University Instructors' Views on Courses Delivered Online

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Abstract

The health emergency is compelling us to adopt new habits, including education-related practices. Therefore, it may be worth considering targeted teaching strategies and their future development. Current research in e-learning and technology-supported teaching has recently developed in an attempt to identify possible future transformations at all levels of education.

This paper focuses on tertiary-level education and describes a study on educators' views on courses delivered via Moodle during the pandemic and on the most commonly used pedagogical models.

Using a case study on methodology, the author analyses some possible forms of online education, from the most basic, to those implemented through a combination of digital activities and resources, and their application at the University of Urbino (Italy). Data were collected by means of a questionnaire administered to 231 university teachers during the first year of the pandemic.

The findings suggest that there is a good basic tendency to use technology but also inevitable stress that is however combined with an underlying sense of satisfaction. The educators' technological skills, their tools, and the advice offered by the institution appear satisfactory, while students seem to have found some basic difficulties in accessing online lessons. The most commonly used didactic practices are sharing files via Moodle, using web conferencing software and text chats during lessons. Finally, future developments are to be expected as lecturers express their willingness to continue using the same technological resources that they have found most effective during the COVID-19 emergency.

Keywords: Tertiary-level education, Online teaching, Educators' views, Technological resources, Survey

1. Introduction

This contribution is the result of a series of reflections on the situation we are living in today due to the Coronavirus emergency. Instructors, students, parents, journalists, and institutions all over the world have come to realize how technologies play a major role in the educational environment. Now that the health emergency is compelling us to adopt new habits, including education-related ones, it may be worth reflecting on teaching strategies and their future development.

The paper is organized as follows. In the first part, some possible forms of online education are described, from the most basic ones to those which are implemented through the use of a combination of tools, including the learning management system Moodle and the integrated web conference tool Blackboard Collaborate. In the second part, a case study is reported. A survey was conducted among the instructors of our university to detect their reactions towards the massive adoption of technologies. We investigated what main educational models and strategies were used during the pandemic and which results were obtained in terms of satisfaction. Moreover, we wanted to find out whether those technologies would be used again during a new normal phase.

Our hypothesis is that hybrid education will become a new habit for university teachers and students alike and that appropriate pedagogical training will be urgently required.

2. Theoretical Frame

When speaking of e-learning and distance teaching, we often refer to any technology-supported or IT-supported type of learning, in its broadest meaning.

However, within our context, e-learning is not to be understood as a mere synonym of FAD (Note 1) (distance education), but rather as its evolution in how it uses a specific technology, called LMS (Learning Management System), in addition to the Internet. This is an educational platform where students can rely on a plethora of services (such as virtual classrooms, chats, forums, shared virtual boards, notice boards, wikis, etc.) as well as several professional figures within a highly structured environment which strongly promotes a collaborative learning experience. LMS learning is not a self-access or self-training system whereby students can access materials and contents without the instructors' involvement, nor is it self-sufficient independent education, where tutors' guidance may direct one's choices toward prearranged online training courses. In fact, LMS concerns the development of collaborative learning in a virtual environment (Balboni, 2000).

The focus is thus on the 'practice community' (Note 2) among students who build their own knowledge by collaborating on a mutual process using well-structured materials and resources online, and whose final goal is their ongoing learning process and collective improvement. The andragogical reference model (Knowles, 1984) is a constructivist one, centred around the learner who is the main protagonist of his/her own learning process and who, as part of a social context (the web community, in this case), contributes to the development of common and shared knowledge. We will therefore refer to it as formal e-learning, based on a specific program designed by the instructor beforehand, and possibly simplified and made accessible

through the support of web-tutors (Sisti, 2007). This is the so-called 'push' kind of approach, whereby students are 'pushed' toward the course final objectives through a sequence of activities. Hence, the instructor becomes the person who creates all necessary tools, manages, guides, and facilitates the learning experience, which can be readjusted over time according to participants' needs. (Trentin 2001, 2005, 2008).

The specific features of e-learning make it an utterly different educational method from face-to-face teaching (Jewitt, 2005; Jonassen et al., 2013; Kress, 2010; Lopez-Perez et al., 2011; Kaplan, Haenlein, 2016). The absolute individualization of each student's learning pace and place makes this online modality an actual alternative to face-to-face teaching as well as a learning experience that alternates in-person- and remote lessons (blended learning).

