving learner-centered education and training, according to the specific needs of each individual. The pandemic activated a rapid emergency response (Petrucci *et al*., 2021).

In the academic year 2019/2020, the Italian university system is made up of 98 universities, of which 67 state, which include 3 High Schools and 3 Higher Education Institutes, as well as 31 non-state universities, 11 of which are telematic. There are 24 state universities located in the North, 19 are in the Center and 24 in the South and Islands. With regard to the size of the universities in relation to the number of students enrolled, there are 13 universities with a number of students below 10.000, 17 with a number of students from 10.000 to 19.999, 14 with a number of students from 20.000 to 29.999, 11 with of members from 30.000 to 59.999, 6 with over 60.000 members (Tab. 1). There are 4.866 active courses in the academic year 2019/2020, with a slight but steady increase compared to the academic year 2016/2017, in which there were 4.575. The increase is recorded above all in level II courses in all geographic areas (Petrucci *et al*., 2021).

Table 1 - Italian Universities for number of students

Ateneo di iscrizione	Iscritti	Maschi	Femmine
1. "La Sapienza" Roma	104.721	44.580	60.141
2. Bologna	82.167	36.483	45.684
3. Torino	76.865	29.872	46.993
4. "Federico II" Napoli	75.534	33.914	41.620
5. Milano	62.850	25.848	37.002
6. Padova	61.924	29.197	32.727
7. Telematica Pegaso	55.400	31.329	24.071
8. Firenze	52.834	22.472	30.362
9. Politecnico di Milano	47.452	31.506	15.946
10. Pisa	45.687	22.294	23.393
11. Bari	42.686	16.059	26.627
12. Cattolica del Sacro Cuore	42.500	14.381	28.119
13. Palermo	41.794	17.496	24.298
14. Catania	39.122	16.818	22.304
15. Salerno	35.803	15.979	19.824
16. Politecnico di Torino	34.721	24.701	10.020
17. Bicocca Milano	34.261	13.472	20.789
18. Roma Tre	31.568	12.866	18.702
19. Genova	31.335	13.984	17.351
20. Roma "Tor Vergata"	27.820	13.072	14.748
21. Parma	27.709	11.698	16.011
22. Modena e Reggio Emilia	27.465	12.962	14.503

Source: https://anagrafe.miur.it/php5/home.php?&anni=2019-20&categorie=ateneo&status=iscritti&tipo_corso=TT&&order_by=i

Figure 1 - Data A.Y. 2019/2020

Source: https://anagrafe.miur.it/php5/home.php?&anni=2019-20&categorie=ateneo&status=iscritti&tipo_corso=TT&&order_by=i

With regard to the method of didactics, the study courses can be delivered in four distinct modes, which require regulatory choices, quality assurance procedures and approvals by the National Agency for the Evaluation of the University and Research System (ANVUR) and of the National University Council (CUN). The types of disbursement envisaged by the legislation are: "conventional", "blended", "mainly online" and "online" (in italian: “convenzionale”, “mista”, “prevalentemente a distanza” e “a distanza”). Between 2017 and 2020, in state universities, the number of students enrolled in degree courses with blended modality is clearly increasing. Otherwise in non-state universities the number of students enrolled in degree courses with online learning is growing; in 2019, they reach a number almost equal to the number of students enrolled in degree courses in conventional mode. Considering the Covid-19 health emergency led to the provision by universities of online learning services, ANVUR launched, in December 2020, an ad hoc survey (Petrucci et al., 2021).

This report has the main objective to present the results of Rome Tre case study, in the framework of the first Intellectual Output of the ECOLHE Project: “Digital Technologies in HE: from the European vision to the university governance”.

The main objectives of the case study are to investigate:

- needs and perspective of improvement of the use of digital technologies in the University of Roma Tre;
- emerging teaching and staff skills for the digital era;

- the most important problems detected and possible solutions.

To reach the objectives, the case study has developed:

- a desk-analysis of universities micro-policies;
- a field research activity, organised in in-depth interviews, focus groups and questionnaires to students..

The report is organised in two main parts:

➔ the first one concerns the analysis of the university micro-policies and it presents the main emerging elements;

➔ the second one concerns the presentation of the main results of the field research.

The reconstruction of the national political framework related to the digital innovation in higher education in Italy is available in the LINK CAMPUS CASE STUDY REPORT.

The analysis of micro-policies has considered the main University address documents (Regulations and Guidelines). The aim of the analysis has been to understand how these documents put national guidelines into practice, as they contextualize them in the Athenian Roma Tre.

The qualitative research has been focused on three main areas: organizational, teaching-learning (educational) and cultural areas. They consider the following seven sub-dimension of analysis, based on the proposal of a Digital Maturity Framework for Higher Education Institution, which synthesizes the main existent frameworks/models related to the integration of digital technologies in HE (Đurek, Begičević Ređep, Kadoić, 2019):

1. Leadership, planning and management
   - Financial investment in the use of ICT in learning and teaching; research and development; business of the institution
   - Strategic planning of ICT integration in HEI
   - Managing the integration of ICT in learning and teaching at HEI
   - Managing the integration of ICT in scientific research at HEI
   - Information System for Supporting Business Processes of HEI
   - Planning and implementation of training of HEI employees in the field of digital competencies and ICT application
   - The relationship between the HEI and the state from the aspect of ICT integration
   - HEI policy in ICT integration and monitoring global trends
2. Quality assurance
   - ICT quality assurance policies;

- monitoring and periodic review of study programmes, from the aspect of ICT application;
- evaluation of the work of teaching, research, administrative and technical staff;
- continuous monitoring of the results of scientific-teaching work and progress;
- procedures for determining the needs, development or acquisition of ICT resources and their application;
- approved procedures and follow-up on student enrolment, their progress through study and the completion of studies supported by ICT.

3. Scientific-research work

- The use of ICT in the preparation and publication of scientific papers;
- ICT support in the preparation and management of scientific research work and projects;
- ICT research (collaborative ICT research on HEIs);
- a system of support for researchers at the beginning of their careers in applying ICT in scientific research;
- continuous training of researchers in ICT application in scientific research;
- networking and collaboration of researchers with ICT support.

4. Technology transfer and service to society

- collaboration with stakeholders (employers, local community, pre-tertiary education) supported by ICT;
- applied research and professional projects supported by ICT and/or ICT;
- networking of researchers and users of research (stakeholders) supported by ICT.

5. Learning and teaching

- preparation, storage and use of digital content in learning and teaching;
- innovative learning and teaching methods with ICT;
- the development of teachers' digital competence;
- the development of students' digital competence;
- the use of learning analytics to improve learning and teaching;
- ubiquitous learning and open curricula;
- personalisation and support for under-represented groups by using ICT in learning and teaching

6. ICT culture

- the network presence of HEIs;
- using ICT in HEIs promotion;
- the development of digital literacy and the promotion of innovativeness in ICT application with HEI employees;
- self-confidence and motivation of employees on the importance of ICT application;

- providing access to and support in the application of ICT infrastructure;
- the application of ethical standards, copyrights and intellectual property in the ICT field.

7. ICT resources and infrastructure
    - the availability of ICT resources (hardware and software) for learning and teaching;
    - the availability of ICT resources for scientific research;
    - network infrastructures at HEIs;
    - access to ICT resources for students (both in and out of the classroom);
    - digital environment and information systems for employees and students;
    - technical support and maintenance of ICT resources at HEIs;
    - information security system.

The exploration of these seven areas has allowed us to identify the main interesting experiences in the field of:

- enhancing digital technologies in University Roma Tre;
- academics professional development paths with a focus on digital innovation;
- quality assurance in Roma Tre, with particular attention to digital innovation quality standards in teaching-learning processes;
- recognition and validation of teaching competencies with particular attention to digital skills in Higher Education.

The last part of the report presents a quantitative analysis: the results of questionnaires' results aimed at students.

1. UNIVERSITY MICRO-POLICIES

1.1. Statute and Regulations

The Statute of the University Roma Tre governs the general principles of organization and functioning of the University. According to Law No. 168/1989, the Statute represents the highest degree of legal autonomy of the university.

The Statute of the University indicates participation in the cultural and technological innovation processes of society and the productive world among the primary functions of the university and, therefore, enhances the actions aimed at the pursuit of digital innovation.

In this long period of pandemic the Statute of the University Roma Tre is a constant reference point, maintaining firm the principles to which refer in order to manage the main and sudden changes caused by the need to respond promptly to the emergency.

University Regulations are secondary normative sources and regulate specific aspects of university activity. They are also adopted in the exercise of the university's legal autonomy; they are issued by decree of the Rector after approval by the competent bodies.

These regulatory tools are a constant source of reference for the need to accompany processes of innovation and the implementation of *digital transformation* in the University of Roma Tre.

The University General Regulation - published with Rector's Decree no. 231/2021 - regulates the implementation of the general principles of the Statute and lays down the provisions regarding the general organization and the modalities of operation of the University.

In this Regulation, the promotion of technological innovation is one of the purposes linked to the possibility to constitute or participate in external institutions. Moreover, among motivations for the institution of a new Department, there are any technological needs expressed by the territory or ascribable to it.

Some salient passages related to digital transformation contained in some Regulations of the University of Rome Tre are the following .

The Regulations for the performance of teleworking activities (D.R. n. 542/2016) provided for the establishment of a permanent Observatory on telework, composed of representatives of the University's Single Guarantee

Committee, the Unitary Trade Union Representation and the Trade Unions. The Observatory's task is to collect data on the progress and operation of telework in the University and to publish an annual report (art. 11).[3]

The Regulations provide for four ways of teleworking:

- ordinary TW: linked to a project, with a pre-defined annual duration established with a specific call,
- special TW: reserved for employees with documented disabilities, who cannot reach the workplace. This mode of work does not provide time limits.
- parental TW, aimed at favoring permanence and return to service in periods close to maternity or paternity.
- extraordinary TW: linked to a project without a call, but with a duration from 3 months to 6.

But today the situation has completely changed: the use of smart working is very "smart", more easy.

The question is: what will happen when the work situation will be returned "normal? The normal way of working in public administration was in presence, so it is very interesting to understand if this Regulation will change during next months or years, if the possibility to use smart working will be smarter and easier.

The Regulations for the recruitment, progression, training and mobility of the Technical Administrative and Librarian Staff of the University (C.d.a. 25.09.2001) make explicit reference to the training of digital skills as a preparatory step to ensure the internal mobility of staff at the University.

The art. 10 - of the section dedicated to internal mobility - provides a training module through cycles of lessons to be held possibly also using computer systems, aimed at reducing the gap between the professional knowledge held by the employee and those required by the category of membership, the deepening of the cultural and professional heritage acquired and its updating (p. 10).

The Regulations provide for a section entirely dedicated to vocational training, which is recognized as a fundamental tool for growth and for raising the quality of services provided by the organizational structures of the Administration (p. 9). Training and refresher training may be compulsory or optional, concern permanent and fixed-term staff, seconded or seconded and have objectives aimed at offering concrete opportunities for professional development and remuneration.

There is no specific scope for updating and training other than to fit these offers into the framework of the national initiatives promoted by the CRUI.

[3] At the moment, no such reports have been made public.

The University Dicactics Regulations are revised during 2020 (approved at the sessions of S.A. 14.07.2020 and the c.d.a. 21.07.2020). It governs, in compliance with the provisions, the regulations and the didactic regulations:

- study courses, complementary educational services (Art 4);

- the conventional, remote and/or mixed teaching methodology (Art 9).

- the Organizational aspects of the teaching activity Common to the courses of study and activation of forms of teaching in mixed or distance mode (art 10), indicated in the didactic rules of the course of study (p. 8).

Finally, in Annex B, draft of DIDACTIC REGULATIONS OF THE DEGREE COURSE / SECOND CYCLE DEGREE / SINGLE CYCLE DEGREE, you are asked to indicate to Art. 6. - Organization of teaching methods, including distance learning (e.g.: teaching, workshops, seminars, educational excursions, traineeships, etc.). While at art. 7, we speak of articulation of the training course and we invite you here to indicate the teaching methodology (conventional, remote, mixed).

Therefore, with this Regulation it is explicitly required to indicate the teaching methodology envisaged in all degree courses, specifying the type of course.

An interesting aspect to highlight is that in the Regulations under consideration there is no mention of updating and training for teaching staff and researchers, but only for technical, administrative and librarian staff.

1.2. The Three-year Planning Document

In addition to the Regulations, Roma Tre University adopts three main programming acts[4]:

1. the University three-year planning document;
2. the financial statements;
3. the three-year integrated plan for performance, transparency and corruption prevention.

In particular, the University's three-year planning document identifies:

A. the University development plans in the following areas:
    a. didatics, also providing for degree and master's degree courses to be set up and activated in compliance with the minimum essential requirements in terms of financial, structural and human resources, as well as those to be deactivated;
    b. scientific research, also with reference to the educational offer of PhD courses;
    c. of the "third mission";

[4] More details are available at: https://www.uniroma3.it/ateneo/programmazione/

d. actions for the support and strengthening of services and interventions in favor of students;
e. internationalization of didactics, scientific research and the "third mission";
f. policies relating to the University staff and the recruitment of staff based on needs;

B. the self-assessment criteria regarding the implementation of the above mentioned development plans and the achievement of the expected objectives.

This document is organised in different Lines and Objectives.

The first line is related to the improvement of the didactic. The three-year plan provides for actions to improve the quality of the teaching service, contrast student drop-outs and support the regularity of careers. This involves teaching innovation and teaching quality actions, which will be developed through the promotion of innovative, participatory and active teaching; teacher training initiatives and research on teaching methods. Therefore, the regulations on teaching must also be reviewed, as well as those on the quality assurance of teaching.

For the academic year 2021-2022, the University of Roma Tre requires the accreditation of seven new study courses, including:

- Economics and Data Science (class L-33, Economics), at the Department of Economics;
- Digital Society (class LM-62, Political Science), proposed by the Department of Political Science;
- E-Learning and Media Education (class LM-93 Theories and methodologies of e-learning and media education), proposed by theDepartment of Education in collaboration with the Department of Philosophy, Communication and Entertainment and with the Department of Law.

These initiatives prove how much the attention to digital and the need to study the implication of its adoption in the various fields is strong in the University.

Digital then comes into play to reach the objective to promote the training offer of the University.

Attractiveness must also be pursued with actions aimed at promoting the image of the University, with awareness-oriented initiatives aimed at making the courses offered known. An action to be taken therefore concerns the promotion of the University'simage and improvement of communication, through the various digital channels,first of all the University website and those of the Departments (all in multilingual versions), but also social networks, always most important.

Finally, innovation and technology transfer represent a crucial activity of the Third Mission. They are aimed at the maximum enhancement of research, the implementation of specific innovation projects,industrial research and development, the implementation of the activity on behalf of third parties. In 2017, The University decided to establish threeVice-Rectors who, working in synergy, have the task of promoting and monitoring the following activities: relations with the world of work; relations with schools, companies and institutions; innovation and technology transfer.

1.3. The Quality Assessment System

The University of Roma Tre has adopted a Quality Assurance (QA) System consistent with the Self-assessment, Periodic Assessment and Accreditation guidelines (in italian: AVA - Autovalutazione, Valutazione periodica, Accreditamento guidelines), adopted by the National University and Research Assessment Agency (ANVUR)[5], and with the European Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG).

The university has adopted educational, research and third stream design, monitoring and assessment procedures for the continuous improvement of quality standards, as indicated in the Quality Manual approved by the university's Governing Bodies.

The Governing Bodies, the Quality Office and the Assessment Unit guarantee the implementation of opportune processes to assure the quality of the university's activities.

This unit monitors and evaluates the University activities. His objective is to adopt all the measures to ensure a full and responsible involvement of the University divisions in the self-assessment and evaluation process and to pursuit a higher level of quality in the institutional processes. The University provides a way for planning, monitoring and evaluating the teaching offer, research and third mission activities for the continuous improvement of its quality as described in the Quality Manual. This document defines the inspiring principles of the University quality assurance system, the regulatory and the policy references in all the different processes, the characteristics of the system, roles and responsibilities at central and local level hierarchy. Moreover, it offers to the University structures and to all the different subjects granting the quality assurance process the operational indications for the appropriate implementation of the processes.

The Manual also provides Quality Assurance. These mechanisms grant eventually the Quality Assurance process who is responsible for the continuous improvement of all the activities developed.

The University, as a Public Administration, annually evaluates the performance of the Administration. For this purpose it adopts and annually updates, granting the binding opinion of the Evaluation Unit, the Performance Measurement and Evaluation System.

ANVUR, also in response to a need represented at European level by the ENQA (European Association for Quality Assurance in Higher Education), has promoted and established a working group to develop a survey and analysis of the didactic experiences made in Italian universities during the COVID-19 health emergency,

[5] http://www.anvur.it/attivita/ava/

also in order to offer useful elements in view of the strategies that the universities themselves will have to prepare once the current pandemic phase is over.

The reflections made on the basis of the data acquired may facilitate the adaptation of the methods of teaching and providing services to students, even in the so-called dual forms (in person and remotely) that can also be used in the future. The results will be reported in the Biennial Report on the State of the University and Research System (the latest publication is from 2018) and will then be communicated to ENQA, for a comparison between the different European experiences.

The ANVUR survey on Distance Learning services provided by universities started on 14 December 2020 and ended on 8 February 2021[6].

ANVUR has defined three e-learning questionnaires aimed at different recipients:

- Emergency governance - Recipients: Rector / Director of each University (there is only one Emergency Governance Questionnaire for each University, which can be completed in agreement by the Rector and the Director);
- Distance Learning - Recipients: Teachers (the request for participation of teachers disseminated by the University);
- Distance Learning - Recipients: Students (at the beginning of 2021 ANVUR should have sent a note to all universities, providing more information on the survey of students' opinions).

At the end of the survey, the anonymous data will be made available to the University in aggregate form. At the moment, the publication of the data by ANVUR is awaited.

The survey of the Joint Teachers-Students Committee at the Department of Education Sciences. During 2020, the Joint Teachers' and Students' Committee launched a two-pronged online survey aimed at all the students of the courses of study in the Department of Education Sciences to collect information on the way distance learning was used and experienced and on the experience of online exams.

The Distance Learning Assessment Questionnaire[7] is an initiative promoted by the Joint Teachers-Students Commission of the Department of Education. The goal is to collect information on the way in which distance learning was enjoyed and experienced by students during the months of the pandemic.

[6] https://www.anvur.it/attivita/ava/didattica-a-distanza/
[7] https://survey.uniroma3.it/formazione/index.php/155596?lang=it

The Online Exam Assessment Questionnaire[8] is also an initiative of the Teacher-Student Joint Commission of the Department of Education. The goal, in this case, is to collect information on the way in which the experience of distance exams was enjoyed and lived by students.

The results of both surveys represent an important patrimony of indications for the future planning of didactic activities.

Students were invited to join the initiatives by filling in the questionnaires by 31 July 2020.

Following the institutional visit for the periodic accreditation of the University (November 2020), ANVUR produced the final report prepared by the Evaluation Expert Committee (CEV). Our University has been accredited in the category "Fully Satisfactory". (newsletter of the University Organs).

1.4. Roma Tre and the Plan E-Gov 2012

The e-Gov Plan 2012[9] has guided the Regions in the implementation of the main lines of digital development, with a view to complying with the principles expressed at national level. Within the Regional boundaries, each Athenaeum then had to drop into its cultural fabric the salient points defined by the Plan itself.

The University Roma Tre has translated into internal practices the principles expressed in the e-Gov Plan 2012. It contributed to the elaboration of the "Digital University Guidelines 2012" realized by the participating Universities to the project "Digital University" previewed from the Plan eGov 2012. The objective of the Guidelines is to modernise and make public administration more efficient and transparent by improving the quality and efficiency of advanced services for students, teachers, and administrative staff, as well as digital infrastructures, offered by the University.

Therefore, it is necessary to focus on the introduction, updating and standardisation of services to accelerate the process of digitisation and administrative simplification of the University.

This happens through some steps:

- the implementation of the digital exam verbalization process, from July 2018;[10]

[8] https://survey.uniroma3.it/formazione/index.php/788966?lang=it
[9] The e-Gov 2012 Plan was launched in 2009 by the then Minister for Public Administration and Innovation Renato Brunetta. The reference scenario is the European Action Plan on e-government. The objective is to define a priority system of intervention in the digital innovation of the PA that can give a boost to the modernisation of the processes of administrations, making them more efficient, more transparent, more able to provide citizens and businesses with quality services at a lower cost, contributing in this way to make the PA one of the main drivers of development of the country's economy. Font: http://qualitapa.gov.it/sitoarcheologico/relazioni-con-i-cittadini/open-government/e-government/index.html.
[10] Please refer to the Appeals Management Guide and Online Exam Record. Teacher Handbook for the management of Appeals and for the Verbalization of online exams, downloadable from the portalestudente.uniroma3.it downloads Asi_gestioneappelli_verbali

- the realization of the Student identification card (R3-Card) equipped with RFID (Radio Frequency Identification) technology based on the ability to store data by particular electronic devices (Tag or Transponder) which, when in the vicinity of specific readers, are solicited by means of radio-frequency signals allowing the exchange of the information contained in the chips and thus the identification of the object or person associated with it;
- the systematization of online payments, with the institutionalization of Pagopa and the interruption of the payment procedures with the bulletins Mav;[11]
- the adoption of VoIP systems - Voice over Internet Protocol (VoIP) is a technology that allows you to make voice calls using a broadband Internet connection instead of a regular (or analog) phone line -: the most explicit example is the adoption of the GARR - network - is the name of the Italian ultra-broadband network dedicated to the education, research and culture community - in line with the Voip technologies used on the national network by the main telecommunications operators;[12]
- federated authentication for internet access and networked resources;
- the digitization of degree theses.

Introducing, enhancing and standardising these services, with a view to direct participation in the e-Gov 2012 Plan, naturally has significant organisational implications, as the Guidelines themselves make clear (p. 36). Change and innovation must be accompanied by a conscious review of processes and organisation:

- developing digital skills for the correct and effective integration and use of these services in the university organisation;
- designing stable and reliable infrastructure and ensuring continuity of services;
- introducing innovative elements, as well as savings on infrastructure costs, facilitating the use of digital services under particularly competitive conditions.

1.5. The new Guidelines

With the communication of 9 March 2021, the suspension of the graduation sessions of the winter session was defined as the first essential and strategic action of the University in accordance with national policies in the field of HE.

“As a result of the containment measures at Covid-19 announced by the President of the Council of Ministers, all meetings to achieve the final title scheduled for 10 to 14 March are postponed to a date to be defined. the

[11] https://portalestudente.uniroma3.it/tasse/pagopa/
[12] The results of a 2012 Research promoted by the Laboratory of digital processing of multimedia signals and optical communications, of the Applied Electronics Department of the University Roma Tre, have been influential for the effective adoption of these systems

University has prepared the organizational technical measures in order to allow the development of the sessions for the attainment of the final title to distance"[13]

The formative and curricular activities continued at a distance, in compliance with the measures already adopted by the University to combat the spread of contagion, and in accordance with the Guidelines issued by the Ministry of the University: with the exception of courses in the first year of the degree and master's degree programmes.

The maximum capacity of the classrooms is confirmed at 30% of the seats available, upon reservation.

Reservations made for lessons in the years after the first may be cancelled.

The laboratory activities, exercises and experiential activities of all years have the opportunity to take place in the presence, in compliance with the Guidelines.

The first year training activities of the Phd students can be carried out in the presence of research and laboratory activities also students of the years after the first is allowed.

All the teachings are made accessible at a distance through the platforms made available by the University. As for the conduct of the exams is given the opportunity to be held in the presence, in compliance with the Ministerial Guidelines, also ensuring that students can, on request, to support them in distance mode. Graduation sessions continue at a distance.

The University of Roma Tre has also promptly activated a technical assistance service for candidates, those responsible for the teaching and the members of the selection boards, in line with the Decree 703 and following of May 2020.

A theme that emerges from these measures is the distribution of responsibilities as a tool for implementing and developing a **strategic policy** aimed at involving all the bodies of the University across the board, and relates continuously the three areas covered by the Focus Group that we will analyze later.

In particular, Teachers have the task of ensuring that the main functions defined by the Statute (teaching, research and third mission) are guaranteed. The task to verify the number of the requests and the instrumental and logistic availability is, instead, attributed to the University Administration.

With the D.R. n. 1096/2020 20 July 2020, the reinstatement of activities in the presence with regard to examination tests has become a fact, outlining a strategy of confidence in the reinstatement, as a response to

[13] https://www.uniroma3.it/articoli/sospensione-delle-sedute-di-laurea-dal-10-al-14-marzo-135606/

the D.P.C.M. who in the summer weeks have prepared the reopenings in institutions and organizations, as a result of the decrease in recorded infections.

In this regard,

“The examinations for the profit of the degree and master’s degree programmes, as well as of the post-graduate courses, can take place from the month of September 2020 in ordinary way, in presence at the University offices, both in oral form and in written form.” (D.R. n. 1096/2020)

Following the new governmental measures contained in the "Reopening Decree" of 22/04/2021 to contain and combat the epidemiological emergency by COVID-19 and the guidelines of the Regional Coordination Committee of the Universities of Lazio, the University has defined the different activities to be resumed in the presence[14]. In analyzing this passage, it is possible to note a certain degree of gradual symptom of a responsible, observant and reflective Governance that during this emergency is collecting valuable elements to rethink the activities of the University in their organization, management and implementation.

Among the main activities reintegrated in the mode in the presence of the University, following the Dispositions of April 1 2021, have been integrated:

- training and curricular activities;
- laboratory activities, exercises, professional training and experiential activities;
- profit and graduation examinations;
- the training, research and laboratory activities of the Phd students;
- the availability of library consultation services;
- access to the University’s offices and spaces for teachers, providing a smart working plan for technical and administrative staff to ensure the services in compliance with the anti covid-19 regulations in force.

With the Provisions following the passage of the Lazio Region in the "red zone" of 12 March 2021, the Guidelines regarding the modalities of teaching activities for the first semester, that have made necessary the implementation of communication tools, are provided.

A new way of communicating in the University: The tools of Roma Tre

This research activity is aimed at studying the methodologies and tools adopted by the Roma Tre University through its official websites. It emerged from the research that many guidelines and documents were published throughout the course of the Covid-19 emergency (emergency still ongoing today). Some of these are legal regulations that have steered the University towards adopting precautionary behaviours, others have promoted

[14] In compliance with the Guidelines and safety protocols referred to in the provisions adopted in implementation of article 2, paragraph 1, of Decree-Law No. 19 of 2020 and all'all. 18 of the DPCM of 14/02/2021.

the use of remote methodologies (Rectoral Decree no. 637 April 2020). The primary aim of these interventions was to ensure or otherwise maintain the smooth running of classes and access to lessons. This aim was supported by the work to achieve and maintain better communication between teachers and students during the suspension of university activities due to the emergency[15].

An unexpected consequence of the health emergency was a massive drive to digitise all organisational processes, not just teaching, which led the University of Roma Tre to make greater use of remote technology.

The three main tools identified for teaching and meeting management are: Moodle, Teams and Stream. These tools were used also by the various University bodies and academic staff.

Moodle is a blended learning platform, which can be modified and adapted to the needs of the school or university that decides to adopt it. It is a dynamic and modular learning environment, through which students can choose how and when to attend online lessons. Using Moodle, teachers organize and conduct video lessons, make various types of materials available (texts, slides, evaluation forms and much more). Each teacher organises and implements his or her own virtual course and each student can also participate asynchronously. However, when the video lectures were recorded, issues of rights and privacy emerged and had to be considered.

The Moodle platform has been adopted by all departments of the University of Roma Tre. Each department then chose whether to adopt the original page and name or to modify them according to their own choices. In Educational Sciences it has taken the name of "form-on-line" (https://formonline.uniroma3.it).

Microsoft Teams . In particular, it can be used to organize audio or video meetings, and to manage related documentation. The meetings can also be recorded. There is no need to purchase any particular software, to use the platform is only necessary a common navigation browser connected to the Internet. This tool also allows Examination Boards to create a virtual classroom for examination sessions and similar in order to supervise and support to students. Stream is specifically used to efficiently displayed the recorded lessons (during live broadcasting or otherwise).

As an additional tool, for purposes of guaranteeing the performance of university activities and specifically for exams, Rome Tre uses Respondus, which allows you to control the computer of each student, avoiding unauthorized activities.

In addition, for online teaching assistance, the University has provided guidance, communication and support channels for both lecturers and students. A "Live Chat" has been made available for problems relating to "access

[15] For what concerns primary and secondary schools, the exam results announced on the 14th of July 2021 have been considered unsatisfactory by the INVALSI, and these results have been largely associated to the DAD.

credentials to the Student Portal, technical support for online procedures on the Student Portal and for questions relating to enrolment in exams, deferral requests, etc.[16]

This assistance is very important precisely to support and facilitate the transition produced by the pandemic. Among other things, this has the function of relieving the user - whoever he or she may be - of some of the burden of knowledge (saving resources) that he or she would have to acquire in order to make these tools work properly.

Through links and direct sending to the university staff (empirical evidence for those who live in the university), the University has disseminated a series of communications and guidelines. The aim of this was to support teachers and students in familiarizing with the relatively "new" tools. For this reason, online courses on Moodle, Teams and Stream have also been made available for students[17].

It should be specified that all the tools presented and the related guidelines are aimed at all University activities: graduation sessions, masters, doctorates (Updated November 6 2020), specialization courses. A typical example is the Vademecum drawn up for graduation sessions. Specifically, in fact, the Rector's Decree n. 465/2020 of 12 March 2020, establishes that, starting from 16 March 2020 and until 3 April 2020, the final exams at the Roma Tre University for the achievement of the bachelor's degree, master's degree, master's and research doctorate will take place only in remote mode. Therefore, all the members of the Commissions must operate remotely, through an appropriate Internet connection. Furthermore, for the students enrolled in the final exams of March 2020 who, due to the emergency, cannot take part of the winter session, an extraordinary session is scheduled in June 2020. The members of the Commissions are provided with the opportunity to carry out the final exam sessions at a University office, where technical-logistic and network support is guaranteed. The competent staff of the administrative offices, in agreement with the technicians of the Departments, arrange for the technical support necessary for the remote exams[18]

All university staff (teachers, researchers, students, non-teaching staff) have had to adapt to a new way of working. In this sense, in fact, the pandemic crisis has generated profound changes, not only at the level of public health, innovation and medical research, but also at the economic, social and cultural level, marking a real epochal moment.[19] On the other hand, when we refer to sociological phenomena in general, and in this

[16] Live Chat - Orientarsi a Roma Tre Online: uniroma3.it/ Chat online - Portale dello Studente -uniroma3.it.
[17] https://portalestudente.uniroma3.it/wpcontent/uploads/sites/2/file_locked/2020/09/Guida_TEAMS_Studenti.pdf
https://www.uniroma3.it/servizi/servizi-al-personale/servizi-informatici-e -telematics / other-resources / streaming-and-events-at-the-university /
https://portalestudente.uniroma3.it/accedi/area-riservata-docenti/istruzioni-docenti/ Formazione-per-la-piatrestea-moodle/
[18] You can see decreto 703 e seguenti del maggio 2020
[19] A crisis is a topical moment in which decisions concerning society must be made according to different levels of importance or gravity. These decisions may produce epochal changes: κρίσις as a decision, choice; ἐποχή as a suspension, stop.

case in particular, we can never define them perfectly, but rather in continuous movement and development within an open system (Luhmann, 1984; Costa, 2008; Cocozza, 2012).

The pandemic has produced a state of necessity, and therefore also of compulsion to use available but relatively little used technologies. It also led to a new, fast informative exchange between technicians and university staff, through various channels, including informative webinars[20].

As emerged from the results of the interviews and Focus Groups (which will be discussed later), most of these software were already available to staff and students, but many had remained almost unused. An emblematic example is certainly Moodle, which has been available for about ten years. Another emblematic element that has emerged during the FG, refers to the fact that the state of necessity has introduced an intuitive "do it yourself" approach. This has highlighted the lack of digital skills at all levels. It is a trend in contrast to what digitization requires, that is to go far beyond what are the basic uses. Related to this issue is the low use of “certified email”, of the “electronic signature”, of OTPs, of SPID and so on. This implies accepting a cultural change and modifying one's attitude towards digitization. Perhaps the aforementioned resistance is always included in the dynamics of digitization, as in order to be up-to-date and competent, staff has to be deeply committed on a personal level to have efficient continuous training: the difficulty lies not in new ideas, but in escaping from old ones (Keynes, 1935).

In any case, the question linked to the sociological effects that the crisis is generating must be highlighted. These are effects that we are still experiencing and we cannot know the extent of their impact: some of them we have already experienced in the past, others still need to be understood.

Among the various effects that the state of need related to Covid has produced, is the training response linked to the incessant proliferation of digital tools and their constant updates. The problem of the constant updating of these tools is in fact another issue to be considered. Developers from Moodle, Google, Microsoft etc. constantly release changes and updates. Users must keep at least partially updated, in order to avoid a gap between the program's capabilities and actual use (this applies to digital tools in general).

The choice of digital systems and tools belongs to the ministry and involves many universities and working groups. This in particular concerns Moodle, which is now a tool adopted by countless institutions around the world. The process (from top management to departments) is set up in the perspective of a “project community” which evolves into a “community of practice” (Wenger, 1998; Wenger et alii, 2002). We may see this as a sort

[20] Available at: www.fondazionecrui.it/primo-piano/corona-virus-strumenti-per-la-didattica-digitale/

of red thread that binds the system (https://www.miur.gov.it/la-piattaforma-e-learning). Roma Tre has been using Forum On-line (Moodle), Teams and Stream.

As mentioned, the CRUI (Conference of Rectors of Italian Universities) played an important role in this sense (with particular reference to the pandemic context), as extensively described in the previous pages. This body, in agreement with the AGID (Agency for Digital Italy) has also stipulated a Memorandum of Understanding to identify types of connections, methodologies and tools to promote and disseminate a digital culture. The ICT working group is an example of this (https://www.slideshare.net/JrgenAmbrosi/gruppo-di-lavoro-ict-attivit-2019).

The CRIU itself organized and carried out a Microsoft webinar (www.fondazionecrui.it/primo-piano/corona-virus-strumenti-per-la-didattica-digitale/), to present and propose to universities a "Catalog of Services for the enhancement of digital infrastructures: the Microsoft Framework for the Transformation of the University ". These are suggestions and procedures aimed at best coping with academic activities altered by the pandemic. They are a series of activities included in the macro areas of: Teaching & Learning, Student Success, Secure & Connected Campus, and Academic Research. (www.fondazionecrui.it/primo-piano/corona-virus-strumenti-per-la-didattica-digitale/)(www.fondazionecrui.it/primo-piano/corona-virus-strumenti-per-la-didattica-digitale/)

Finally, the GARR Network Consortium (Research Network Expansion Management). This Italian ultra-broadband network is intended for education, research and culture. The Universities that benefit from the GARR connection are more than ninety, including the University of Roma TRE (University | GARR).

Other remote supports

In order to guarantee efficient communication and support the University makes additional tools available to students. These are virtual Tutoring DSA interviews. The aim of these interviews is to support and guide the most “sensitive” students in their academic choices. Specifically, all those students who have a learning disability.

Roma Tre has also set itself the goal of promoting and developing the physical and psychological well-being of its academic community. It has therefore made available, through FACEBOOK and INSTAGRAM, a constant training program to be carried on easily at home. Training schedules are made available on the Roma Tre Sport social channels (Facebook and Instagram) approximately every two days. These are designed specifically by instructors, who illustrate some short programs of free-body activities. For the same purpose, and to give continuity to the aforementioned activities, Roma Tre Sport has decided to activate four new free courses to be carried out online with instructors (Link r3sport@uniromatre.it).

1.6. Good practices

During the field research activities (interviews and focus groups), three main projects and experiences have been individualised as good practices. They represent the third missions of the University.

The first one concerns the educational offer: the online degree in Education Sciences of the Department of Education Science (DSF).

The second one concerns the research: it is a project for the application of the blockchain to labor politics.

The third one concerns the third mission: it foresees new modalities for a project which proposes meetings among students and companies representatives.

An online degree course: Education Sciences

From the academic year 2015/2016, the Degree Course in Educational Sciences ONLINE of the Department of Education Science (DSF) of University Roma Tre activated a channel in a mainly remote mode.

This solution, which was innovative in terms of offer and didactic organization, has allowed and allows today those who, for various reasons, encounter objective difficulties in attending face-to-face activities, to take part in a Course Degree.

According to the e-learning formula, widely tested in the Department, textual and multimedia didactic materials are provided, as well as spaces for exercises, interaction and assessment, all in the specific platform.

The used platform is Moodle (Fig. 2).

Figure 2 - The SdE Online Moodle Platform

The degree course provides for the acquisition of basic knowledge in the fields of pedagogy, psychology, sociology, history and philosophy. Gradually, they are deepened and made operational also through experiential, laboratory and external internship activities in local institutions such as educational associations, schools,

nursery schools, foster homes, youth aggregation centers, individual and group educational consultancy organizations, libraries, playrooms, museums, vocational training centers.

The course lasts three years. All courses involve a single final exam. All students must take a maximum of 20 exams.

The didactic model adopted foresees the preparation of teaching programs with contents and objectives defined according to shared criteria.

Didactic materials are divided into texts, videos, podcasts and commented slides. Specific indications have been shared for their production.

Texts. They can be: materials specifically produced for online learning, printed books, ebooks. The format corresponds to the adoption of 1-2 texts (one introductory to the subject, one for further study) for 6-credit courses; the adoption of 2-3 texts (one introductory to the subject, one monographic, one third more laboratory) for 9-credit courses.

Video. The proposed format corresponds to the production of 2 videos for 6-credit courses; 3 videos for 9-credit courses (realised with the support of the technical structure). Professors and researchers can realise further self-produced videos on the basis of a defined protocol. The duration of each video is 5/8 minutes. The first video has the function of providing a concise presentation of the professor, the teaching and the expected didactic path. The intermediate video highlights the concept or theme that emerged from the interaction developed during the course, above all in forums. The final video takes stock of the learning experience. Great attention is given to the necessity to produce accessible resources.

Podcast. The format corresponds to 2 audio files for 6-credit courses; 3 audio files for 9-credit courses (realised with the support of the technical structure). Professors can produce additional audio files based on a defined protocol. The duration of each audio is 15/20 minutes. Audios are focused on topics which need clarifications or insights, on the basis of online interaction and in a discursive form.

Series of commented slides. The format corresponds to 2 series of slides with audio commentary for 6-credit courses, 3 series of slides with audio commentary for 9-credit courses, created on a single shared template. It is recommended to produce no more than 20-25 slides, for each series. The definition of the graphic design, the cover, the closing slide and the publication of the slides with audio commentary within the teaching environment are organised by the technical structure. Shared indications for the production of this didactic material are designed to make the presentations as homogeneous as possible, for the different courses that make up the Degree Course, fully enjoyed online. The idea is that identifying common practices in the production and editing of educational materials provided online will make it easier for students to orientate themselves and use content. Microsoft's PowerPoint is the software used to produce slides.

If other Moodle modules (wiki, lessons, etc.) are used, there is the possibility to decrease the number of videos and audios.

The didactic activities dedicated to interaction include:

- a didactic forum [with compulsory registration];
- students reception: online (skype, hangout, etc.) and offline (regular office hours of the professor);
- videoconference meetings: the advice is, if possible, at least 1 for 6-credit courses, at least 2 for 9-credit courses, first using the Adobe Connect Platform and then starting from March 2020, Teams.

Guidelines for professors require constant and intensive presence during the course and until the end of the academic year. A request is emphasized: teachers must not limit themselves to responding to students, but must use forums to stimulate discussion and deepen through asynchronous and synchronous communication.

For the evaluation, however, the following is indicated.

For courses of 6 CFU (credits), the end-of-course test must include 40 closed-ended questions + 1 open-ended question or 30 closed-ended questions + 2 open-ended questions. It is necessary to prepare a battery of at least 60 questions, which will then be chosen randomly by the system. For courses of 9 CFU, instead, a test of 40 closed-ended questions + 2 open-ended questions or 60 closed-ended questions + 1 open-ended questions must be prepared. In this case, teachers have to prepare a battery of at least 90 questions, which will be chosen randomly by the system. For courses of 3 credits, there is a test of 15 multiple choice questions.

The exams take place in the presence. At each session, students can do a maximum of 3 tests.