Even so, these kinds of courses are not likely to replace traditional ones altogether when one has the choice. As a matter of fact, online courses, albeit more easily accessible from a logistic viewpoint, do not clash at all with face-to-face ones. Students who tend to favour online courses are mostly adults, generally freelance workers, already employed or looking for their first job, and engaged in an ongoing training process. Moreover, as surveys taken by students and teachers prove (Note 3), the lack of real interaction among different actors results in a mutual sense of frustration, thus confirming how the choice of distance learning is basically due to learners' necessity to balance their studies with work and family commitments or by reasons of force majeure, as is the case these days. For all the above, online education should be compared to in-person teaching more in terms of inclusiveness rather than exclusiveness. The first cannot completely replace the latter, but it will without any doubt contribute to a more thorough and diverse educational offer, capable of addressing not only the learning needs of the students on campus, but also those of adult students whose aim is to keep honing their educational background from their workplace.

3. Online Education

We will start with a description of possible forms of online education, from the most basic to the most refined and comprehensive ones.

3.1 Online Frontal Lecturers (Audio or Videotaped)

The instructor is virtually facing his/her class and records or videotapes his/her lesson, which the students will then access as an asynchronous activity.

There are several software programs available for this purpose (Google Classroom, WeSchool, Edmodo, Zoom), many of them with in-built screen-sharing extensions whereby the instructor can be seen by the students, or by providing access to shared slides and virtual boards.

Yet, the use of diversified LMSs might hinder any thoroughly effective assistance and consultancy service as well as any adequate traceability on the part of the institution, which may make students' enrolment in different online courses rather challenging. Besides, these online frontal lecturers usually never exceed 20-30 minute periods (in accordance with the average learner's attention span), in which students try to store as much information as possible by making notes, using outlines, and mind maps.

This kind of lesson is based on the idea of teaching as a transfer of knowledge from expert to student, where any positive outcome is due to the educator's communicative skills more than anything else. Indeed, this modality seems to work perfectly fine in class, where the instructor's pragma-linguistic abilities can make up for students' lack of interest, distraction, or poor understanding. However, it does show some limitations if carried out remotely. On the one hand, students can access all recorded lessons at any time and study their contents at their own pace. By contrast, they cannot ask questions or interact with the instructor, whose only partial feedback will emerge from final assessments, oftentimes detrimentally impacted by very tight time frames and deadlines.

This first educational typology does not provide for any interaction between instructors and students during class periods (at times, self-evaluating quizzes are administered at the end of each lesson), thus penalizing the core of learning, that is, a collaborative approach for all the parties involved. Without their students' feedback, instructors are unable to evaluate their attention level and learning pace, and therefore tend to stick to the course plan to meet all deadlines.

These issues can be partially remedied by transferring online some of the seven phases for a 'successful lesson' theorized by Calvani, 2014:

a) preparation phase (arrangement of materials, anticipation of possible criticalities, clarity of final goals);

b) starting phase (set up the online environment, activate students' prior knowledge, explicit communication of goals to be achieved).

c) introduction to all necessary information and materials for the lesson (possible appropriate communication codes);

d) preparation of a specific phase devoted to the analysis of most recurrent cognitive obstacles and possible learning disabilities;

e) preparation of a wrap-up phase to review all new information and suggest consolidation strategies.

All these actions will definitely make any lesson less tedious. However, to further improve students' engagement with the teaching contents, it may be useful to employ two additional phases as pointed out by Calvani, 2014: 6. The interactive-participatory phase and 7, the evaluating-formative phase through feedback management. To this end, it will be necessary to use an interactive environment (such as Blackboard Collaborate), equipped with a shared virtual whiteboard where both the instructor and the students will be able to write or screen graphs, slides, and mind maps in real-time.

3.2 Lesson Streaming With Shared Videos

Virtual classrooms, like those available on Moodle through the Blackboard Collaborate or the Zoom plug-in, guarantee a higher interaction level. Throughout the lesson period, students can indeed be guided via visual aids (slides or shared boards) whereby the instructor can write and

draw when using tables, outlines, and formulae, or highlight some sections with a laser pointer. Such an option can also be extended to students who would henceforth be able to actively participate. Students' interventions will have to be regulated through a specific policy, even though the system already allows instructors to decide whether they would like students to make use of it or not. Each lecture might include some slides with guiding questions likely to direct the students' comprehension, which they could address both by audio/video modality or text chat. In addition, at the end of each lesson, a final slide with a list of summarizing questions, referring to prefixed objectives, may very well function as guidelines for students toward their final exam and possible future in-depth lessons (as recommended in Calvani's phases 4 and 5).

3.3 Video, Audio, Text Chat, and Forum

All streaming activities will be carried out smoothly thanks to the support of online chats that, in the case of small classes, could be audio or video, while larger classes could use more traditional text chats.