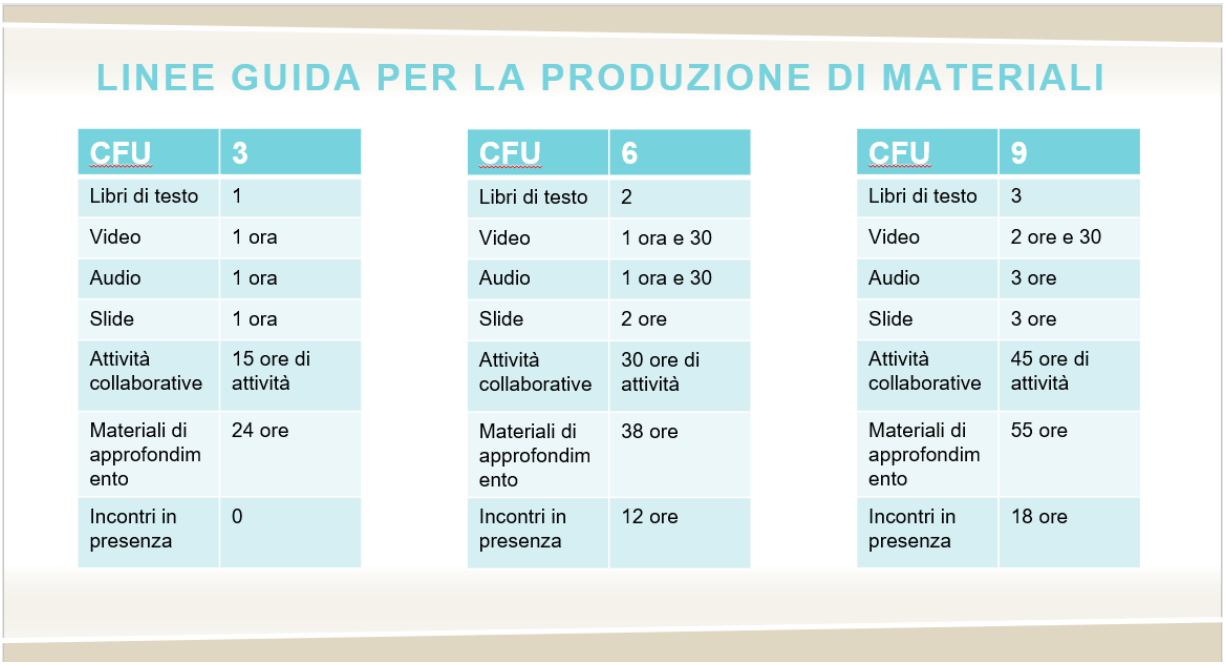
Regarding the assessment of online courses, a structure in three macro-groups is suggested, given the complexity of the functions that concern the assessment process and the consequent need to use a wide variety of tools: a laboratory evaluation test; a closed stimulus and closed response test (multiple choice); a semi-structured test (closed stimulus and open response). A guide for teachers illustrates the characteristics of the three types and the evaluation rubric.

Administrative procedures are managed through a platform (GOMP).

Over the years, the teaching model is constantly revised and updated.

In 2019-2020, some training meetings are organized for teachers and researchers with the aim of illustrating the potential of Moodle and its tools (activities and resources) for the development of teaching. New indications are given to teachers to prepare the supporting material (Fig. 3).

Figure 3 - Guidelines for supporting material



LINEE GUIDA PER LA PRODUZIONE DI MATERIALI

CFU	3
Libri di testo	1
Video	1 ora
Audio	1 ora
Slide	1 ora
Attività collaborative	15 ore di attività
Materiali di approfondimento	24 ore
Incontri in presenza	0

CFU	6
Libri di testo	2
Video	1 ora e 30
Audio	1 ora e 30
Slide	2 ore
Attività collaborative	30 ore di attività
Materiali di approfondimento	38 ore
Incontri in presenza	12 ore

CFU	9
Libri di testo	3
Video	2 ore e 30
Audio	3 ore
Slide	3 ore
Attività collaborative	45 ore di attività
Materiali di approfondimento	55 ore
Incontri in presenza	18 ore

Fonte: Materiale didattico predisposto dal CdL Sde Online per i docenti

In this degree program, an extraordinary strategic role is played by tutors. They are technically trained staff; their role is to support teachers and students in using the platform and, from an administrative point of view, to offer a whole range of information, especially to students. From the didactic point of view, a lot depends on how much a teacher directly involves them in carrying out the activities. Two of them also participated in a focus group in the field of research, offering very interesting reflections, especially about the relationship with students.

The Blockchain applied to labor policies

Blockchain technology in support of labor policies can represent the solution to the problem of the lack of interconnection of databases and the failure to implement a unitary information system. For this purpose, the Italian Observatory on Blockchain policies was established, born from the cooperation between the CNEL (National Council of Economy and Labor[21]) and the Roma Tre University.

Among promoters of the initiative, there are two of the Vice Rectors interviewed: the Vice Rector of Roma Tre with responsibility for relations with the world of work and the Vice Rector with responsibility for innovation and technology transfer.

[21] https://www.cnel.it/

The model developed by the research team lends itself to a scaled operation that could allow the implementation of the "worker electronic file" and in perspective of the unitary information system of labor policies. Using available administrative data, it can be used on further levels, for example, for the effective management of active policies at regional level through the interconnection of authorized and accredited public and private entities; for the validation and certification of competences and for monitoring compliance with the essential levels of performance by regions and autonomous provinces.

The goal is to apply this technology to labor policies to connect databases and put the unitary information system into operation. Among the advantages of applying the Blockchain to the world of work there is the construction of the Electronic Worker File.

In Italy, the Art. 4 of the Law 92/2012 has relaunched a new season of the right to lifelong and lifewide learning. A fundamental aspect for the construction of the National Lifelong Learning and Competences Certification System is the development of the digital infrastructure for monitoring and transparency of procedures and qualifications. Institutions and organizations of education, training, guidance and the world of work are involved in this great process of change.

The construction of the unitary information system of active labor policies represents a fundamental step. It is composed of a national coordination node and regional nodes and includes:

A. information system receiving social safety nets;
B. computerized archive of mandatory communications;
C. data on management of employment services and active employment policies;
D. professional training information system.

The objectives of the ongoing innovation are different:

- the interconnection between the State and the Regions through an architecture based on regional nodes that converge towards the national coordination node;
- the centralization of the Did flow - Declaration of Immediate Availability for work and the flow of mandatory communications, in addition to the process already underway for the transfer of the personal data-professional forms to the central node;
- systematic interconnection with the databases of the public central administrations (in Italy: Inps, Miur, Inail) information systems and with the income databases, enhancing and reusing the available information assets;
- creation of the electronic file of the worker, which will contain the information relating to the training and working path of citizens, thanks to the information acquired from the available databases.

The applicable potential of the Blockchain to the Italian labor market is significant, with particular reference to active labor policies and social security. Interesting experiments of "social" application of the Blockchain are

being launched in the private sector and in the public administration. The first two practical experimentation projects of CNEL and Roma Tre University about Blockchain and active labor policies concern the management of the re-placement allowance and the match-making between job supply and demand in three different territorial districts.

The Blockchain has reached a level of maturity that allows revolutionizing the whole society and not just the world of financial transactions. The possible "social" applications of the Blockchain are innumerable. This is a frontier still being explored which, like all innovations, can present criticalities of application that deserve further study, but the potential is enormous and the benefits that could derive from it for the smooth functioning of the Italian labor market as well. They deserve to be explored (Ciucciovino, Faioli, 2018, p.13).

There are many application areas of the Blockchain subject to initial experiments and investigations. Some examples are: in Finance and Banks, in Insurance, in Digital Payments, in Agrifood, in Industry 4.0, in the IoT, in Healthcare, in the Public Administration, for copyright management, for the validation and certification of competences and for the management of the curriculum vitae.

On the issue of certification of competences, some universities in the world and in Italy have made use of the Blockchain and learning machine techniques to register degree qualifications. New technologies are used to digitally represent skills achieved by individuals in formal, non-formal and informal contexts through the digital credential system; the most widespread method is the Open badges system, already adopted in Italy by various universities (first the University of Milan Bicocca). In June 2018, the Conference of Italian University Rectors, as part of the "Digital University" initiative, indicated the Open badges and the Bestr platform (a platform developed by Cineca - the largest Italian computing *centre*) as national references for the representation and certification of competences, which are expected to be developed through Blockchain3. Some universities are developing and integrating new micro-credentials (badges, MOOCs, micro-awards, certifications) into their curricula, to communicate with the world of work and enhance skills acquired by students, both of specialist and transversal or soft nature.

As regards Blockchain and Curriculum Vitae, on the other hand, systems have been developed that make it possible to certify people's experiences in a certain, verifiable and reliable way through the Blockchain.

In 2020, EU launched the Blockchain Observatory and Forum[22], one of the most comprehensive archives on the Blockchain which aims to map key initiatives, monitor developments and inspire joint actions that can contribute to the European market. The European Commission underlines how Blockchain technologies are considered a great innovation, as they offer high levels of traceability and security in online economic transactions, it also underlines that these technologies will affect digital services and transform business models in many sectors,

[22] https://www.eublockchainforum.eu/.

for example in the health, insurance, financial, energy, logistics and in the sector of the management of intellectual property rights or public services.

The Observatory and the Blockchain forum of the European Union have jointly decided to set up working groups to identify and research the current Blockchain initiatives in Europe and in the most technologically advanced countries. Currently there are two working groups for the Observatory (Ciucciovino, Faioli, 2018):

A. a working group on the policy and framework conditions of Blockchain which aims to define policies, legal and regulatory conditions necessary to promote an update of the legislative framework useful for the large-scale implementation of Blockchain applications;
B. a working group Use Cases and Transition Scenarios focused on the most promising use cases of Blockchain, with an emphasis on applications in the public sector, such as innovative services based on digital identity for healthcare, distribution of energy and environmental protection.

Connected to the EU Blockchain Observatory and Forum and in order to monitor, study and support the possible applications of the Blockchain in the field of the economy and the labor market, as mentioned, in Italy the Italian Blockchain Observatory was established at the CNEL, in cooperation with the Roma Tre University.

Roma Tre meets companies

Roma Tre meets companies is a University project committed to strengthening the link between the university world and businesses, thanks to the promotion of events dedicated to the CEOs of the main leading companies in Italy and in the world.

The Project was born from the will and precious collaboration of the three Vice Rectors for the Third Mission: the Vice Rector with responsibility for relations with the world of work, the Vice Rector with responsibility for relations with schools, companies and institutions and the Vice Rector with responsibility for innovation and technology transfer.

The aim of the initiative is to create a constructive dialogue between companies and the academic world, as well as to offer students the opportunity to orientate themselves more consciously in their professional choices, through a direct comparison with some of the most significant realities in the world of work.

These meetings also represent an Employer Branding opportunity for leading companies, offering the opportunity to highlight the values underlying their brand to young people, without assuming any economic burden towards University. They also constitute an opportunity for constructive discussion with the university on the issues of training and research for the shared creation of new knowledge, participation in joint projects, and the design of innovative training activities.

The Vice-Rector for Relations with the World of Work, during the interview highlighted that the "Roma Tre meets companies" project is already in its third edition and sees the participation of general managers and executives of large Italian production companies, who come to speak with students.

It is a choice made to give boys and girls the opportunity to meet the top positions of large production companies, who have an even higher vision and a little more capable of looking to the future and changes. From the beginning, much attention has been paid to those companies that are on the frontier of technological innovation, of new digital transformation technologies. This was seen as a fundamental trend for the future and on this the promoters called these privileged witnesses to speak, and invited students to ask questions: on the topic of 5G, on artificial intelligence, on the transformation of the economy, on telecommunications.

In recent years, top-level realities have been invited and challenged by the transformation of the more traditional sectors, such as banking, finance, but also belonging to the humanities. Some examples are Hermes, a company that manages museums and exhibitions. All these companies have been asked the same questions, including how new digital technologies affect the transformation of businesses in terms of work. Because the development of students' digital skills is a central theme on the agenda, not only of the Vice Rector for relations with the world of work, but for the entire academic community.

The use of the online mode has enormously amplified the potential of initiatives like this one. The seminars became webinars, significantly increasing the number of attendees.

2. FIELD RESEARCH: THE MAIN RESULTS

2.1. Introduction

The case study's field research activities included three interviews with representatives of academic bodies (cf. Annex 1) and the organisation of three focus groups. One focus group was attended by teachers; another by young researchers (fellows and phd) and tutors and the third by administrative staff (cf. Annex 2).

This part is organized in two main paragraphs, in which the main results of the interviews are taken into account, by thematic areas, and by focus groups, by type of participants.

2.2. Interviews to academic bodies: main results

The first step of the field research of the national case study has been conducted by realizing three in-depth interviews. They involved three Vice-Rector:

- Vice-Rector for Teaching (VRT),
- Vice-Rector for the Relations with the Labour Market (VRRLW),
- Vice-Rector for Innovation and Technology Transfer (VRITT).

The objective of the interviews has been to collect data about the macro issue of the digital innovation of university at different levels, which represent the dimensions of results analysis:

- organizational level: leadership, planning and management, Quality Assurance, ICT resources and infrastructure;
- teaching-learning level: learning and teaching processes, scientific-research work, technology transfer and service to society;
- cultural level: ICT culture, hidden curriculum of teachers and academic staff.

The research questions were about the identification of strength and weakness, opportunity and threat in implementation of the digitization process in University Roma Tre and of some good practices (academic specificity that is considered useful to enhance).

To present the interviews main results the dimensions of the Digital Maturity Framework for Higher Education Institution has been used, which synthesizes the main existent frameworks and models related to the integration of digital technologies in HE (Đurek, Begičević Ređep, Kadoić, 2019) (Fig. 4).

Figure 4 - Digital Maturity Framework for Higher Education Institution

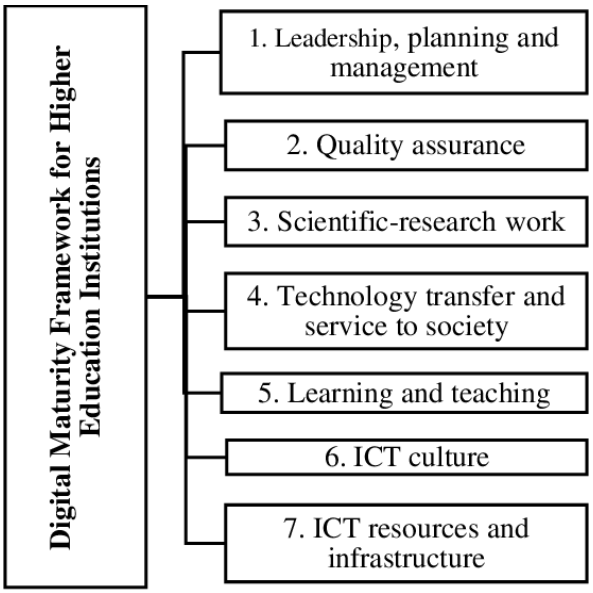


Figure 1. Network elements of DMFHEI

Source: Đurek, Begičević Ređep, Kadoić, 2019.

ICT Culture #transversality #complexity

The interviews carried out show how the cultural fabric of the University of Roma Tre has always reflected the fundamental values of the university community defined in the University's Code of Ethics, approved in 2011.

The shared construction of the cultural fabric within the University is a prerequisite for conscious and equally shared organizational action. The act, the practices, the contribution of people then, in turn, modify the culture of that organization. A reflection was developed with the Vice Rectors on the need to animate a debate within the University on the themes of academic and scientific innovation, and the role of technological and digital innovation, which can profitably contribute to the reconfiguration of organizational culture.

In particular, the VRRLW for the coordination of teaching activities discussed some useful aspects so as to build the University's new digital culture.

The peculiarity of the role played by technological and digital tools in HE

The role played by IT is increasingly moving from an instrumental dimension to a transversal one, which does not place digital as a technology aimed at training standardized skills, but, rather, as a transversal component increasingly present in study paths and which tends to contaminate the fabric cultural heritage of higher education.

The peculiarity of the role played by technological and digital tools in HE

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The applicability of digitization in the specific contexts of the University, with reference to initiatives representative of culture.

Provide for the teaching of computer subjects within a degree course (triennial) in Legal Services for Territorial Security - at the Department of Law - demonstrates that the University has the objective of integrating digital and technological skills with the legal skills that are the subject of this three-year course.

Making use of some computer science teachings in economic disciplines courses or developing useful computer science bases and practices in the students of the Roma Tre Department, restores importance to digital competence itself and strengthens its transversal dimension within the HE.

In this way, the Vice Rector for Teaching suggests a certain degree of gradual innovation.

"In the National Recovery and Resilience Plan, digital skills are often neglected, as if the use of the email of a word processor is the important digital competence, neglecting the fact that nowadays information technology permeates our activities, but it should permeate at the level of strategy, as much as at the level of small instrumentation." (VRT)

Meet the companies

"The University should connect more and more with large production companies that have a more advanced vision than the development strategies of social realities" (VRRLW).

With these words, the Vice Rector with responsibility for relations with the world of work expressed how necessary it is to connect our University with these realities that are more capable of looking at changes and the future. To do this, it is necessary to develop a culture of strategic connection that connects the university with the world of work.

The development and use of digital skills in the university, partly self-taught, was a necessity caused by the pandemic. The digital transformation implemented in response to the health crisis has not been easy, but it has allowed us to accelerate a digitization process that otherwise would have taken several years to take place. From the interview with the Vice Rector for Teaching, it emerges that the substantial changes of the last academic year have considerably changed the cultural fabric of the university and that it will be difficult to return

to the pre-pandemic state. However, it must be emphasized that the use of digital technologies is not enough to solve academic inefficiencies, indeed, if no action is taken on the work processes, the problems could even multiply.

Another aspect that emerges, and on which it would be necessary to intervene at a regulatory level, is that:

"Those who are committed to digital innovation and innovation in general, to date, actually have no advantage for their academic career, they do it for other reasons: for passion, for third parties, for an economic interest, but, not because this is objectively evaluated, as a merit, a positive score for one's academic position, for one's career." (VRITT)

The Vice Rector for Innovation and Technology Transfer, highlights the importance of recognizing the efforts made by those who work for innovation at the regulatory level, which means "moving forward the stakes, the boundary of what digital and general can do for the public administration, for the collective good and for society".

This shifting of borders is shared by the university with society as a whole, in particular thanks to the Third Mission. In the current historical period, digital transformation is one of the fundamental drivers that allows the university to create a new connection infrastructure, for networking with the outside world, which affects all aspects of social life. Digital is not a dimension that, in an exclusive way, generates and determines processes, but it is certainly a dimension present in all the vital constitutive aspects of society and therefore of the university itself, and which today affects them in a decisive way. In this sense, then, the Third Mission becomes a meeting place for the university, the context in which to "update" the first two missions.

Roma Tre University, to encourage the use of digital technologies, has created relationships with global IT players based in Italy and, in particular, with important Italian companies, such as the Leonardo company (formerly Finmeccanica) for the supply of modern software, while, as regards the hardware part of the technologies, relationships have been established with companies that produce equipment in the energy and manufacturing sectors.

As stated by the Vice Rector for Innovation and Technology Transfer:

"The university lives only if the protagonist brings himself, if he places himself, if he is on the border of technology and knowledge, if not, it becomes a secondary school [...] or teaching diversity institution. [...] The university only makes sense if it lives, is positioned, fights on the knowledge front, on the ultimate front of knowledge, of technology. Therefore, Roma Tre must push more and more and has the potential to do so, to get to the sides, to the most advanced positions on the front of knowledge, of technology. Here, this is absolutely necessary. To do this you need to work as a team, [...] have a thinking organization, reward the best, encourage everyone to move forward." (VRITT)

Leadership, planning and management #preparedness #strategy

The outcome of the interviews carried out highlights how the Roma Tre University is a well-organized and efficient university in terms of decision-making. In particular, the General Management, made up of the General Manager and his top managers, whose management is recognized as effective and strategic, interfaces in a continuous and bidirectional way with the various academic bodies, the Rector, Vice Rectors and with the Directors of the twelve Departments. This type of organization allows the General Management to respond effectively, through administrative procedures, to the needs and requirements of Research and Teaching with regard to research and teaching, as demonstrated in the initial phase of the Covid-19 pandemic, in which acted abruptly, replacing the face-to-face activities (lectures, exams, degrees, meetings of the various academic bodies) with those at a distance. In fact, Roma Tre had already activated the digitization process even before the health crisis, however, in this last year, the reorganization of the various organizational processes has undergone a strong acceleration, as a function of a dematerialization of administrative procedures, partly already carried out and the definition of an IT workflow automation process. In particular, modern and up-to-date software aids were purchased, staff were trained and administrative processes were reorganized.

The change also fully involved, and above all, the provision of teaching :

Basically we are following a path that is getting results and, as we say it is easy to observe everything that has happened in the last 15 months, certainly confirms that many things have been done and all in all they work. Because if this were not the case, we would have been locked in the house without being able to do anything, blocking the lessons and saying only about students “study on books. When it is possible we will start again ”and this did not happen. (VRITT)

The experience of distance learning has highlighted positive aspects, and at the same time, underlined the need to restore the modality of face-to-face lessons. The most important learning point of the experience of the pandemic period is the opportunity to improve teaching through a dual provision that provides the possibility of carrying out the lessons in the classroom and, at the same time, transmitting them synchronously with the possibility of participation both by students in the classroom and by distance students. This last aspect, however, must be managed with attention and a critical spirit, trying to optimize the strengths and avoiding generalizing situations indiscriminately, as this would negate the role of the University. Teaching is the first mission of the university, but this requires it to be institutionalized, even if the mechanism of careers linked to national scientific qualification leaves some perplexity in this regard. Surely teaching is a responsibility of the institution and must be encouraged and promoted according to a unitary design, unlike research which must only be encouraged, even if the latter aspect is also linked to other considerations.

At the Roma Tre University there is no flexibility in guidelines, however, the University has activated agreements with companies that are active in the field of digital transformation, to offer students a catalog of additional activities. Some examples are:

- the Agreement with Talent Garden Ostiense[23] - a space that follows the digital transformation of companies -, which provides free courses for students regarding digital awareness on the use of new technologies;
- the Agreement with the Innovation Camp[24], which provides for the provision of online courses on digital for humanities students.

Roma Tre has shown a great capacity to react to some bureaucratic-administrative processes, even if a temporal misalignment between the two areas has emerged, as bureaucracy is a complex system that requires more time. Therefore, bureaucratic processes need to be simplified, in order to facilitate collaboration with companies, in particular with regard to internships. In addition, at the administrative level, there are some offices that are not designed to speak with the outside world and, in some cases, make dialogue with the external economic, productive and social system difficult, which finds it very difficult to identify with whom to relate. Therefore, it is highlighted that technology alone cannot solve management or relational problems; first a relationship governance infrastructure must be defined in view of the management of objectives, through a simplification of processes, after which technologies can be used to the fullest.

Leadership and **strategic planning skills** are recognized as fundamental and decisive, because "technology is not the panacea for all ills, so if I have a process that doesn't work and I apply technology to it, I risk multiplying inefficiencies" (VRRLW).

Qualità #efficacia #miglioramento (Gianni) - ok

The third mission of the Roma Tre University was rated at the highest by the CER magazine, more than the other two missions and also obtained an excellent rating from ANVUR, acknowledging the efforts of the Rector and the entire academic body.

Some aspects that emerged in the quality analysis are highlighted below.

Quality assessment

[23] It's a coworking space for the community of technology and digital professionals in Rome (https://talentgarden.org/it/coworking/rome-ostiense/).
[24] Samsung Innovation Camp is a free social responsibility project promoted by Samsung in partnership with Randstad and in collaboration with the Roma Tre University, created to accompany students and graduates in a training course on innovation and open them new professional scenarios in the digital field. The main goal is to integrate university education with a single itinerary through technology, digital innovation and local businesses. At the end, a certificate of attendance is issued. In 2021, the third edition took place online, open to all students of the Roma Tre University. The best 60 students were selected to participate in two further training days and get in touch with local companies, which propose to work on project work based on real business cases.

The process and procedures of the quality assessment system was not immediately appreciated, as it could apparently seem like an additional bureaucratic burden. Only later did we realize that in reality quality monitoring, despite having characteristics of bureaucratic fulfillment, is aimed at continuous improvement.

Digital technologies

The use of digital technologies has made it possible to make the teaching monitoring process much faster and leaner. An emblematic example is the administrative procedure of the exams, managed today completely online: from the moment of booking to that of recording the result. It transformed the monitoring of exams into a simple statistical report, giving the possibility of having the results of a session in a very short time, unlike what happened before the use of IT tools, when the same results took even more than one year to be available (at the computerized registration level). It is clear that the use of digital technologies and the quality monitoring and evaluation system have had a positive impact on the University's activities.

Digital skills and educational curricula

It is necessary to include the acquisition and development of digital skills within the didactic curricula of the humanities professions, as the latter are increasingly transversal to a multiplicity of humanistic professions. Therefore, it is necessary to review the training curricula, even if the space for intervention is limited by ministerial constraints.

Scientific qualification

Today, the system of national scientific qualification for teaching posts, while providing for a multiplicity of qualifications to be possessed, relies heavily on scientific production. Little consideration is probably given to all the activities that are promoted and managed concretely, not least to encourage innovation and improvement in the universities themselves. It is important to rethink the selection criteria for university careers, but this requires legislative initiatives, which usually take a long time.

Scientific research work #cooperation #development

All Tree Vice Rectors have underlined that the role of research was stressed in order to ensure the advancement of knowledge and to achieve objectives of major scientific interest.

As stated by VRT:

“the dimension of digital innovation is certainly a dimension of attention and development in our University” (VRT).

The VRT mentioned a number of initiatives, including at regional level, in support of digital research and technological innovation activities.

The initiative financed from the Lazio Region - interprates - distributes financings for plans finalized to the transfer of new acquaintances and the implementation of the new technologies; these draft of plan, co-financed from companies of the same regional woven, They then lead to the activation of innovation doctorates and industrial doctorates[25] with a high innovative content and represent the prelude to new design scenarios for the current year.

As part of the PNRR, the three Engineering Departments of the three main state public universities in the Lazio Region - Sapienza, Tor Vergata, Roma Tre - have developed a project aimed at the realization of a Tecno Polo in Rome, in the area of the former Forlanini Hospital. all this with the support of the Region and more than one hundred national companies.

Technology transfer and service to society

As evidenced by the Vice-Rectors's interviews, the University of Roma Tre shows a particular sensibility in regards to the Third Mission, the set of scientific, technological and cultural transfer activities aimed at promoting the growth of the country, through the transmission of knowledge as an element capable of activating processes of direct interaction with civil society and the entrepreneurial fabric.

From the interview with the Vice Rector of education, it emerges that the role of the third mission is to recover the social value of teaching, as a dimension to which to return that representativeness that remains, currently, the exclusive prerogative of research identifying students as the final clients of this knowledge production.

There is a solution of continuity between knowledge and technology transfer and, as the University's VRITT points out: "technology transfer derives from and is an application of knowledge transfer". The university's mission, whether public or private, is to respond to the needs of the area, developing knowledge that is useful for the development of the country's economic, productive, and social sectors:

""producing knowledge, new knowledge, which has its applicability for the social good, for the enrichment of the national economy and to make our industrial production system more competitive with technology transfer". (VRITT)

In this sense, the university has for some time activated numerous initiatives, both at national and regional level, aimed at bringing together the world of entrepreneurship and students, not favoring or reducing this interaction to specific areas of knowledge, but considering digital innovation as a transversal dimension.

[25] Maggiori informazioni da: http://www.regione.lazio.it/rl_main/?vw=newsdettaglio&id=5805

Roma Tre stands out for its intense activity of interconnection with the productive fabric of the country, proposing concrete initiatives of the meeting between the business world and the university aimed at highlighting how new digital technologies affect the transformation of businesses and the world of work. As pointed out by the VRRLW:

“We have placed a lot of attention on those companies that are on the frontier of technological innovation, [considering it] as a fundamental trend for the future. For this reason, we called these witnesses to speak with our students on the subject of 5G, artificial intelligence, economics, telecommunications, [...] the management of museums and exhibitions”

Activating partnerships between companies and the University has allowed this last to be a privileged interlocutor of major national and international stakeholders, and to promote the development of students’ useful skills, favoring their placement in the job market.

Learning and teaching #velocity #immediacy #support

In the interview with the VRITT, an interesting aspect emerged regarding the speed with which the integration of digital innovation has entered the organization of the university.

Roma Tre University prepares and proposes resources for the professional development of administrative staff based on the availability that staff has to learn new operational measures and learn about new digital tools, platforms and IT systems.

The reflection proposed by the three Vice Rectors on the forms of e-learning as support of traditional teaching are linked to the fundamental reflection declined in the analysis of the cultural dimension.

The key indicated by the respondents is: 1) Recover the experiences developed in the years before the Covid-19 pandemic, 2) learn from the past 3) continue to analyze the forms of teaching and learning in the present.

“Identifying the forms of development of the teaching activity that (probably) although it is a solution of "fallback" to the emergency, have allowed us to continue to perform a certain service." (VRRLW)

Roma Tre passed from the decision to interrupt the lessons in the presence at the decision to activate 90% of the courses actually offered at a distance, within a week.

According to VRT, this step has been progressive, in line with what was indicated by the first decrees issued by the University that called for the gradual integration of the application of the new guidelines. However, the element highlighted by VRT during the interview refers to the pedagogical skills and experience of the teachers in articulating the teaching and learning process.

The Vice Rectors agreed on the evidence that digital skills were already needed before the pandemic, but for many probably to be developed.

The difficulty of using new teaching tools does not discourage university professors who use some teaching methods with a self-taught style

Nevertheless, the lack of specific technical courses for the use of digital tools for teaching and learning is an issue to which the VRT and the VRITT have paid much attention: it is an essential theme for the current European agendas.[26]

In line with this desire, VRRLW has indicated some examples of projects and workshops proposed with *Porta Futuro* aimed at students of the University of Roma Tre and started during the pandemic emergency. The interview shows that Roma Tre is striving to bring an understanding that allows students to follow completely online training and learning courses, developing transversal skills necessary for professional development and acquiring the new E-pass - the new European digital skills licence - at least in the basic set modules.

"This initiative will allow our students to be able to follow these courses independently and obtaining the final certificate and certification, instead, by taking the appropriate exam with a facilitated agreement. Moreover, Roma Tre could also be accredited as an examination venue" (VRRLW)

In this period, the University is starting a higher education degree, some top 3 business incubation projects and some business schools for young people. So Roma Tre is demonstrating that it can be a forerunner university among Roman public universities in the development of the learning of new skills for professional development and teaching in HE.

ICT resources and infrastructure #prassi #accessibilità

The analysis of the interviews highlights how, currently, the tools provided by the Moratti Stanca Reform and the *Italian National Plan for Digital Education* are available (eg, administrative services, e-mail, communication tools) and allow an effective performance of the academic activities. During the pandemic it was possible to continue to provide services thanks to their effectiveness and efficiency. In addition, the health emergency was configured as a test of the infrastructures but also as a push to change practices. In fact, the interviews themselves were carried out online thanks to the resources availability, points out VRT and this is because "the IT support is not just a tool to succeed but a tool with which to increase the possibilities and to develop synchronous activities".

The interviewees highlight how the change in practices induced by the pandemic has irreversibly changed the use of available resources on the digital platform (eg, student reception, business meetings, or conferences,

[26] Reference is made to the Council opinion on the Italian Stability 2020 Programme (2020/C 282/12), which stresses the need to improve digital learning and competences

etc.), increasing efficiency by reducing travel times. and extending access to a greater number of people). They underlined that the national legislation had already prepared the existence of ICT tools, the possibility that the social actors in the university perceive them as resources and, consequently, used them is the result of the health emergency. The VRRLW underlines that:

“Thanks to this emergency, we have become aware of a series of skills and tools that we were already equipped with and that, even with a little effort, we were able to exploit, we simply weren't aware of all this infrastructural heritage”.

This suggests that the change in practices relating to digital tools at university level was the indirect consequence of the pre-existing legislation (see national legislative framework),which has determined their presence at the local level (university), and the direct consequence of their usefulness, which was configured only during the pandemic. Almost all respondents highlight how the use of the university's digital resources, born from the need to continue to perform their functions during an emergency, has now become part of the daily routine and "it will no longer be possible to go back" (VRRLW).

Ultimately, the resources available are considered more than adequate to the needs of the people involved, although the need to make a document available that provides a guide on their use and to plan periodic refresher courses that favor comparison and consolidation of the procedures for the use of existing infrastructures is evident. Moreover, the difficulty that external partners (e.g., companies) may encounter while interfacing with university resources has emerged, which refers back to the need to simplifyits access and use.

“As Vice Rector, the first thing I did was make the home page of the University career extensive because it wasn't there. […] I put a vacancy posting service for companies to publish, I reformed the rules to publish these vacancies because the rules were Byzantine. I have created a service to search for certain profiles of our students by skills, giving the possibility to do targeted searches through an ad-hoc newsletter. Just think, the placement office did not have the ability to send e-mails to students because it was an activity reserved for an information systems office "(VRRLW)

Making the sites more accessible to all and implementing the services was a job that required time and the collaboration of external agencies that supported the standardization of the web sites. This operation, however, is not considered completed but is currently one of the objectives to be achieved, although useful progress has been made.

As pointed out by the VRITT:

“There are two types of users: those who use, in a certain sense, the services of Roma Tre and those who provide services to Roma Tre. In the first type I identify […] the third sector, which is interested to our students, that is to say the product of our first mission and that is interested in the findings of our second mission, that is,

the research results [...]. For the service providers, they can in turn be divided into two broad categories: the hardware service provider and software service providers".

For this purpose, the Roma Tre University has equipped itself with two very important tools: the most advanced software, "because information technology is something extremely fast, fluid. What it was good two years ago, it could be obsolete this year" (VRITT), and the storage of data on the cloud, equipping itself with a data-centric system that allows effective and efficient storage and access to data.

Conclusions

From the analysis of the three interviews, some recurring critical issues emerge.

Training is now more necessary than ever. Training not so much, and certainly not only, on the technical aspects related to the introduction of ICT, but on the methodological ones. Today it is absolutely clear and shared that courses face to face and online are two completely different learning experiences and must therefore be designed and managed in a completely different way. On these issues, training is perceived as a need. It is an element that will also return in the results of the focus group with teachers. This is a desired training primarily as an exchange of experiences and good practices among teachers. Training is also perceived as a priority need for administrative staff, as digital skills must flow throughout the organization, be shared, otherwise there will always be a situation, a step in which the process will stop. E-learning is considered today an opportunity that can remain after the pandemic, because the incredible opportunities, together with the presence, to which everyone wishes to return have been tested. To make it a quality teaching experience, however, it is necessary to close the phases of experimentation, to be self-taught and to start a process of continuous improvement, also thanks to training experiences.

No to bad hybrid teaching models. The interviewees reflect on the heritage that the experience of the Pandemic will leave us with respect to the transformations of teaching. It will concern the operating mechanism in which the synchronous will coexist with the asynchronous through a new management, new models. At the moment, the experiences suggest the need of rethinking some approaches that have been adopted in an emergency (in a second phase, it will be possible to carry out teaching activities face to face and simultaneously online). In the first, when all teachings went into e-learning mode, there was the discovery for many of the countless opportunities offered by the platforms, with reference to the possibility to design very interactive and participatory lessons; to use the asynchronous mode (forum, videotaped lectures, podcasts) with the aim of proposing themes or in-depth analysis; the limits of wanting to share the two modalities were then observed. It is therefore an open game. Innovation is also in understanding how the two models (face to face/online) will give life to a third one, which does not, however, lose effectiveness and quality.

The relationship in the center. The intensive use of ICT carries a significant risk: the dehumanization of relationships. Exchanges between teachers, administrative staff and students have almost completely moved

online (thanks to emails and calls), but everyone feels a discomfort, a difficulty in relationships, especially students. If the use of these tools is transformed into "social distancing" - which has been so much discussed in our country in recent months -, in scarce spaces and times for dialogue, then the quality of the relationship suffers. The interviewees agreed on the advisability of maintaining the use of these tools, especially to facilitate meetings, to facilitate everyone with respect to any difficulties (think of off-site students, who had to travel for a long time to attend a reception of a professor). They likewise agree on the opportunity to recover "social closeness" as a fundamental criterion, as a first option.

2.3. Focus groups: main results

The second activity of the field research has provided the organisation of three focus groups.

Participants have been professors, researchers, Phd and department staff.

The main objectives have been to collect useful data about:

- teaching practices and digital innovation;
- professional development with a focus on digital skills;
- best practices related to their own university;
- strength and weakness, opportunity and threat in implementation of digital innovation in Higher Education.

In the next paragraphs, the main results of the three focus groups are presented.

The voice of teachers: gaining in extension but losing in deepness

The theme of digital innovation does not seem to initially trigger the discussion in the focus group, suggesting that the collective imagination, the product of lived experience, can be evoked using other linguistic keys. It is, in fact, recalling the experience made during the pandemic that the group comes to life and begins to reflect around the theme, meaning that, as already highlighted in the interviews with the Vice Rectors, the resources prepared following the national regulatory development have come into effect as part of the teachers' practices following the need to continue their activities despite the health emergency.

The teaching activity in this period was initially carried out exclusively online, later taking on a blended modality. The considerations around this experience are heterogeneous, since for some participants this experience was exciting, taking the form of the possibility of changing the routine and the development of new methodologies, while others highlight the difficulty of working with a large number of students in a synchronous or blended mode. Many have changed the teaching:

- using group work to reduce the time of frontal teaching,
- using schemes to facilitate the understanding of complex concepts also for humanities,

- answering students' questions on the forum instead of having to email the same answer to many of them,
- inviting prominent scientific personalities who have shown themselves willing to carry out seminars thanks to the great solidarity shown during the pandemic but also the reduction of the limitations connected with the distance,
- hosting students in small groups, supporting the students in accessing the digital resources of the university.

The participants underline that, contrary to what they assumed, the students are also digital immigrants as far as the databases and resources offered by the university are concerned. Many underline how the need to rethink teaching has led them to experiment and change, a change from which there is no turning back, in line with what was stated in the interviews with the Vice Rectors.

However, despite the initial enthusiasm for distance learning and the improvements produced by this experience, many hope for a return to face-to-face teaching that allows them to interact in person with students. As one participant points out, with distance learning you "gain in extension, but you lose in depth". That is, distance learning allows many more students to follow the courses but the quality of the interaction changes and it is necessary to think about which kind of teaching for which university. From the focus group it emerges that the reflection on digital innovation cannot be carried out by reducing the problem to mere teaching, face-to-face or online, but it is necessary to consider other non-irrelevant elements such as the number of students, their location, the university's target, the resources available, etc. Finally, it is interesting to note that the participants declare that they are not opposed to the possibility of carrying out courses on methodology but that they are much more interested in the opportunity to comparison and exchange experiences and reflections.

The voice of researches

The discussion that developed in the Focus group, which was attended by fellow researchers, PhDs and didactic tutors, highlighted how technological innovation is related to the concept of dependability, as it can have a positive impact on society, in particular in Public Administration, and can also contribute to transforming the entire socio-economic structure.

During the discussion, the topics explained below were deepened.

Digital skills

The respondents agree that digital skills should be acquired and developed by students from secondary schools, both lower and higher, to be able to get to university and be able to master digital technologies sufficiently, to be able to also compare with innovative teaching methodologies. Professors should also develop digital skills, in order to better support students in the development and acquisition of their own skills and to be able to adapt their teaching methodologies, which, in some cases, are still transmissive and unidirectional, with little interaction

with students. The digital resources available to education have increased and for this reason it is necessary to acquire / develop adequate skills, starting with the recognition of the truthfulness of the sources[27].

Online platform of the Roma Tre University

The University uses the Moodle platform, which despite being considered easy to use, creates problems for some students and professors, who struggle to find their way around it. Students do not undertake (they are considered lazy) to look for the information they need within the platform, they prefer to ask for it with email and / or private messages, rather than identify it among the documents available online. Participants in the FG declare that they have also thought of video tutorials to make communication more effective, but at the moment no initiatives have been taken in this direction. In addition, students want to have immediate answers, regardless of the day (holiday or weekday), the time (24 h) and the period of the year (when academic activities are not active). Sometimes the language used in emails and messages is similar to that used in social media. Students prefer to write in private rather than on the forum, to avoid exposing themselves publicly and leaving traces online of their interventions. Some students, who have enrolled in a course that takes place entirely online, have shown little desire to interface with technology and this turns out to be inexplicable. Many teachers find it difficult to interact with technologies, especially older generations, while younger professors have a greater ease of interaction with digital tools. Many times the difficulties in using the platform are caused by procedures, which are not always very clear, or by software that creates problems, such as compatibility. The cause of the inadequate behavior of the students on the platform could be the non-compliant communication, so the participants in the FG hope to be able to have an initial meeting in the presence, next academic year, with the freshmen, in order to better explain the functioning of the platform and the various netiquette rules.

The pandemic and digital education

The health crisis has imposed the use of virtual environments to ensure the conduct of university activities: lessons, exams, graduation sessions, back office activities, etc. The platform used by the Roma Tre University is Microsoft Teams. The lessons held by the professors were shared on the University platform. The methods of conducting the online exams have caused disappointment and problems for some students, who believe that the replacement of written texts with oral ones has added difficulties in passing the exams. Distance teaching has highlighted negative aspects, over time the need to have human relationships in the presence emerges, and positive aspects, the possibility of having recorded lessons available, which represents an undoubted advantage, in particular for working students and for students who come from other countries. Participants in the FG argue that distance learning should not be forgotten when the health emergency ends and that a good practice could be to use hybrid teaching, which includes both remote and face-to-face methods.