Blackboard Collaborate virtual classrooms enable instructors to make use of several tools, capable of turning any traditional transmission forms into far more productive cognitive experiences. Two different sensory channels will be activated at once, as is the case for frontal lecturers: the visual channel (a screen showing both the instructor's and all participating students' faces, interactive whiteboard, slides) and the auditory channel (student and teacher talks). All four communication skills will therefore be involved: listening/video comprehension, reading (of texts on the screen), speaking (participants' involvement), and writing (text-chat messages and students' notes).

The management of such a complex virtual lesson plan implies a great amount of concentration on the part of the instructor especially when dealing with large classes, as well as great discipline on the part of the students who will have to be immediately instructed on when and how to ask questions and what kind of responses are to be expected. Instructors are free to decide whether to address more than one question at a time, when orbiting around the same topic, or favour those interventions strictly connected to the subject matter at hand.

Deeper and individualized study sessions and reflections on all covered topics can take place at a later time. Further questions, uncertainties, and doubts could be addressed via asynchronous forums shared by the whole class.

The discussion forum is an extremely swift tool as it enables all participants to ask and respond to questions at their own pace. Instructors could rely on it to receive some feedback on any covered topic and decide to address any question upon setting specific time slots for students' inquiries. There might be some recurrent questions that the instructor can clarify for the benefit of all. Some other instructors might prefer to prepare a list of key questions each lesson or provide their students with some controversial issues which need to be tackled.

If needed, participants might be asked to carry out some detailed studies and upload files to be publicly shared. You should in that case be advised of the format extensions (docx, odt, and pdf) and size limitations of files to be uploaded. Unlike the 'Task' tab, where file-sharing

among peers is not allowed, forums prove to be the ideal asynchronous environment for discussions and the exchange of ideas among students, under the instructor's guidance.

3.4 Files, Folders, and Web Resources Upload

Lectures often rely on text materials (essays, articles, slides) and audio/visual files (videos, images, charts, tables, mind maps, etc.), which can be uploaded to online platforms either as folders sorted out by topic or in chronological order. Folders take up less space than web pages and can be zipped for faster downloading. Each folder holds all available files and can be gradually updated as the course advances. Alternatively, the instructor can choose to upload all files at once, making them progressively visible to students, so they can modify or delete them, if needed.

Moreover, teachers can add web resources for further deeper analyses by simply pasting their URLs (Uniform or Universal Resource Locator) on the course site. These are external links to online resources that can be made accessible either by listing them with the rest of the course materials or by opening a new tab. The 'Label' resource on Moodle is especially helpful in how it allows the instructor to add his/her own feedback and/or suggestions to any audio/video/text file. These can also be assembled into one single packet.

3.5 Assignments

The "Assignments" tab, whereby students can submit their individual or group written tasks, is one additional tool that not only makes every lesson more active but also allows students to have a better sense of their understanding, while allowing instructors to receive valuable feedback. Assignments and deadlines can be set at the beginning, and modified later, throughout the course period. All submissions are grouped in one single page screen and can be scanned through the plagiarism detection software "Compilatio," where the instructor can cap the number of similarities, and share the results with the students. Also, assignments can be diversified by dividing users into groups. Each instructor can choose whether s/he wants to evaluate and comment on all submitted work first hand (be it texts directly entered on Moodle or files and media content uploaded to the platform) or distribute the assignments among his/her collaborators. Evaluation (through single grade scales or rubrics) can be carried out online by directly inserting comments or annotations on the assignment itself, or offline, i.e., downloading the assignment file and evaluation sheet which will be subsequently re-uploaded to the platform upon final revision. The evaluation outcomes will be recorded under the course 'grade book' that can be shared with the students. This grader implement holds a record of every participant's evaluation of all completed assignments (home assignments, workshops, wikis, quizzes, forum posts, etc.), and proves to be an extremely useful tool not only to keep track of students' GPA scores but also to check on their participation level.

3.6 Workshops

Should instructors prefer a peer-evaluating modality, they can select the 'Workshop' option, which allows each student to comment on and evaluate one or more submitted assignments from their peers openly or anonymously. This peer evaluation can indeed be highly insightful in some disciplines and concur to develop deeper critical thinking skills as well as autonomous

judgment among all course participants. Instructors will be able to set their own evaluating criteria and share some positive and negative assignment samples.