[27] DIGCOMP 2.1 – Area 1: Information and data literacy. Available at: https://publications.jrc.ec.europa.eu/repository/handle/JRC106281

Digital resources

During the pandemic, it was discovered the importance of having a large amount of online material available in the digital archives and in the digital library of the university. However, students use little of these resources, also due to a lack of knowledge of them. Therefore, the need to have a guide and an appropriate knowledge of the methodology to be used to find the material you need is highlighted. Teachers could help children familiarize themselves with online teaching materials by inserting material to be found in the University's archives and digital library among the course support texts.

Participants in the FG converge on the need to have a paper device, in particular the printed book, on which to study, as it guarantees a greater overview and because “analogue” habits are difficult to change.

Digital technologies

Digital technologies improve teaching methodologies, but there are still infrastructural problems that prevent them from being used appropriately. Many times in order to carry out the lessons, the professors have allowed to participate with the webcam and microphone disabled, due to a low connection speed, to make the data transfer "lighter". Furthermore, digital technologies require constant learning and updating over time and are often used only in part with respect to the potential they offer.

Digital technologies have favored: the speeding up and simplification of administrative processes, communication between the college and doctoral students, the saving of considerable quantities of paper, meetings with tutors, the reception of professors, the elimination of transfer times above all for the off-site, the participation in events of professors and students, who, at times, did not participate due to logistical difficulties. However, the long-lasting exclusive use of technologies to meet at a distance determines the need to have social relations in the presence of the various subjects: colleagues; students; student-professors. At the same time, remote interactions have in some cases fostered knowledge between people, as in the case in which an online meeting was organized between all the PhD cycles.

Many times digital tools take a long time in the initial phase of use, because it must be learned how they work, but, subsequently, they allow a considerable speeding up of specific processes. Furthermore, it is believed that the use of digital technologies in universities is related to the type of study course and to the field of work, as scientific disciplines make greater use of technologies than the humanities.

"Surely you also need to have teachers on the research side, a greater habit, to the idea of technology, of technology, which not everyone has." (MT).

The voice of the administrative staff

Descriptive notes

The Focus Group with the administrative staff was carried out online. It started at the scheduled time (11.30) and lasted exactly one hour and a half. The atmosphere was relaxed and serene, and at times it was even fun. All the participants intervened (at different moments). There was no technical problem. The pace was constant.

The following analysis highlights reflections and thoughts that emerged during the FG. The data thus obtained provide a description of the way in which the administrative staff of the faculty of Roma Tre/Scienze della Formazione is experiencing the current historical moment. In particular, the obtained data can describe how (in what way and by what means) the administrative staff is dealing with the process of digitization.

The questions asked concerned issues on digital innovation and the way in which (even under the pressure of the pandemic) the modality of work is currently changing. It was a matter of understanding the meaning that everyone associates to digital innovation, with particular reference to 1) how this would affect one's own work experience - the different tasks and required skills – 2) the difficulties of adapting to change. In addition, participants were requested to reflect on the response provided by the University in relation to these issues. The issue of training was the main aspect that emerged from the FG.

There are many themes that emerged during the FG. The main ones were:

- the significant resistance, for some in particular, to change;
- the issue of ineffective communication;
- the lack of training or the inadequacy of training;
- the request of different professional skills;
- Another important theme is that of the variation and adaptation of bureaucratic procedures.

The lack of support available for student during orientation (perceived by the administrative staff)

The collection of these *items* allowed both the construction of a contextual framework and the adoption of an overview of the current situation experienced by the administrative staff in the University.

Digital innovation at the university and digital innovation of one's duties. Your own experience.

Contemporary society is characterized by the phenomenon of digital innovation. This, at different levels, is present in every aspect of the citizen's life. As a further consequence of the pandemic crisis, digital innovation has received a strong boost, and *Smart Working* has become a daily practice.

In the specific case of the university sector, this boost refers to all departmental activities: lessons at all levels (Bachelor's, Master's, Master's, Doctorate, etc.); meetings and consultation time with students; graduation or dissertation sessions. Other consequences of this process includes**:**

- The "possibility, that is what we are currently doing and that was certainly not possible before, of creating a new online channel of communication. These meetings we are having on teams and on other platforms." [Chiel-Coordinator in charge of the payment of collaboration grants and Erasmus issues].
- The idea of sustainability, namely that "innovating means digitizing, and being able to get rid of paper... Here at the university in the administrative sector we are light years away from reaching that [CB - Administrative Office of the department].
- An important moment of change will be "the online election of the Head of Department" [Chief-Coordinator in charge of the payment of collaboration grants and Erasmus issues].

From the reflections that emerged from the FG, it is revealed that the issue of digital innovation has been closely linked to Covid-19. This de facto emergency has also closed any possibility of opposing to it, because, by virtue of government ordinances, there has been no opportunity to do otherwise. All the participants, in fact, agree that "the process of digital innovation has overwhelmed us during the pandemic" [Isabella - EDUFORM and SDE Online didactic office]

An epochal change that has helped to generate a new way of working, which probably/hopefully will be valid also for the future. This acceleration is affecting all fields of the PA, and not just the trade sector or other similar activities[28]. In fact, someone states that: "The hope is that even in the future, once the pandemic is over, even when we will be able to go back to the old methods, we will stay with the new ones. I think work would be faster "[Chiel-Coordinator in charge of the payment of collaboration grants and Erasmus issues].

For what concerns the various tasks and the related tools, everyone, and each in their own role, had to use, albeit with some difficulty "all the resources that the University had provided us with, from FORUM ON-LINE, Teams, ... "[Isabella - EDUFORM and SDE ONLINE Didactic Office].

But it was not just a matter of using the tools provided by the University. Working remotely also meant using "*Cloud,* shared files, we also make materials available on a *Blog* linked on the website…" [Chiara- Administrative office of the department].

Working remotely there are the clear advantages of speed and easiest ways of completing tasks. This means acknowledging both the advantages for the user and the advantages for those providing the service. These are some of the elements that emerge from the reflections of all the members of the FG.

Addressing the phenomenon of digital innovation from the perspective of the administrative staff some positive and negative aspects emerged immediately, of which we have collected testimony. In fact, on the one hand,

[28] Just as engraved on this, think of the citizen's ability to remotely access the services of the INPS or the Revenue Agency: the concept of physically moving to fill the queues at the counters is slowly disappearing and this, of course, implies all the administrative sectors also of the university.

digitization facilitates work in terms of execution time, peace of mind from public pressure, and so on. On the other hand, digitization also leads to different statements, such as the following: “I have to update the hard copies, go back to the paper, print and redo archive procedures” [Federica- Didactic area of the department with teachers and student orientation services].

The issue of a lack of and adequate training also clearly emerges, together with an absence of boundaries when *Smart Working*, a resistance to change and a difficulty in communication. In some cases the latter is considered "non-homogeneous" and in some ways also "redundant" [Isabella-EDUFORM and SDE ONLINE Didactic Office] and not very effective, as there are "six different offices and at times they deal with the same thing in six different ways because everyone has their own way of doing it "[Valentina - Didactic Office Degree Course Nursery Educator]

All these issues were mentioned during the FG by the participants. And we can say that we have been transversal in dealing with the phenomenon.

As regards the issue of resistance to change, it seems relevant to highlight the following statement: “We managed to adopt these technological means only because of the pandemic... it seems that we needed the Pandemic to use this thing. There is still a core resistance ... the legislation on paper has existed for decades, not years, decades "[Valentina- - Didactic Office Degree Course Nursery Educator]

Professional changes in terms of skills required

The innovations introduced have generated many changes, in many ways. Professional skills are essential points to build this innovative framework. Other skills are required than those previously put in place.So the Department Office immediately clarifies:

"The role of the secretary has changed completely during the last twenty years, specific skills are needed at new, different levels. The platform we use to work has changed and much more knowledge is required both at a strictly accounting level ... but also at the level of administrative procedure, and all of this is combined with an increase in computerized procedures (...) ".

We can say that for all the staff involved these are additional skills, which for some are very difficult to acquire, especially in the absence of effective training. . Innovation and progress, like change, by definition, never stop[29]. From this point of view, there is a real risk of not being able to keep up. What emerges is that what could potentially be a strength (the use of tools such as *software*) risks to become an obstacle to the work performance.

[29] The basic reason why all professionals proper, from the doctor to the social worker, from the engineer to the architect or lawyer follow/must follow the so-called "continuing training". It is evident that anyone who remains firm in the notions acquired before entering service will inevitably be surpassed by the whole new one (and this also applies to the employee, even the teacher himself).

In addition, it is also difficult to be able to obtain a "more widespread and even continuous specialization… as some think it would be better to change to improve things" [Chiara - Administrative Office of the Department].According to this perspective of continuous change, it is therefore necessary to include, among the required skills, also "*flexibility"* [Vittoria- Educational Sciences Didactic Office EDUFORM].

Flexibility in having to deal with issues that are not necessary related to one's role. A clear example of this is presented to us by the teaching office for teachers and students' orientation, which states "I was also asked to follow the *Facebook* page of the department, which I do quite badly because I don't have time and I need training".

This shows how very often apps and software are used only in an intuitive and approximate way. Who, among the countless users, can in fact say that they use all the functions of Word or Excel, Access or Power Point?[30]

In addition to this issue, namely that of the required skills, the issue of training also is mentioned again. And this not only because Smart Working and H24 availability are combined with the topics already discussed. A fact that needs to be highlighted is that the various issues discussed so far, although distinct from each other, are inevitably linked:

- In this sense, the request to "of being always available for a task ... of being fast and being up-to-date of being available for work close to H24, with the consequence that is also difficult to disconnect" [Federica - Teachers and services teaching office for student orientation].
- And again: "a student who told me in a very rude way that working online in Smart Working I should be always on duty, needless to say" [Chiel- Coordinator students collaborative grants and Erasmus issues].
- It goes without saying that if on the one hand you can work "independently or from the office or from home and communicate with each other in an easy and profitable way, on the other hand there are complications" [IF-Didactic Office of Education Sciences EDUFORM].

The University's response to new skills. Training.

The importance of the training issue, which has already emerged from the very beginning of this Focus Group, is now openly placed on the discussion table.

What has emerged is the lack of adequate training. The didactic office of Social Service and Sociology gave us a clear picture of this, mentioning from the beginning a "lack of training" and the use of digital system which, although potentially positive, without appropriate training may become "ballasting".

[30] These are the most common software on which it would be interesting to know how many have not applied "DIY". And it is known that even these simple and widespread programs are made evolved and developed with numerous functions and applications every time a new version is produced.

What, therefore, the University would seem to offer are training courses in part already repeatedly provided and in part placed in "uncomfortable" hours [Federica-Didactic area of the faculty and student guidance services department].

For what concerns the use of tools, it appears (as we have already highlighted above) that many have had to use them on their own, working as “self-taught” [Isabella - EDUFORM and SDE ONLINE Didactic Office]. This has produced an even greater unbalance in terms of skills between the staff. There are many ways to search for the right answer to a question about a specific function: You-tube video tutorials, official websites and support websites (Microsoft, Adobe etc.). The “do it yourself” training is a knot that has not yet been solved and which emerges strongly from the testimonies of our participants.

In fact, where "there was no training or resistance towards technology the main problem was for the staff to remaining all on the same level" [Departmental Administrative Office].

There is clearly a feeling of dissatisfaction, perhaps frustration, regarding the lack of training, which "does not enable staff to work", we can say, smoothly, i.e. by streamlining procedures.

There seems to be a sort of support network between colleagues to overcome obstacles tout-court and proceed with work: “with colleagues who are more Smart, who are more familiar with technology we help each other, but it is something different from training” [Isabella - EDUFORM and SDE ONLINE Didactic Office].

Finally, there is an important issue that refers to bureaucratic procedures. Specifically, these are the steps that must be made by the same staff to request and obtain support in terms of resources of the University or the Department. A transversal theme that touches both the required skills and the need for training for the use of all the aforementioned tools and systems.

We note, for an effective picture, this last exchange of final words:

- IF: “Now one does it because we are staff of good will who do it but perhaps we are also asked because of the department lack of technical figures…. What we gained in terms of new skills we gained it because because we rolled up our sleeves and figured out the new tools and systems by ourselves or with the help of smart colleagues, we help each other but this cannot be compared to training and does not put the staff in a position to work [Isabella-EDUFORM and SDE ONLINE Didactic Office] ".
- MC: “At Principe Amedeo we have two unstructured people who give us a hand. The problem - but Chiara Buzzi already knows this - is that if we need something we cannot go to the colleague who can help us but there are long and bureaucratic procedures ... we have to go to Chiara Buzzi, Chiara Buzzi then speaks to someone else and finally a colleague comes… ”[Chiel - Payment of collaboration grants for students and Erasmus issue].
- CB “It's just a question of costs…” [Chiara - Administrative office of the department].
- MC: “… but it is an extension [Chiel - Payment of cooperation grants for students and Erasmus issue].

- IF: “But it shows that internal resources are lacking” [Isabella - EDUFORM and SDE ONLINE Didactic Office].

2.4. Students survey: main results

The students’ survey was targeted to students of different Degree Programs at the University of Roma Tre (Figure 1), . Students were contacted during on presence training activities and by emails and we received 125 responses. The survey covered topically five different domains including 45 multiple choice questions and four open questions. The survey topics are:

- Student profiling investigated by means of multiple choice questions (socio-demographic and education information)
- Teaching and Learning Process (TL_P) investigated by means of 10 multiple choice questions with 5 level Likert scale)
- Students’ Experience (SE) investigated by means of 17 multiple choice questions with 5 level Likert scale
- Students Learning outcome (SL) investigated by means of 9 multiple choice questions with 5 level Likert scale
- SWOT-analysis investigated by means of 4 open questions

The profiling questions show respondents gender, age, study year and their personal estimation for their study progress (figure 1). In particular, the majority of responders are female (84%) and only 13% are males while 2% declare other gender and 1%, do not want to declare their gender. The three age groups are almost equally represented since 40% of respondents are 26 years old or more, 34% are 22-23 years old and 26% are younger. The gender profile is related to responders’ degree area with over 90% coming from social science and humanities degree programs.

Figure 5 - Degree Area

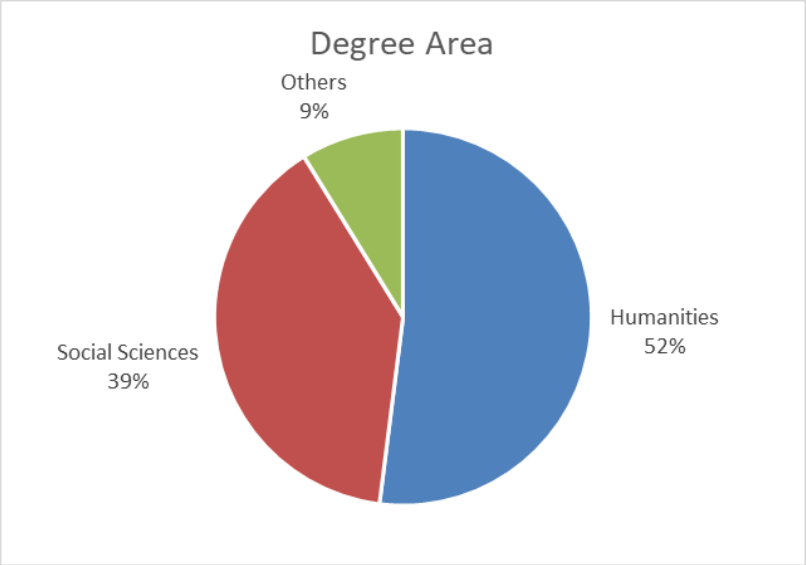
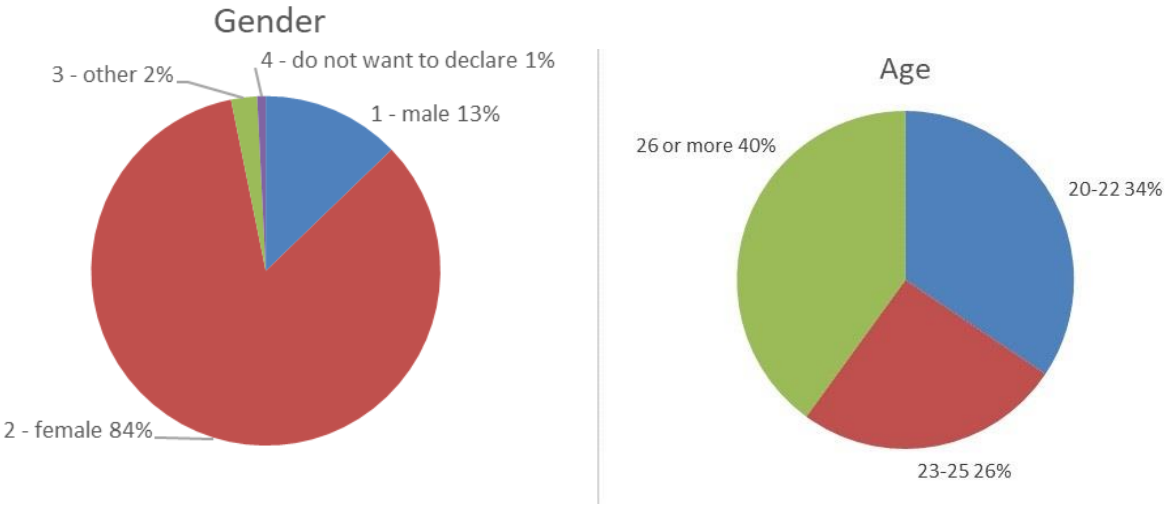


Figure 6 - Survey respondents' gender, age, and degree area



Teaching and Learning Process

The Teaching and Learning Process section focus on pedagogical implementation. According to results all the pedagogical methods are used at University of Roma Tre (Table 2). More than half of the students agreed on all the methods, ranging the agreement from 56% to 80%. The top three pedagogical methods are: the use of visual or digital resources and tools (80,0%), the use of class group activities (79,2%), and the use of conceptual maps (77,6%), while the least used practices are the use of case studies (64,0%), the students' prior knowledge assessment to orient personalized learning (62,4%), and the use of game elements or educational games

(56,0%). The disagreement level is remarkably low ranging from 5% to 24%, a rate lower than the neutrality that goes from 11% to 28%.

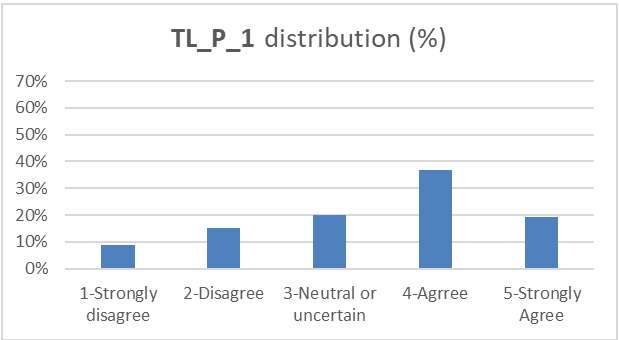
Table 2 - Teaching and Learning Process distribution

	Strongly disagree	Disagree	Neutral or uncertain	Agree	Strongly Agree
Use game elements or educational games	8.8%	15.2%	20.0%	36.8%	19.2%
Use visual or digital resources and tools	3.2%	5.6%	11.2%	54.4%	25.6%
Use conceptual maps	4.0%	4.8%	13.6%	46.4%	31.2%
Use class group activities	1.6%	6.4%	12.8%	50.4%	28.8%
Use case studies	3.2%	4.8%	28.0%	36.8%	27.2%
Use lab experiments and simulations	4.0%	8.0%	17.6%	46.4%	24.0%
Stimulate debating and peer assessment	1.6%	6.4%	18.4%	44.0%	29.6%
Invite guest speakers	0.8%	4.0%	18.4%	54.4%	22.4%
Assess students' prior knowledge to orient personalised learning	4.8%	13.6%	19.2%	39.2%	23.2%
Students take innovative tests (quiz, game, playing role, speech, etc.) during the classes	4.0%	11.2%	18.4%	45.6%	20.8%

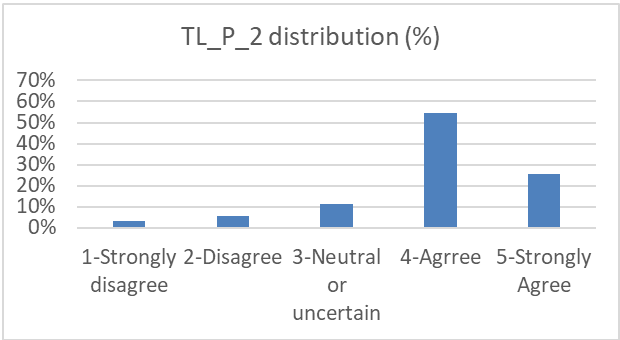
In fact, the frequency distribution of the Teaching and Learning Process items' responses are skewed left showing a high level of agreement (Figure 7) and low level of neutrality and disagreement.

Figure 7 - Teaching and Learning Process distribution

Use game elements or educational games

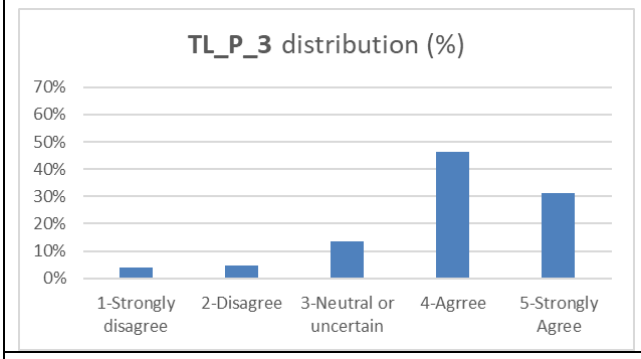


Use visual or digital resources and tools

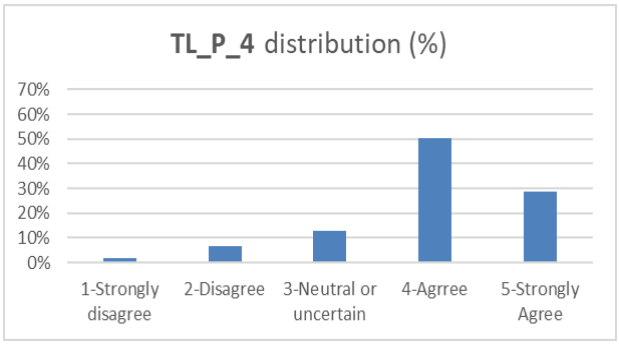


Use conceptual maps

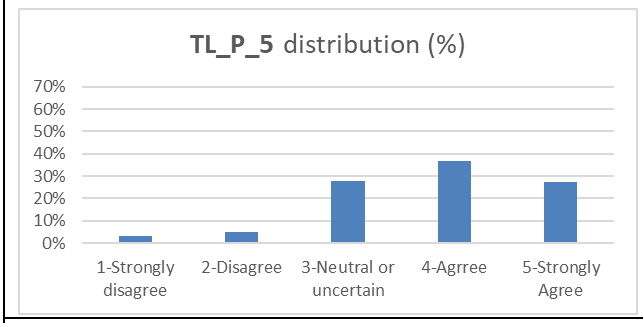
Use class group activities



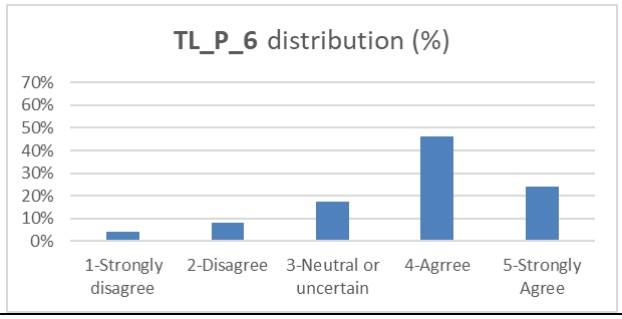
Use case studies



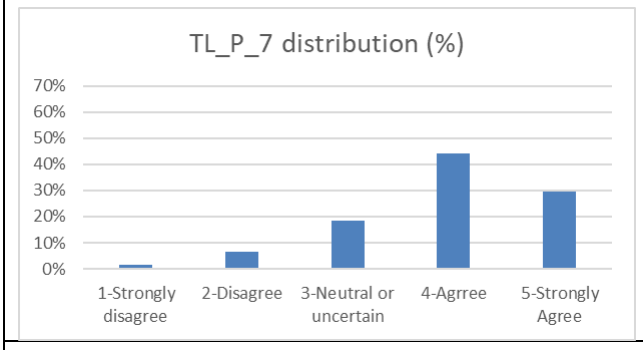
Use lab experiments and simulations



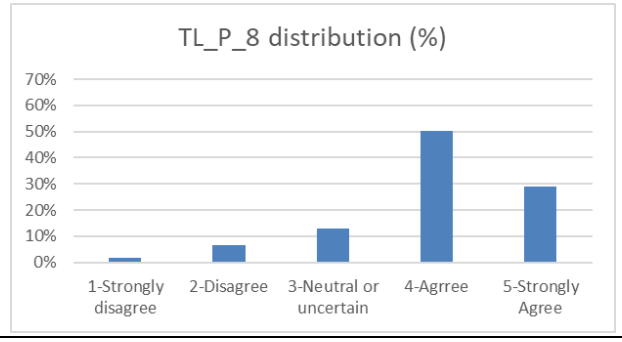
Stimulate debating and peer assessment



Invite guest speakers



Assess students' prior knowledge to orient personalized learning



Students take innovative tests (quiz, game, playing role, speech, etc.) during the classes

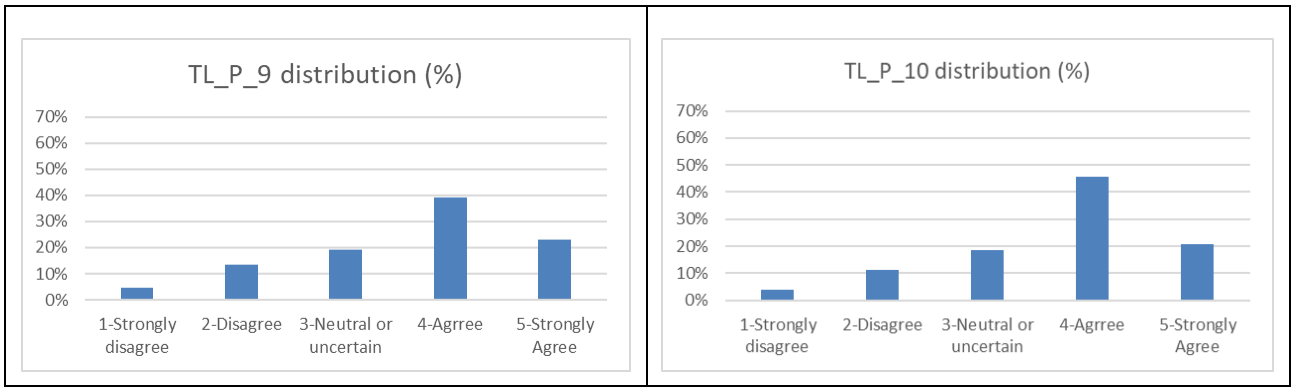
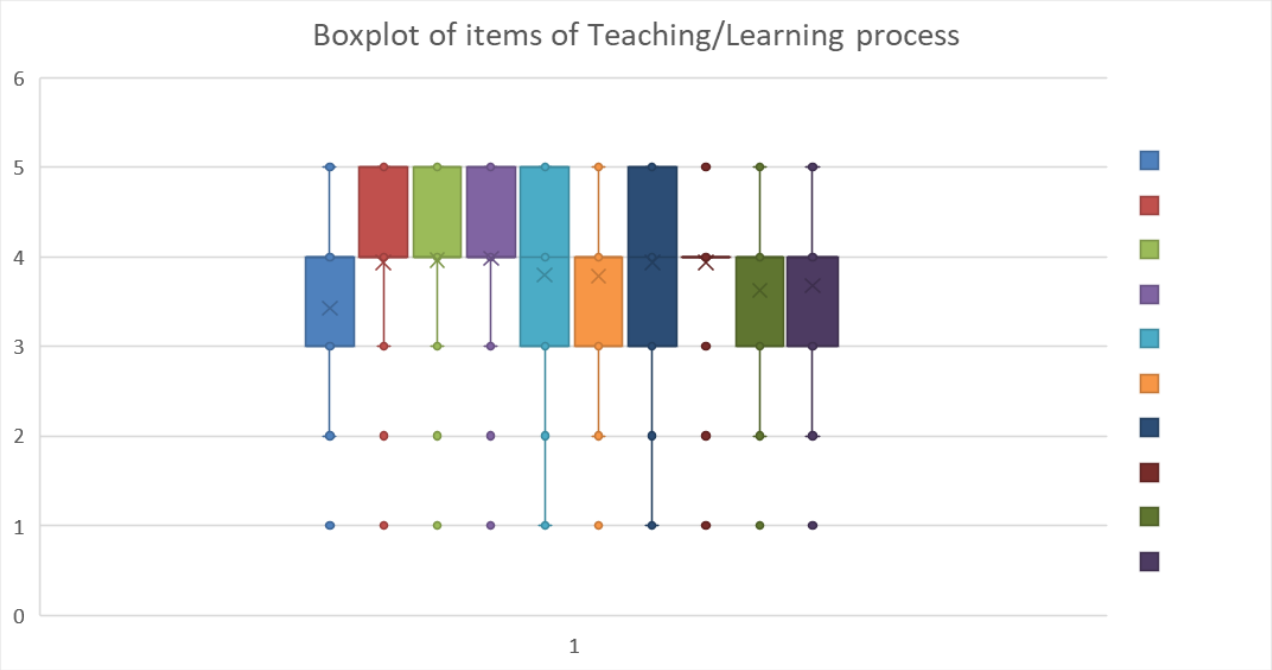


Table 2 presents the summary statistics of each teaching method. Although, the use of specific pedagogical methods seems not to be particularly considered since they are all neutral on average (Table 3) the box plot in figure 8 shows that the median is four and that the first quartile is between 3 and 4.

Table 3 - Teaching and Learning Process statistical summary

	Use game elements or educational games	Use visual or digital resources and tools	Use conceptual maps	Use class group activities	Use case studies	Use lab experiments and simulations	Stimulate debating and peer assessment	Invite guest speakers	Assess students' prior knowledge to orient personalised learning	Students take innovative tests during the classes
N	125	125	125	125	125	125	125	125	125	125
Missing	0	0	0	0	0	0	0	0	0	0
Arith. Mean	3.42	3.94	3.96	3.98	3.80	3.78	3.94	3.94	3.62	3.68
St. Dev	1.21	0.94	1.00	0.91	1.00	1.03	0.94	0.80	1.13	1.05
Min	1	1	1	1	1	1	1	1	1	1
Q1	3	4	4	4	3	3	3	4	3	3
Median	4	4	4	4	4	4	4	4	4	4
Q3	4	5	5	5	5	4	5	4	4	4
Max	5	5	5	5	5	5	5	5	5	5

Figure 8 - Teaching and Learning Process box plot



Nonetheless, if we consider the students 'year of degree there is an interesting change in the students' pedagogical preferences. In table 4, preferences are listed by average per year of degree descending order.

The first years of bachelor express a wide agreement, 60% of the learning and teaching process, which is the largest one compared to the other years of degree, but they seem not to be interested on average in the use of lab experiments and simulations, and the invitation of guest speakers, while these two items are relevant for post-graduate students instead.

The second and third year of bachelor students agreed on few items on average. They agreed only on the use of conceptual maps, the use of class group activities, and the Invitation of guest speakers for the second year, and the debate stimulation and peer assessment for the third year. Pedagogical methods which received a large consensus also from the other students. These students' neutrality on the teaching and learning process (89% second years degree and 94% third years degree) suggests a lack of interest in learning and teaching processes probably focusing on other elements that influence more their training, e.g., the social ones.

The post graduate students are more interested in the use of visual or digital resources and tools, the use of conceptual maps, the use of class group activities, the use of lab experiments and simulations, and the innovative tests during the classes but they are not interested in the use of case study. This pedagogical method interests only students at the beginning and at the end of the training (first year of bachelor and over the third ear of master) and the use of game elements or educational games doesn't seem to be relevant for anyone.

Table 4 - Teaching and Learning Process preferences by year of degree

First year Bachelor	average
Use visual or digital resources and tools	4.5
Use class group activities	4.5
Use conceptual maps	4.2
Use case studies	4.2
Stimulate debating and peer assessment	4.2
Assess students' prior knowledge to orient personalized learning	4.2
Second year Bachelor	
Use class group activities	4.0
Use conceptual maps	4.0
Invite guest speakers	4.0
Third year Bachelor	
Stimulate debating and peer assessment Stimulate debating and peer assessment	4.0
Other year Bachelor	
Stimulate debating and peer assessment	4.3
Use visual or digital resources and tools	4.0
Invite guest speakers	4.0
Use lab experiments and simulations	4.0
First year Master	
Use conceptual maps	4.2
Use class group activities	4.2
Students take innovative tests (quiz, game, playing role, speech, etc.) during the classes	4.2
Use visual or digital resources and tools	4.0
Use lab experiments and simulations	4.0
Second year Master	
Use visual or digital resources and tools	4.3
Assess students' prior knowledge to orient personalized learning	4.3
Use conceptual maps	4.2
Use class group activities	4.2
Invite guest speakers	4.2
Stimulate debating and peer assessment	4.2
Use lab experiments and simulations	4.1
Third year Master	
Invite guest speakers	4.1
Use visual or digital resources and tools	4.0
Use class group activities	4.0
Other year Master	
Use class group activities	4.3
Invite guest speakers	4.1
Use case studies	4.1
Use visual or digital resources and tools	4.0

Students' Experience

The Students' Experience section focus on three sub-domains:

1. students' behaviour, faculty characteristics and administrative staff,
2. teaching staff characteristics and teaching materials and
3. course technological implementation and students' overall satisfaction.

Overall students are satisfied of their experience in HE since, as in the learning and teaching process, more than half of the students agreed on almost all the experiences, the agreement ranging from 77% to 48%. The top three experiences are the overall satisfied with the choice to study at University Roma Tre (76.8%), the use of the technology and learning portals (70.4%), and the teachers' engagement (69.6%), while the less appreciated are the teacher's digital competencies (55.2%), the administrative staff promptness in supporting students' (54.4%), and the clearness of the administrative staff's announcements (48.0%). The disagreement level is remarkably low here too, ranging from 5% to 22%, a range lower than neutrality that goes from 18% to 36%.

Students' behavior, faculty characteristics and administrative staff

The details of the students' experience are highlighted in Tables 5-7 and Figures 9-11. Students' experience distributions are skewed left showing a high level of agreement and low level of neutrality and disagreement which is confirmed also by the box plot (figure 9). Although, some distributions are flatter than other showing a higher heterogeneity in the students' opinions.

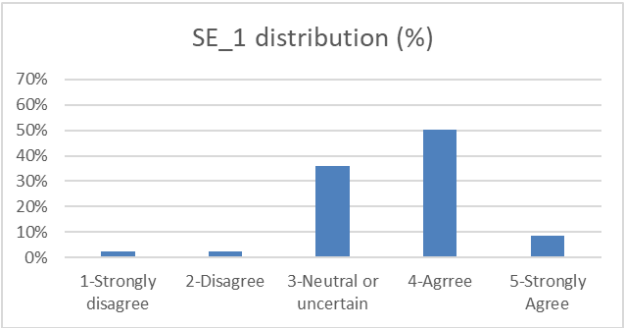
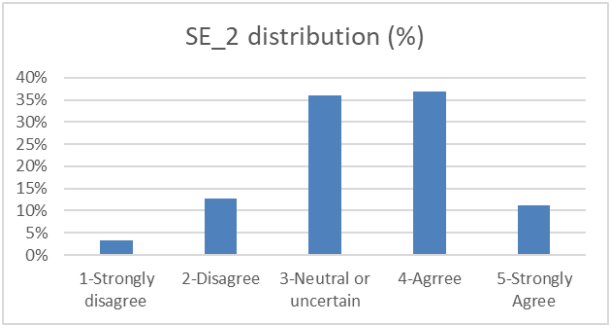
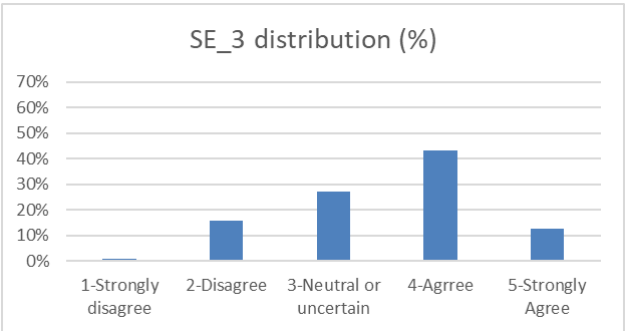
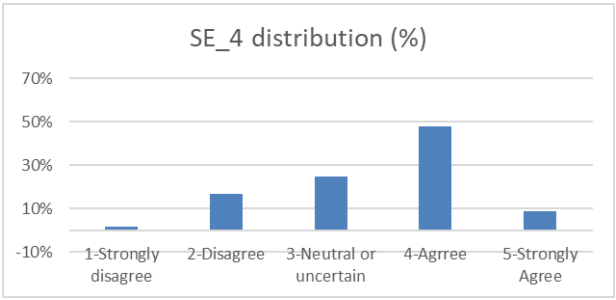
Table 5 - Students' behaviors, faculty characteristics and administrative staff

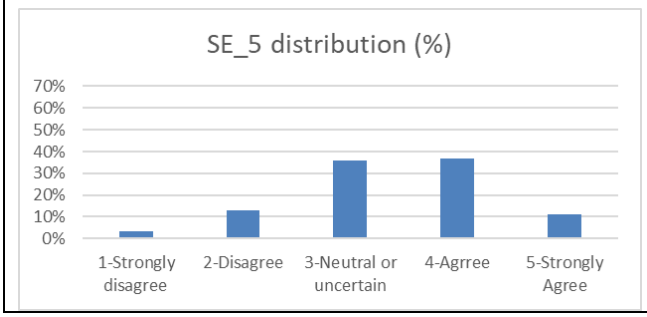
	Strongly disagree	Disagree	Neutral or uncertain	Agree	Strongly Agree
Students' behaviour. faculty characteristics and administrative staff					
Students are at their ease to each other	2.4%	2.4%	36.0%	50.4%	8.8%
Students are respectful towards each other	0.8%	4.0%	26.4%	58.4%	10.4%
Locations is functional to my needs of studying or staff contact	0.8%	16.0%	27.2%	43.2%	12.8%
The faculty organization/structure is clear to me	1.6%	16.8%	24.8%	48.0%	8.8%
Announcements from the administrative staff are clear	3.2%	12.8%	36.0%	36.8%	11.2%
The administrative staff is prompt to support students' needs	1.6%	15.2%	28.8%	44.0%	10.4%
Teaching staff characteristics and teaching materials					
Teaching staff is empathic	1.6%	8.0%	25.6%	47.2%	17.6%
Teaching staff provide the student support that I need	0.8%	8.8%	30.4%	47.2%	12.8%
Teachers are engaged in the teaching process	0.8%	5.6%	24.0%	54.4%	15.2%
Teachers are digitally competent	4.0%	17.6%	23.2%	45.6%	9.6%
Teaching materials are not too difficult to understand	1.6%	5.6%	26.4%	54.4%	12.0%
Teaching materials are appealing	1.6%	3.2%	27.2%	59.2%	8.8%

3) ..... Course technological implementation and students' overall satisfaction					
Lessons are available to students remotely on the internet	2.4%	6.4%	24.8%	46.4%	20.0%
Lessons catch my attention and stimulate my curiosity	2.4%	5.6%	24.0%	51.2%	16.8%
Technology and learning portals (e.g., Moodle. Learning Management System) are effectively used	1.6%	8.0%	20.0%	51.2%	19.2%
ICT Tools and platforms are intuitively used	0.0%	10.4%	28.8%	49.6%	11.2%

Figure 9-11 - Students' experience distribution

Figure 9 - Students' behaviour, faculty characteristics and administrative staff distribution

Students are at their ease to each other	Students are respectful towards each other
	
Locations is functional to my needs of studying or staff contact	**The faculty organization/structure is clear to me**
	
Announcements from the administrative staff are clear	**The administrative staff is prompt to support students' needs**



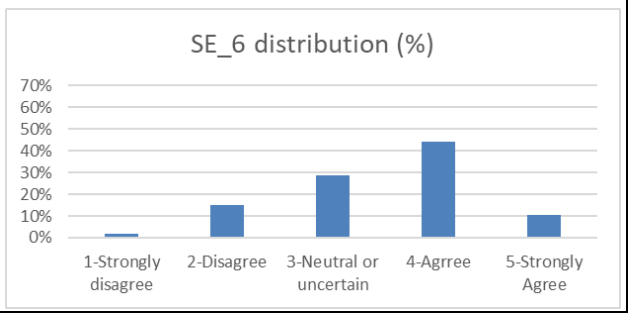
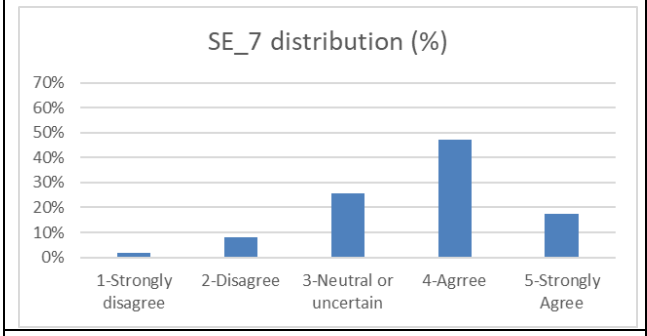
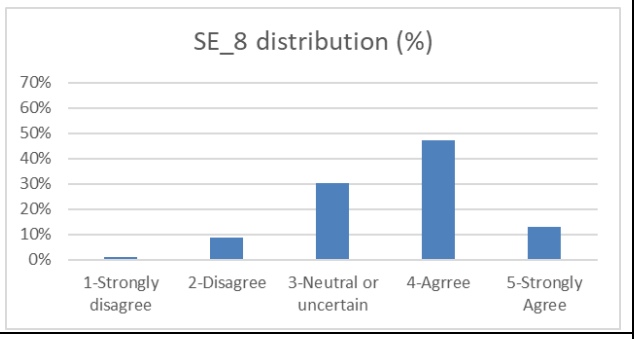