3.7 Wikis

The term 'Wiki' stands for a swift modality for co-writing by using a browser. This resource enables users to co-create and modify documents on websites. Two or more users can work simultaneously on shared files processing, each from their own workplace, while their trackable actions are being stored in a digital repository. Every user can modify other participants' contributions as if they were brainstorming and working together on-site, each according to his/her own skills, toward the same goals. This resource, available on Moodle, is especially helpful for group projects or differentiated research projects aiming at a unanimous joint enterprise, or more simply for study sessions and the sharing of digital data.

In the field of humanities, this tool is often employed for the creation of short stories, poems, or group booklets. This kind of collaborative writing has quite a few advantages. First and foremost, it encourages peer-to-peer modality, the so-called 'horizontal learning,' regarded by many (Crouch, Mazur, 2001; Topping, 2001) as more motivating and efficacious than teacher-guided 'vertical learning.' As a matter of fact, in peer learning, both the student serving as a tutor (held responsible for his/her guiding role) and the learner (benefitting from a more informal study environment managed by their peer) will increase their self-esteem and hone their background knowledge, study methods, and problem-solving skills.

The Wiki tool can also be applied for note-making and journal writing, possibly through the 'thinking aloud' technique, whereby students can unlock their cognitive processes, express their doubts, and reveal their solving strategies to overcome all possible learning obstacles. Having pairs of students take turns in writing a course logbook can also be good practice for the benefit of absentees, as everyone would have the chance to contribute.

3.8 Glossary and Bibliography

Both these activities can contribute to empowering students' independent learning experience while letting instructors propose, advise on, and guide their educational process.

In some scientific areas, while attending lectures or during one's own study session, it is advisable to consult a glossary of the most common terms pertaining to the professional scientific micro-language of the discipline under consideration or a list of key words and topics. All entries, illustrated with definitions or enclosed images, can be listed in alphabetical order or according to their authors and added dates, and be approved either by default or upon instructors' approvals. One more useful function contemplates linking this in-progress dictionary to the course materials to allow for an immediate consultation. All entries and their definitions, if entered collaboratively by all students, can be peer- or teacher-evaluated, and their results stored in the course grade book.

One further activity, named 'Bibliography,' allows for embedded references to any paper or digital bibliographic resource (such as articles, essays, books, e-books) directly onto Moodle through the EBSCO Curriculum Builder software. This tool links any platform to a search

engine of all bibliographic resources available. Instructors can thence create reading lists (mandatory or optional) for their students by importing the ready-made lists onto their course pages. Students will thus be able to view all bibliographic files and decide to either purchase or download any text with a simple click (if accessible as OA).

3.9 Quizzes and Surveys

The 'Quiz' tool can support instructors in creating objective assessments with multiple-choice questions, true/false questions, drag-and-drop activities, short answer questions (when capping the number of entries and with revision performed through response patterns including wildcard characters), or subjective assessments with open-ended questions (called 'composition') to be assessed by the instructor.

All created questions can thence be saved in banks for future redeployment. Students are granted one or more than one attempt and the order of questions can be the same or randomly sorted, within the instructor's allocated time limit. Objective assessment may vary, consisting in showing the right answers or providing further suggestions and feedback. Instructors' feedback can be immediate and follow each response or be delayed, therefore giving instructors the opportunity to provide students with some feedback along with their final marks. In this case, the evaluation will be automatic and kept in records, whereas all open-ended questions will have to be manually graded.

The 'Quiz' activity can also be employed for mock tests and provide students with a valuable formative self-evaluation instrument or, possibly, for final exams, when the instructor wishes to test their declarative knowledge. Needless to say, there are pros and cons to this modality. One advantage is the gradual creating of a repository of questions and answers to draw from any time, either randomly or in a targeted manner, banking on an extremely convenient autocorrection tool, especially so with large classes. On the other hand, one disadvantage is the limiting reliance on objective assessments, which are not always functional to all courses, especially when students are not only assessed on their notional knowledge, but also on other skills (knowhow…) and competences (open and complex real-life tasks).

Lastly, the 'Survey' activity is another useful tool to gather data from students. Instructors can use it to collect students' reactions to some specific topic being covered or check their comprehension level at any specific point throughout the lesson. This option enables instructors **to** make multiple-choice questions. Students' responses can be made public immediately or at a later time, either anonymously or with the author's name next to each selected option. Surveys could also be carried out during the course, asking for students' opinions on the most and least engrossing topics or having them suggest further topics to cover. The inquiry could in such instances be extended for a longer time frame and the results be at the instructor's discretion.

In order to get all participants' final opinion on the course, however, the 'Feedback' activity may be more suitable in that it allows more freedom in the creation of different question types (multiple-choice, yes/no, open-ended, etc.), available for unauthenticated users as well.