Figure 10 - Teaching staff characteristics and teaching materials

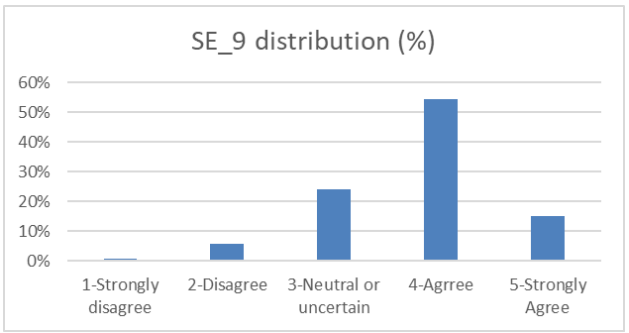
Teaching staff is empathic



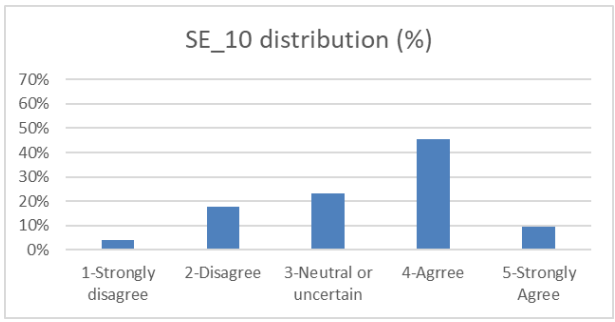
Teaching staff provide the student support that I need



Teachers are engaged in the teaching process

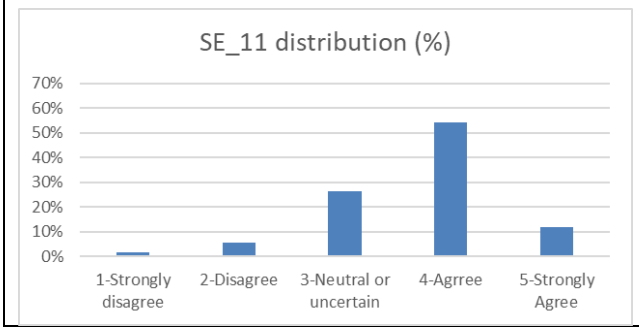


Teachers are digitally competent



Teaching materials are not too difficult to understand

Teaching materials are appealing



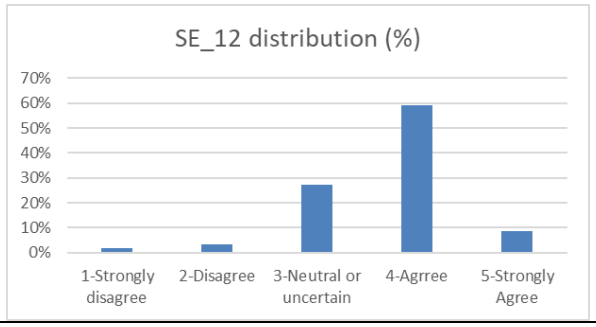
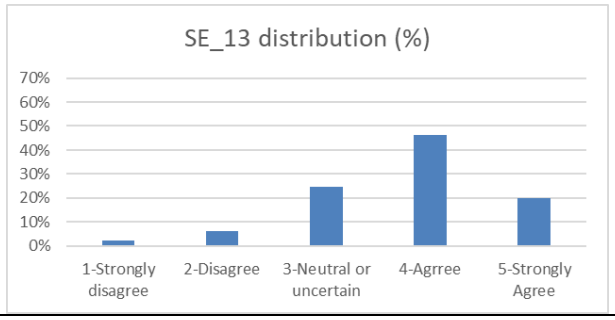
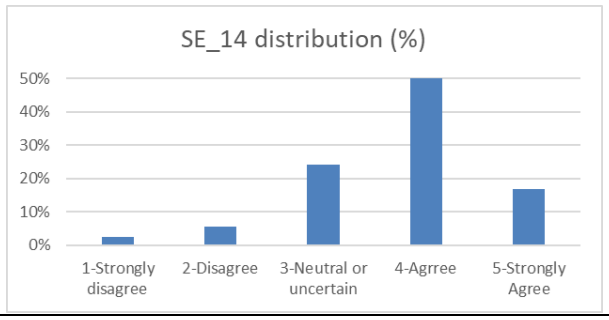


Figure 11 - Course technological implementation and students' overall satisfaction statistical summary

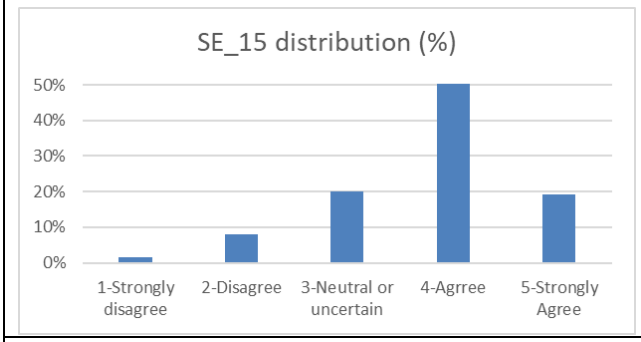
Lessons are available to students remotely on the internet



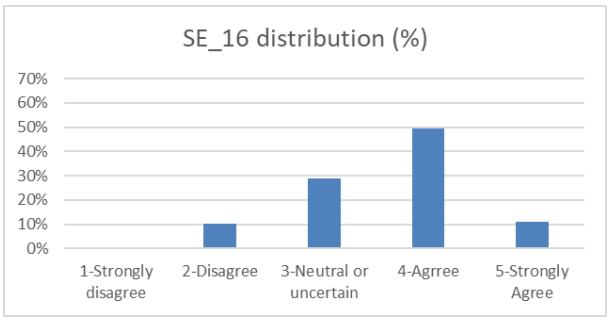
Lessons catch my attention and stimulate my curiosity



Technology and learning portals (e.g., Moodle, Learning Management System) are effectively used



ICT Tools and platforms are intuitively used



I'm overall satisfied with my choice to study at this University

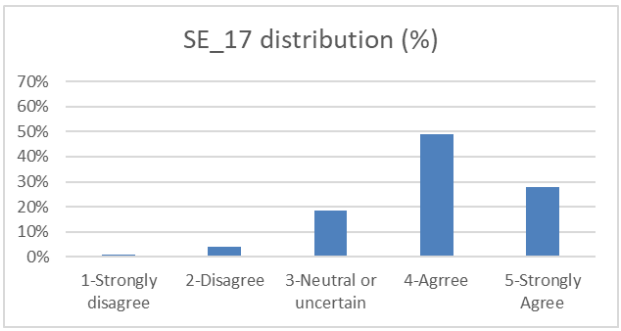
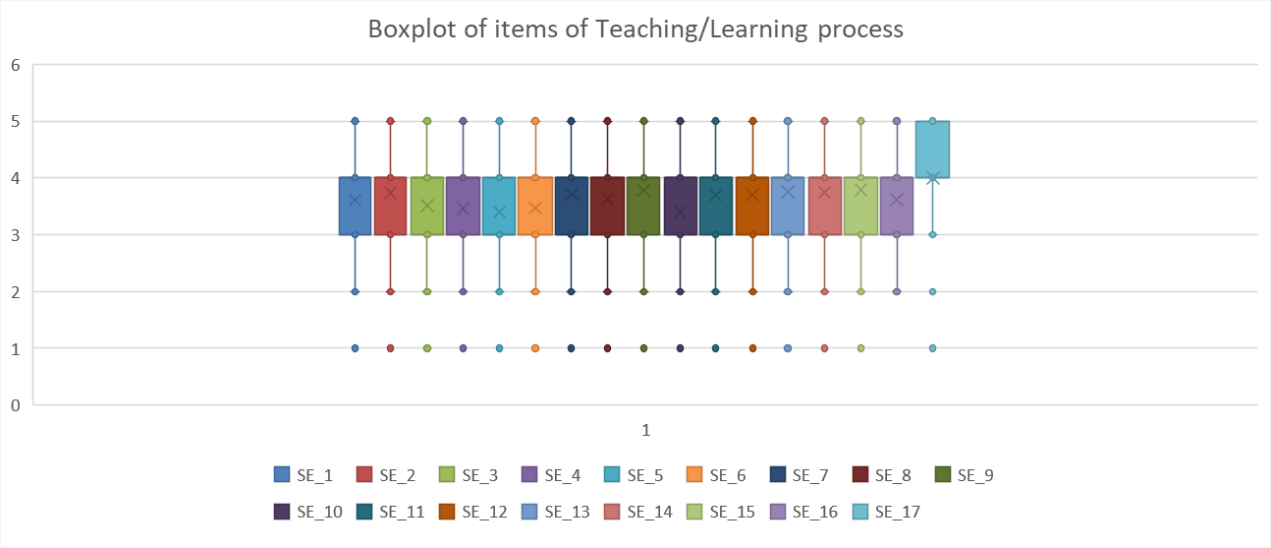


Figure 12 - Students' experience box plot



As shown in the box plot, students' experience presents an incredible homogeneity in the preferences distribution. In fact, the median is 3 (neutral) and an interquartile range that lay between neutrality and agreement for all the experiences unless for the university choice satisfaction that have a median of four (agreement) and an interquartile range that goes lays between agreement and strong agreement.

Table 6 presents statistical measures for students' experience. Also, for students' experience responders' perception is neutral on average.

Table 6 - Students' experience statistical summary

Item	n	missing	mean	sd	Min	Q1	Median	Q3	Max
Students are at their ease to each other	**125**	0	3.61	0.78	1	3	4	4	5
Students are respectful towards each other	**125**	0	3.74	0.73	1	3	4	4	5
Locations is functional to my needs of studying or staff contact	**125**	0	3.51	0.94	1	3	4	4	5
The faculty organization/structure is clear to me	**125**	0	3.46	0.93	1	3	4	4	5
Announcements from the administrative staff are clear	**125**	0	3.40	0.96	1	3	3	4	5
The administrative staff is prompt to support students' needs	**125**	0	3.46	0.93	1	3	4	4	5
Teaching staff is empathic	**125**	0	3.71	0.91	1	3	4	4	5
Teaching staff provide the student support that I need	**125**	0	3.62	0.85	1	3	4	4	5
Teachers are engaged in the teaching process	**125**	0	3.78	0.80	1	3	4	4	5
Teachers are digitally competent	**125**	0	3.39	1.02	1	3	4	4	5
Teaching materials are not too difficult to understand	**125**	0	3.70	0.82	1	3	4	4	5
Teaching materials are appealing	**125**	0	3.70	0.74	1	3	4	4	5
Lessons are available to students remotely on the internet	**125**	0	3.75	0.93	1	3	4	4	5
Lessons catch my attention and stimulate my curiosity	**125**	0	3.74	0.89	1	3	4	4	5
Technology and learning portals (e.g., Moodle, Learning Management System) are effectively used	**125**	0	3.78	0.90	1	3	4	4	5
ICT Tools and platforms are intuitively used	**125**	0	3.62	0.82	2	3	4	4	5
I'm overall satisfied with my choice to study at this University	**125**	0	3.99	0.84	1	4	4	5	5
Students are at their ease to each other	**125**	0	3.61	0.78	1	3	4	4	5

Although, differences are detectable if we analyze students' experiences by year of degree (table 6. Students of the first year of bachelor seems enthusiastic appreciating 60% of the proposed experiences, especially the course technological implementation and the overall satisfaction. They are at their ease to each other and the administrative gives clear announcements and is prompt in supporting their needs. Moreover, the teaching experience is pleasant since they think teachers are engaged and teaching materials are appealing.

The enthusiasm is not really shared by students of the following year that are more neutral and agree on few items. Students of the following years of the bachelor are simply overall satisfied with their choice to study at University of Roma Tre. Students of the first year of the master are more critical since they are satisfied of the technology and the learning portals but unsatisfied of Teaching and administrative staff, perceiving them as little empathic, unclear, and difficult to contact due to location dysfunctionality.

Anyway, the post graduate students of the following years are overall satisfied with their university choice, technology and learning portals usability and accessibility, teaching staff provide and material, while all the

respondents don't consider their reciprocal respect, the teacher's digitally competencies and to know the organization that are neutral on average for all years of degree.

Table 7 - Students' experience preferences by year of degree

First year Bachelor	average
Lessons are available to students remotely on the internet	4.7
The administrative staff is prompt to support students' needs	4.3
I'm overall satisfied with my choice to study at this University	4.3
Announcements from the administrative staff are clear	4.2
Technology and learning portals (e.g. Moodle, Learning Management System) are effectively used	4.2
Students are at their ease to each other	4.0
Teachers are engaged in the teaching process	4.0
Teaching materials are appealing	4.0
Lessons catch my attention and stimulate my curiosity	4.0
ICT Tools and platforms are intuitively used	4.0
Second year Bachelor and over	
I'm overall satisfied with my choice to study at this University	4.0
First year Master	
Technology and learning portals (e.g. Moodle, Learning Management System) are effectively used	4.0
Second year Master	
I'm overall satisfied with my choice to study at this University	4.4
Technology and learning portals (e.g. Moodle, Learning Management System) are effectively used	4.2
Third year Master	
Teaching staff provide the student support that I need	4.0
Other year Master	
Teaching materials are not too difficult to understand	4.0
ICT Tools and platforms are intuitively used	4.0
I'm overall satisfied with my choice to study at this University	4.0
First year Master disagree	
Teaching staff is empathic	2.7
Announcements from the administrative staff are clear	2.7
Locations is functional to my needs of studying or staff contact	2.8

Students' Learning Outcome

Overall satisfaction is very high 62-82% of students agrees with all the claims in this category. The top three learning outcomes are critical thinking development (81,6%), soft-skills development (79.2%), and professional knowledge/skills acquisition (76,0%), while the lowest ones are the opportunity to meet significant people for responders' life and profession (71.2%), the learning enjoyability (69.6%), and the opportunity to find a job (63.2%). As for the pedagogical methods, the frequency distribution of Students' experience are skewed left showing a high level of agreement and low level of neutrality and disagreement, which is confirmed also by the box plot (figure 9).

The details of the students' learning outcome are highlighted in Tables 8-10 and Figures 13- 15.

Table 8 - Students Learning Outcome

	Strongly disagree	Disagree	Neutral or uncertain	Agree	Strongly Agree
Matches my learning expectations	2.4%	3.2%	19.2%	60.0%	15.2%
Is really enjoyable	0.0%	4.0%	26.4%	56.8%	12.8%
Is developing my soft-skills	2.4%	1.6%	16.8%	60.0%	19.2%
Is giving me the opportunity to meet significant people for my life and my profession	0.8%	9.6%	18.4%	47.2%	24.0%
Is giving me the opportunity to find a job	0.8%	8.0%	28.0%	45.6%	17.6%
Will impact my good professional image/reputation	1.6%	2.4%	22.4%	57.6%	16.0%
Will help me in acquiring a job or career-related knowledge and skills	1.6%	4.0%	18.4%	59.2%	16.8%
Will help me develop my critical thinking	0.8%	2.4%	15.2%	59.2%	22.4%
Will help me in team working	0.8%	4.8%	20.8%	60.8%	12.8%

Figure 13 - Students Learning Outcome distribution

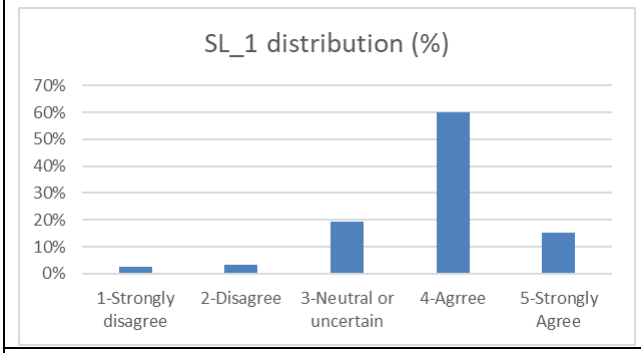
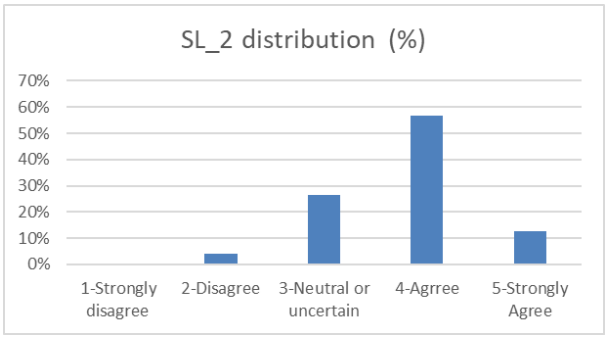
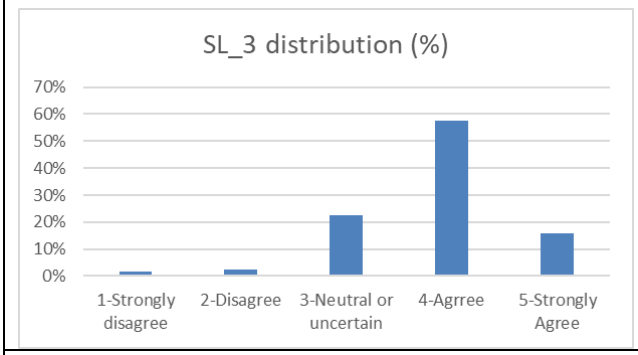
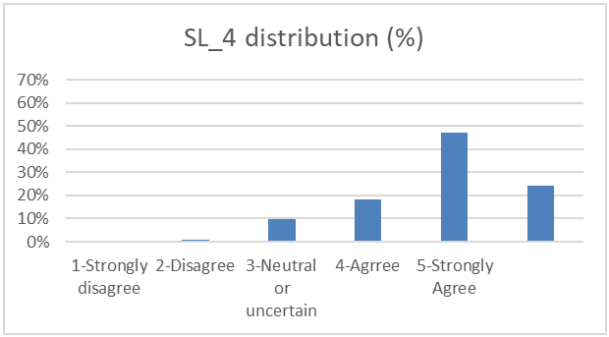
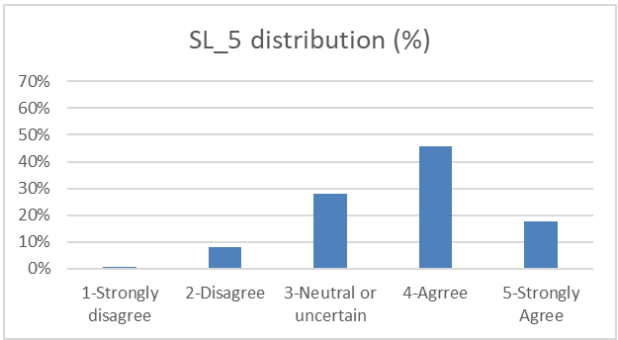
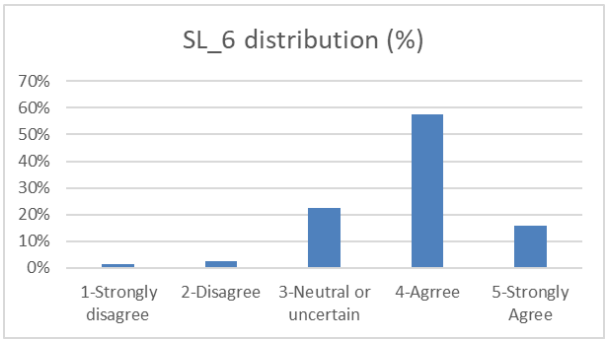
Matches my learning expectations	Is really enjoyable
	
Is developing my soft-skills	**Is giving me the opportunity to meet significant people for my life and my profession**
	
Is giving me the opportunity to find a job	**Will impact my good professional image/reputation**
	
Will help me in acquiring a job or career-related knowledge and skills	**Will help me develop my critical thinking**