At the end of this general overview of all options offered in an open-source learning management system like Moodle, it might be useful to share some feedback from our instructors and address their most common doubts.

4. The Case Study

In order to collect first impressions and reactions and understand what teaching strategies were mainly adopted to cope with the emergency of massive distance learning, a survey was conducted among the teaching staff of the University of Urbino.

The University teaching staff is composed of more than 300 researchers and professors and 40 foreign language native speaker experts, as well as more than 400 external lecturers. About 1000 courses were attended by over 14,000 students.

During the second semester of the 2019-2020 academic year, due to the government lockdown policy, all face-to-face lessons were moved online. 669 courses were held on Moodle, the learning management system which offered a rich combination of the aforementioned tools, resources, and activities. Between March and May, the platform was able to support around 10,000 users every day, with peaks of 3,000 in the same hour on weekday mornings.

This massive distance learning activity was possible from the very beginning of the pandemic thanks to the fact that the Moodle platform had been used since the end of 2015 for blended courses, and both students and staff were familiar with it. Moreover, in the 2014-2015 academic year, a teaching and learning center (CISDEL (Note 4)) was created to provide advice and support in face-to-face and online activities. Amongst many other activities organized every year, CISDEL offers seminars to acquaint students and instructors with the use of Moodle tools and resources.

Hence, the outbreak of the Covid 19-emergency did not find our university unprepared to quickly switch to e-learning, and all lecturers, due to teach in the second semester, as well as all our students, started to experience this new type of education.

4.1 Method

The present study used both quantitative and qualitative methods to collect and study data. The questionnaire consisted of multiple-choice questions and close-ended questions with a five-point Likert scale response (from 4, strongly agree, to 0, strongly disagree), analyzed via the SPSS software, and alternating with open-ended questions which required further comments from the respondents.

The 25 question items were divided into three major sections: 1. bio-data and student attendance (1-7); 2. general views on technology and personal moods experienced during the pandemic period (8-17); 3. favorite teaching techniques and strategies used in the lessons and hypotheses about their potential use in the future (18-25).

The first set of questions (1-7) was analyzed in terms of average percentages, thus collecting descriptive data about the cross-sectional study respondents. The Likert-scale-based close-ended questions were analyzed according to three methods: 1. Weighted averaging of the

responses; 2. Tree-chart technique showing clustering of responses; 3. Pearson's Chi-squared test detecting significant statistical associations between different respondent groups and their biographical traits. The latter calculation was also used to verify any significant statistical association between the frequency of use of some Moodle tools and the biographical traits of the survey participants.

The questionnaire was administered online using a very versatile survey tool called *LimeSurvey* in the period from 26/03/2020 to 10/8/2020.

231 respondents out of 322 gave complete answers, which were valid for statistical purposes, and which covered 388 courses (many instructors taught more than one course each), with a total coverage rate of 57.99% of the 669 courses provided in the second semester.

To explore the issues participants had to face regarding the emergency of massive distance learning, the following research questions were posed:

1. What is the most widespread mood and view of teachers on digital teaching and the massive use of technology?

2. What teaching practices were most used and preferred during the period of digital teaching?

3. What future developments do teachers envisage in digital teaching?

4.2 Results

From the first group of data, it appears that most of the staff involved are associate professors (71) and adjunct teachers (68) equally distributed between the areas of the Humanities and Sciences (111 instructors in the former and 109 in the latter). Most of the participating staff are aged between 51 and 60 and have more than 15 years of university teaching experience in undergraduate courses (59.2%). 25.16% of them teach small groups of students (less than 20) and 24.84%. medium-sized groups (from 20 to 50). During the emergency period, 43 teachers taught three online programmes, 119 taught two, and 108 taught only one course.

Student attendance in online lessons seems to have dropped compared to previous classroom presence, as the first classroom course (delivered by 270 teachers) has a prevalence (50%) of small to medium-sized groups with a percentage of 17% for groups between 51 and 80 whereas in the first online course (delivered by 258 teachers) the percentage of groups between 51 and 80 dropped to 12% and small and medium-sized ones increased by 10 percentage points (61.8%).

From the second group of data, which investigates staff moods and opinions on technology during the pandemic period, it emerges that 38.60% of the respondents show some concern. A well-balanced percentage of 31.60% said they felt confident, and 14.72 said they felt comfortable. Based on the optional comments left by the instructors, the main factors of concern are the unpredictability of the pandemic, the difficulties related to assessment (exams), delivery of workshops, the lack of students' feedback, and the fear of violating copyright laws in the distribution of online materials. Reasons for confidence and optimism, on the other hand, are those linked to the effectiveness of a system that responded promptly

to the emergency, guaranteeing teaching continuity. Additionally, the hope that this transformation may open interesting new educational paths in the future also emerges from these data.

This positive view of the academic world is also confirmed by the answers to question 9. Most lecturers think that the university will be able to react effectively to the emergency, having the tools to do so and that this tragic experience can be a drive for innovation in the academic world thanks to the contribution of individual lecturers. The role of university instructors is looked at as privileged (87.38% completely or partially agree with this statement) and fundamental to actively contributing to the resolution of the crisis, even if it clearly emerges that overall responsibility cannot be attributed only to teachers. While more than 80% of the respondents think that the public image of university professors will be strengthened, the sample is almost split down the middle on the question of recognition of their efforts and increased workload: 44.59% think they have not been acknowledged, while 35.94% think they have.

Certainly, the suspension of face-to-face courses has aroused a certain degree of concern, which becomes higher especially in view of a possible loss of students' socialization, risk of cognitive impairments, and the ripple effects on their final exam performance. Irrelevant or almost irrelevant factors are, on the other hand, the reduction of holiday periods (83.98% declared to be slightly, or not at all worried), instructional time loss (79.65%), lengthening of the academic calendar (79.22%), loss of teaching continuity (70.13%) and drop in attendance (62.77%). The 39 additional comments collected in question 11 further support the points of view already expressed in the closed questions. Finally, the suspension of Erasmus exchanges also generated some concern, especially concerning the inevitable loss of an important educational opportunity for students (64.50%) and the possible reduction in the number of Erasmus exchanges and European projects receiving funding.

With the group of questions 13-17, we move from the analysis of the general situation to that of the teachers' relationship with technology and their degree of satisfaction with the services offered by the university.

Most teachers (43,29%) claim to feel comfortable, with a certain degree of optimism (31,60%) emerging in their relationship with technology, also backed up by the numerous comments collected. However, in question 17 (how do you feel after a long online learning session?) 47.62% of the respondents describe negative feelings (tired, stressed, exhausted) whereas 39.40% define themselves as satisfied, fulfilled, and motivated.

Almost all the respondents (90.61%) expressed their satisfaction with the guidelines provided by the university, the technical tools made available (83.55%), and the didactic and technical consulting services provided by CISDEL. 85.72% declare they own adequate technological skills and make use of technological tools (84.42%) and connections (mainly ADSL and fiber optics) suitable for digital teaching.

Respondents' perception of students' learning circumstances seems to be different: 80.96% of the teachers consider the digital divide to be an obstacle to the implementation of digital

teaching. This new educational experience, however, will be a legacy for the future of universities in general (for 92.21%) and the University of Urbino in particular (for 60.48%).

Indeed, most of the respondents (68,83%) think that difficulties could be transformed into opportunities, after the emergency.

The last group of questions (18-25) explores the most widespread e-learning activities. As shown by the table below (table 1), the practice of streaming lessons prevails (92.21%), as does the sharing of materials on the Moodle platform (75.76%), with 41.56% resorting to more interactive tools. Less reference is made to textbooks and the use of instant messaging systems.

18. With regards to the course you will be teaching in the second semester, what e-learning activities are you organizing during this period of suspension of face-to-face lessons?

Table 1. Question 18: the most widespread e-learning activities

I assign textbook activities via the University's Moodle platform	34	14.72%
I share additional learning materials via the University's Moodle platform.	175	75.76%
I deliver streaming video lessons (using Blackboard Collaborate).	213	92.21%
I also use social networks for educational purposes (Facebook, Instagram, Twitter, etc.).	15	6.49%
I also use instant messaging applications for educational purposes (Whatsapp, Telegram, Signal, Facebook Messenger, etc.).	34	14.72%
I carry out interactive online activities with my students (audio/video chat, exercises, wiki, etc... in Moodle).	96	41.56%
Others	21	9.09%

These teaching practices are confirmed by the frequency of use of the related Moodle resources and activities which, with the sole exception of *assignments*, *quizzes*, *bookings,* and above all *glossary* and *wiki*, were employed at least once by almost all teachers.

By far, the most employed ones were "uploading files to Moodle" (80.95% did it 4 or more times per month), "blackboard/screen/slide sharing in Blackboard Collaborate" (79.65%), followed by text chats (72.73%), video chats (44.16%) and forums (40.26%).