Figure 14 - Students' learning outcome box plot

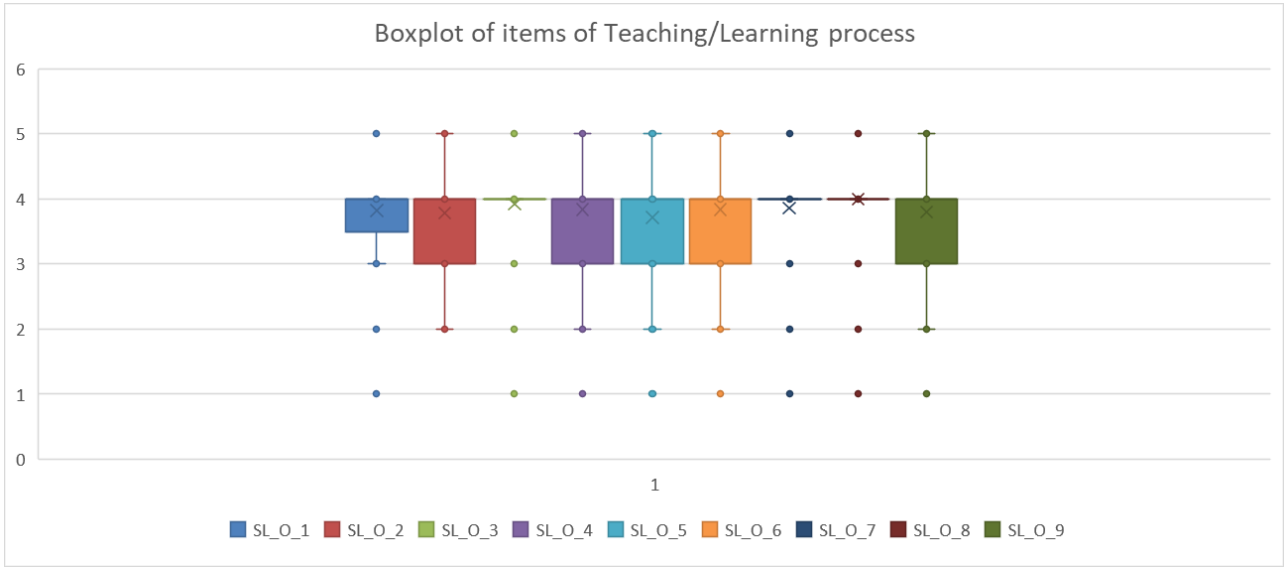


Table 9 - Students' Learning Outcome statistical summary

	Studying in this university matches my learning expectations	Studying in this university is really enjoyable	Studying in this university is developing my soft-skills	Studying in this university is giving me the opportunity to meet significant people for my life and my profession	Studying in this university is giving me the opportunity to find a job	Studying in this university will impact my good professional image/reputation	Studying in this university will help me in acquiring a job or career-related knowledge and skills	Studying in this university will help me develop my critical thinking	Studying in this university will help me in team working
N	125	125	125	125	0	0	0	0	0
Missing	0	1	2	3	4	5	6	7	8
Arith. Mean	3.82	3.78	3.92	3.84	3.71	3.84	3.86	4.00	3.80
St. Dev	0.81	0.71	0.80	0.93	0.88	0.78	0.80	0.74	0.75
Min	1	2	1	1	1	1	1	1	1
Q1	4	3	4	3	3	3	4	4	3
Median	4	4	4	4	4	4	4	4	4
Q3	4	4	4	4	4	4	4	4	4
Max	5	5	5	5	5	5	5	5	5

Almost all the students agree on the enjoyability of the learning outcome. The first year of bachelor students are enthusiastic for all the item unless about the matching with their expectations. Respondents of the bachelor, excluding those of the first year, seems more confused about their learning outcome being neutral on average on their experience, even though respondents of the third year of bachelor esteemed to have developed their critical thinking.

Post graduate students are highly satisfied with their learning outcome probably because an overall perspective is easier to get at the end of the training process in HE. Post graduate students are particularly satisfied of the acquisition of critical thinking and the implementation of their knowledge and professional skills. In table 9 are reported all the Students' experience preferences by year of degree. As in the learning and teaching process respondents are positive or neutral on average. The lack of criticality in their experience evaluation could be determined by the high quality of their training or to the lack of critical thinking, or both. Moreover, it is interesting to note that the only experience that seems not to be particularly considered, remaining neutral on average, for all the students is to have the opportunity to find a job.

Table 10 - Students' experience preferences by year of degree

First year Bachelor	***mean***
Is developing my soft-skills	4.2
Will help me develop my critical thinking	4.2
Will help me in team working	4.2
Is really enjoyable	4.0
Is giving me the opportunity to meet significant people for my life and my profession	4.0
Will impact my good professional image/reputation	4.0
Will help me in acquiring a job or career-related knowledge and skills	4.0
Third year Bachelor	
Will help me develop my critical thinking	4.0
First year Master	
Will help me develop my critical thinking	4.3
Is developing my soft-skills	4.0
Will help me in team working	4.0
Second year Master	
Will help me in acquiring a job or career-related knowledge and skills	4.2
Will help me develop my critical thinking	4.0
Matches my learning expectations	4.0
Will impact my good professional image/reputation	4.0
Is giving me the opportunity to meet significant people for my life and my profession	4.0
Third year Master	
Will help me develop my critical thinking	4.1
Other year Master	
Is developing my soft-skills	4.3
Will help me in team working	4.3
Matches my learning expectations	4.1
Will help me in acquiring a job or career-related knowledge and skills	4.0
Is giving me the opportunity to meet significant people for my life and my profession	4.0
Is really enjoyable	4.0
Will impact my good professional image/reputation	4.0

Students' SWOT-analysis

The final section of the survey was 4 short open ended questions on strengths, weaknesses, opportunities, and threat of their training process at University Roma Tre. The open ended questions underwent a coding process aiming to identify the issues addressed by the students. Not all the participants responded to these questions. Participants doesn't have much difficulty in identifying strength, weaknesses, and opportunities, since the rate

of responses vary between 40-50%, while they showed difficulty in outlining the threats, producing just 11% of available responses.

In Table 11 are reported the most relevant themes of the students' SWOT analysis and in figure 10-14 all the themes.

Table 11 - SWOT - Summary

Strengths • Teachers & teaching quality • Soft skills • Support & flexibility • Tools & technology quality	**Weaknesses** • organizational issue (staff & structures) • lack study support • low teaching quality • lack technology skills & structures
Opportunities • Job opportunity • Internship & conferences • Networking & social life • Knowledge improvement • Erasmus	**Threats** • Logistic ineffectiveness • Pandemic issues

Figure 15 - Strengths

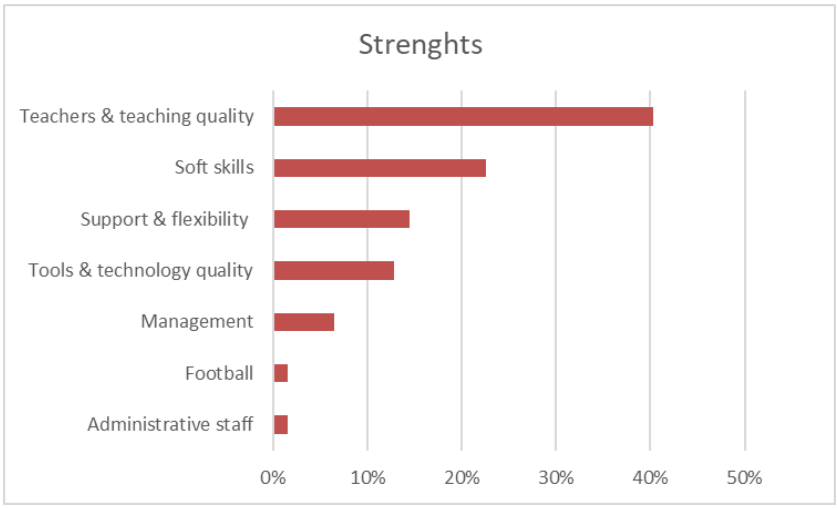


Figure 16 - Weaknesses

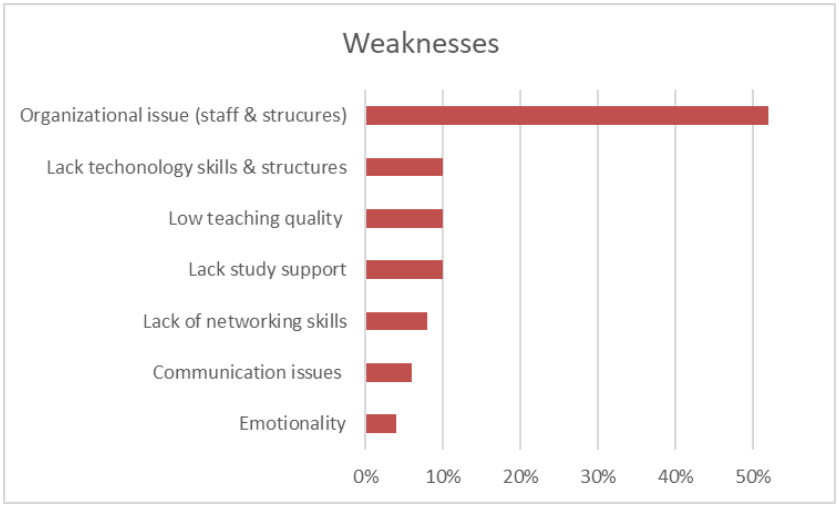


Figure 17 - Opportunities

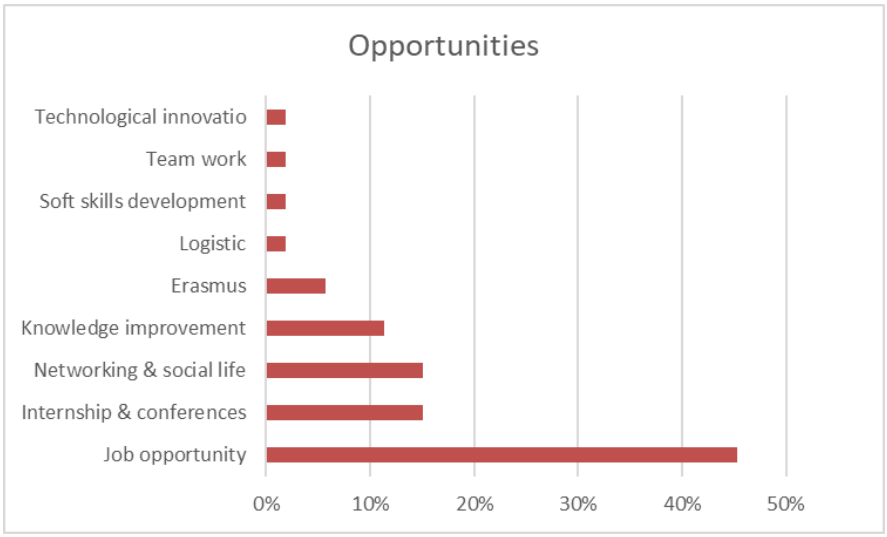
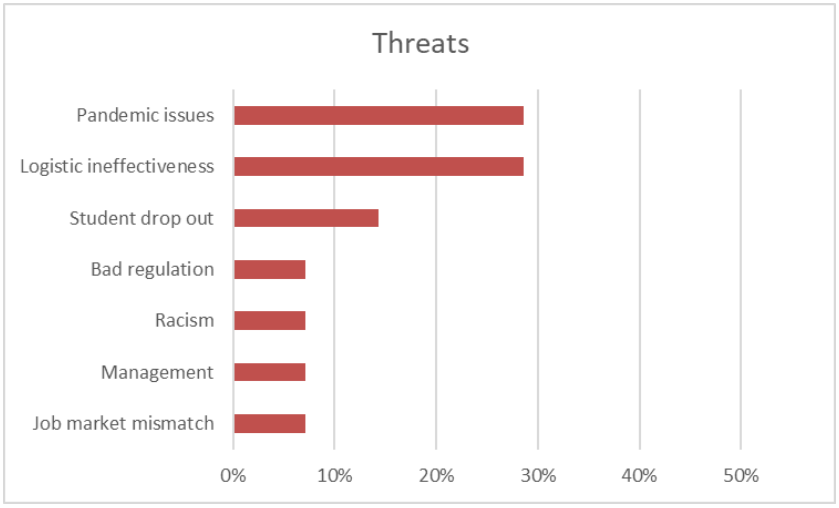


Figure 18 - Threats



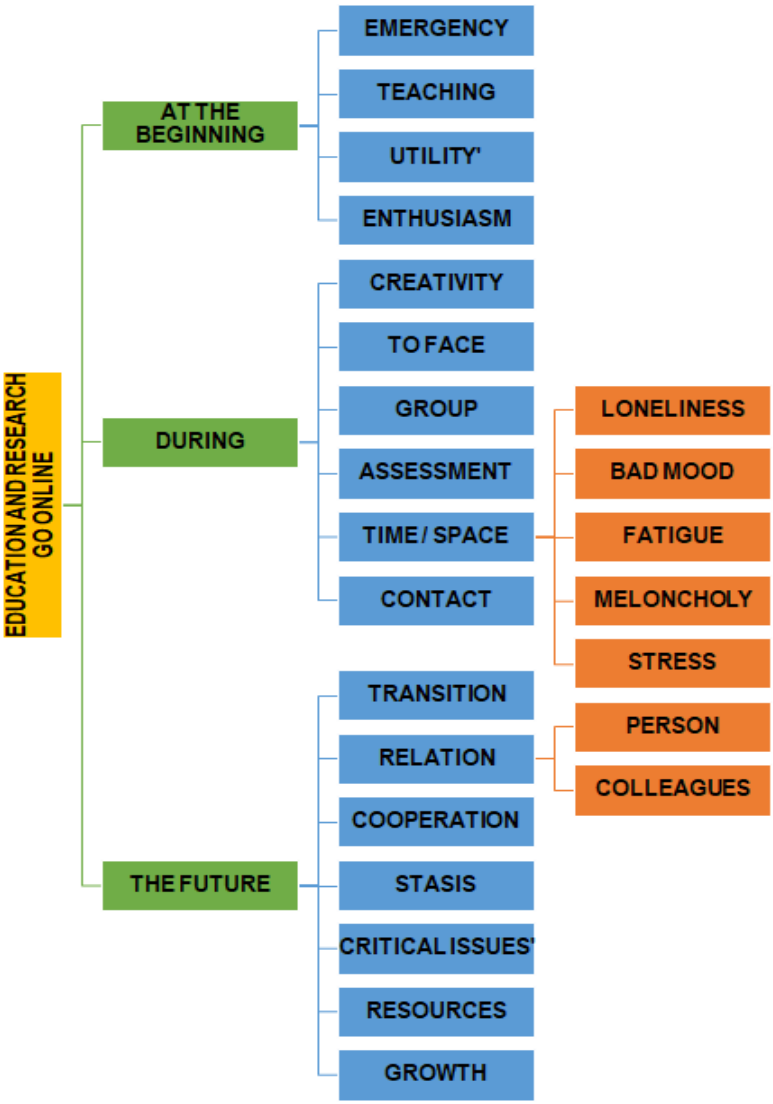
CONCLUSIONS

Conclusions present the emerging key elements of the case study.

They are oriented to outline the most important efforts and critical issues in organizational and educational processes, aimed to enhance digital resources and the environment in Universities (strengths, weaknesses, threats and opportunities, needs and perspective of improvement).

Before briefly illustrating a swot analysis of the case study, let's comment on some keywords that emerged during the interviews and focus groups that introduce it.

Figure 19 - The keywords for researches



By analysing the results of the interviews and focus groups, the research team identified some keywords. Starting from March 2020, for several months, teaching and research activities included only online activities.

Initially, concurrently with the national emergency, the focus was very much on teaching. The aim was to guarantee students' right to education. Teachers and researchers, as well as tutors and administrative staff were accumulated by an enthusiasm, animated by the awareness of the usefulness, of the value of the work that was being done.

This phase was followed by another characterized by conflicting feelings and attitudes. On the one hand, space was given to creativity, using the numerous tools made available; the need emerged to start comparing themselves with the group of colleagues, to carry out evaluations on the actions in place. On the other hand, the prolongation of "social distancing", time and space transformed, dilated, began to produce feelings of loneliness, moodiness, fatigue, melancholy and stress, in the end. A need for contact has emerged very strongly over the months.

Finally, the reflections concerned future perspectives. The general impression is that we are immersed in a transition phase, which will last beyond the pandemic and the emergency. A central assumption is that the relationship should remain at the center: among colleagues, in the entire academic community. The person must always be the center. the ability to collaborate will be strategic. The risk of stasis is perceived as very strong: the alarms concern the risk of not recognizing critical issues as opportunities, of not being able to effectively and critically use the resources that ICTs make available.

The emergency required a great resilience capacity from the University, which initiated an important process of development, of growth, which must continue.

A possible transversal reading of the main emerged elements can be represented in the following SWOT analysis.

Table 12 - Roma Tre case study SWOT analysis

	assets and opportunities	**risks and dangers**
	Strengths	**Weaknesses**
internal factors	DEVELOPMENT of new competences COHESION / SUPPORT help between colleagues NETWORK to succeed where the use of tools was not understandable or in any case university staff did not know each other STREAMLINING WORK	SELF REFERENCE LACK OF TRAINING absent and sometimes not useful training often redundant and not homogenous COMMUNICATION redundancy of the means of communication / same communications given differently

	EFFECTIVENESS / SPEED INCLUSIVITY workers and foreign students EASY AVAILABILITY OF DIDACTIC SUPPORTING MATERIALS TO FIND NEW SOLUTIONS TO OLD PROBLEMS	on various platforms and not homogeneous LACK OF GUIDANCE AND REFERENCE POINTS lack of tutor as internal figures who helped and directed the students, lack of a face to face which generates alarms on someone AGE GAP In using ICTs NEW TOOLS IN OLD METHODS
	Opportunities	**Threats**
external factors	SMART WORKING AND SMART TEACHING PUSH TO WORK MORE IN SHARING using shared work spaces makes, in some cases, the work faster FLEXIBILITY It could increase number of enrolments and of final graduates “SOCIAL ATTITUDE” TO DIGITAL OPPORTUNITIES “SOCIAL NETWORK ATTITUDE” TO DIGITAL OPPORTUNITIES	ISOLATION ABSENCE OF WORK BORDERS CONFUSION OF LIFE TIME AND SPACES BAD CHANGE OF THE RELATIONSHIP among colleagues, students and professors

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3. ANNEX 1. INTERVIEWS PARTICIPANTS

- SC - Vice-Rector for Teaching (VRT)
- AT - Vice-Rector for the Relations with the Labour Market (VRRLW)
- PA - Vice-Rector for Innovation and Technology Transfer (VRITT)

4. ANNEX 2. FOCUS GROUP PARTICIPANTS

Focus group teachers

Researches: Emanuela Proietti / Francesca Greco

Date: 15/06/2021 / H: 17.30/19.00

1. (MG) Researcher in Labor low
2. (FL) Fellow research in Labor low
3. (PS) Contract Professor of Adult guidance Methodologies and Bilan de Competences
4. (MF) Full Professor of General Linguistics
5. (LL) Full Professor of English language and translation
6. (EB) Full Professor of Didactics of modern languages
7. (MP) Full Professor of Literature and Forms
8. (CR) Associated Professor of Chinese Studies

Focus group researches and tutors

Researches: Emanuela Proietti / Giovanni Di Gennaro

Date: 8/06/2021 / H: 14.00/15.30

1. (NC) Tutor of Sciences of Education ONLINE
2. (BP) Tutor of Sciences of Education ONLINE
3. (MT) Research fellow in Labor Low
4. (GDS) Phd student in Theory and Research in Education

Focus group administrative staff

Researches: Emanuela Proietti / Bianca Delli Poggi

Date: 11/06/2021 / H:11.30/13.00

Participants: Administrative Staff of the Department of Education

1. (CB) Administrative Responsible of the Department of Education
2. (CM) Officer for payment for student co-operation grants and Erasmus+ grants
3. (FB) Officer for didactic secretariat for relations with teachers and researchers and student guidance services
4. (AC) Officer for internship service for students
5. (VC) Officer for the Didactic Secretariat of the Nursery Educator and Childhood Services Degree Course
6. (IF) Officer for the Didactic Secretariat for the Degree Course in Education Sciences for Educators and Trainers, Conventional Education Sciences and Online Education Sciences
7. (VI) Officer for the Didactic Secretariat for the Degree Course in Education Sciences for Educators and Trainers, Conventional Education Sciences and Online Education Sciences
8. (CF) Officer for the Didactic Secretariat for the Degree Course in Social Service and Sociology