The same order is reflected in the degrees of preference of individual resources, with the only exception of web resources (audiovisual files and URLs) which seem to be used little, yet with a good level of satisfaction (chosen by 75.97%, adding answers 4 and 5 on the scale of

satisfaction from 1 to 5). Finally, by investigating the main reasons given for these preferences, it emerges that the resource considered most useful from a teaching point of view was whiteboard/screen sharing on BC (by 74.03% of respondents), which was also considered easy to use (44.16%), almost as easy as text chats (45.59%), regarded as the easiest of all. For learning purposes, the one with the highest percentage was uploading files to Moodle (63.20%). The resource that received the highest percentage of appraisal for its organizational usefulness was the forum tool (43.72%), while the video chat was the most appreciated one for promoting interaction and collaborative activities with students and colleagues. Very low percentages of respondents expressed a rating of 3 or higher (on the scale of satisfaction) for the other resources in Moodle.

These preferences for the many different resources on Moodle reflect a new attitude towards e-learning, as can be seen from question 22 in which 36.80% of the respondents assert to have increased their previously low appreciation for e-learning. As a matter of fact, before the pandemic, most respondents (51.52%) had a low appreciation for digital education, which has remained so for 9.09% and has even decreased for 5.63% of teachers.

But how will this scenario develop in the future when things eventually return to normal? The answer to the question "Do you think that in the future you will use technological aids again for your courses?" was positive for 75.32% of the participants, but hesitant for 22.08% of them, who opted for "don't know" as an answer. The resources participants say they will keep employing in the future reflect the order of appreciation and frequency of use recorded for this pandemic period, namely: BC (including text and audio/video chats) platform file uploading, forums, and web resources.

A few significant correlations among all variables were detected when moving from a qualitative analysis of measured responses to a statistical survey. The application of tree-chart structures enabled us to verify which close-ended Likert-scale responses showed the same features, thus clustering together, and how the respondents themselves would cluster together accordingly. The respondent clusters did oftentimes correspond to specific categories of instructors.

By analyzing questions 9 and 10, for instance, the tree-chart structure reveals three main question clusters: 1. Statements affirming concern for repercussions on instructors and students deriving from distance learning; 2. Instructors' concerns for their own courses; 3. Positive attitudes.

From the analysis of clustering in these three instances, three categories of instructors emerge: 1. Those showing greater agreement on positive statements (higher scores) and lower values on negative stances (106 units); 2. Those who placed halfway between the two profiles in terms of score (89 units); 3. Those showing greater agreement on negative statements (31). Upon examining whether the participants' belonging to groups 1, 2, or 3 was due to one specific common characteristic (Chi-squared test), the p-value analysis reveals that all the instructors are three-year degree course professors. Most group 3 members do indeed hold first-level courses.

The same statistical study of ascending hierarchical classification was conducted on all questions, bringing to light some relevant aspects. With regards to technology tools and remote teaching (questions 14 and 16), the instructors fall into four groups: 1. Those showing an utterly positive attitude towards the whole situation (121 units); 2. Those positive towards most assertions (71); 3. Those extremely critical of the whole situation (41); 4. Those generally positive yet experiencing some technology-related problems (4).

Three clusters emerge on the use of Moodle tools and activities (question 18): 1. Those only delivering streaming video lessons (41); 2. Those who also share files and slides on the platform (167); 3. Those employing more sophisticated interactive tools and applications (such as chats, forums, wikis).

Moreover, a Pearson's Chi-squared test of goodness of fit was conducted to verify whether distance-learning appreciation and the use of some Moodle activities can be linked to the instructors' age groups. The test statistics employed have recorded a significant statistical link between the instructors' age group and the use of two specific Moodle activities: a) forums, and b) quizzes. Regarding the first, the actual number of instructors aged between 30 and 40 years (n.6) who seem to use this tool 4 or more times a month is indeed significantly lower than expected (n.11), with a residual standard of -2.3 (p <0,05). Instructors aged between 30 and 40 years, supposedly with higher digital expertise, seem not to use the forum tool so assiduously.

One statistically meaningful discrepancy encompasses the number of instructors who declared never to use forums. In this case, the age groups concerned are a) those aged between 50 and 60 (actual number = 7; expected number = 14,2; adapted residual standard = -2,6, p< 5,05), and b) those aged over 60 (actual number = 18; expected number = 10; adapted residual standard = 3,2, p< 0,05). These data record the non-use of the forum tool by instructors aged over 50. However, it cannot be assumed that the use of this tool is only ascribable to instructor age.

When it comes to the quiz tool, a significant relation was recorded between the instructors declaring to have used it less than once or never at all. The age groups concerned are younger instructors (30-40 years of age) and older instructors aged over 60. The total number of younger instructors who have used the quiz tool less than once (actual number = 5) is significantly higher than expected (1,8) with an adapted residual standard equal to 2,7 (p < 0,05), while the actual number of older instructors is significantly lower than expected (expected number = 2,7), with an adapted residual standard equal to -1,9 (p < 0,05). At the same time, the number of instructors aged over 60 who claimed never to have used the quiz tool is significantly higher than expected (actual number = 42, expected number = 35,7), with an adapted residual standard equal to 2,6 (p < 0,05). It is the younger instructors, albeit with little continuity, who used the quiz tool more consistently, while those over 60 years of age chose not to.

The Pearson's Chi-squared test has recorded a significant statistical association between the instructors' age group and the approval for distance-teaching ($\chi^2_{(gl=20)}$ = 34,732, p<0,022). A significant discrepancy between the number of instructors claiming to "have increased their already high appreciation" was recorded among the number of instructors aged under 30 and over 60 years. If in the first case the effect is rather positive (actual number = 1, expected

number = 0,2, adapted residual standard = 2,1, p< 0,05), while it seems to be negative in the second instance, in how the actual number of instructors (4) is lower than expected (8,4; adapted residual standard = 1,9, p< 0,05). The negative impact of distance learning is confirmed by the number of instructors aged between 30 and 40 years who declared to have decreased their prior high appreciation; the actual number of these instructors (3) is significantly higher than expected (1), with an adapted residual standard of 2,2 (p< 0,05). One further significant association is recorded among those instructors who have changed their level of satisfaction. In particular, the already high level of satisfaction did not change among the instructors aged between 30 and 40 years. The actual number of instructors in this category is significantly higher (12) than expected (7,5), with an adapted residual standard of 2 (p< 0,05). The number of instructors who seem not to have changed their already low level of satisfaction is notably different than expected for those belonging to the age group between 40 and 50 years, as well as those aged over 60. If the actual number of instructors belonging to the first group is significantly lower than expected (actual number = 1; expected number =5,6; adapted residual standard = 2,4 p< 0,05), the latter group records a significantly higher number than expected (actual number = 10; expected number = 4; adapted residual standard = 3,5 p< 0,05). We can therefore conclude that only the instructors under 30 years have further increased their already high level of satisfaction. The remaining age groups seem to have been negatively affected by distance-teaching practices: the appreciation for remote teaching shows some increase in very few instructors over 60 years old and little to no increase among instructors aged between 30 and 40. In addition, the number of instructors aged 40 to 50 is significantly low who assert not to have changed their already quite low appreciation, the same datum being notably high among instructors over 60 whose level of appreciation remained unchanged.

5. Discussion

To sum up, in light of our research questions, the data show that, with the advent of e-learning, there was a certain reduction in student attendance. However, this may be due to the perception of teachers who tend to recall larger groups in the classroom or underestimate those online because they are less noticeable. Since there is no objective data on student face-to-face attendance as it is not usually recorded, both hypotheses must be considered.

As far as the lecturers' mood is concerned, they seem to be half-worried and half-confident.

Teachers of first-level courses seem to be most concerned, and understandably so, due to their larger classes, which are not so easy to manage online, and to the lower average age of their students, who are yet to become accustomed to university dynamics.

The prestige of our university is confirmed by these data, and the role of teachers appears to be privileged, even if not always sufficiently valued for its fundamental functions during the time of the pandemic. Looking more in detail at the main sources of concern, what emerges is, respectively, lack of social interaction, possible repercussions on final exams, and difficulties for students with disabilities, followed by the inexorable lack of the Erasmus experience.

In general, there is a good basic tendency to using technology, but also inevitable stress that is, however, combined with an underlying satisfaction. Of the 58 comments provided, 13 highlight only positive aspects, 28 only critical aspects, and 17 highlight both pros and cons.

All in all, the picture that emerges portrays the university staff showing a distinct sense of belonging to their institution and accountability towards their students, according to everyone's technological and teaching skills.

The instructors' IT know-how, along with the technological equipment and advice offered by the institution, appear satisfactory, while a certain basic difficulty for students in accessing online lessons does come to light.

The most commonly used educational practice, which is also the most popular one, is the uploading of files in Moodle, followed by the use of Blackboard Collaborate for sharing slides during lessons and, in third place, the use of text chats. The first practice is preferred for learning purposes, the second is valued from a more specific teaching point of view, and the third one is considered the easiest to use.

Finally, considering that 55.85% of the academic staff stated they have increased their appreciation of technology, positive future developments are to be expected, with lecturers continuing to use technology in their lessons, and maintaining the same resources they favored during the pandemic.

6. Conclusion

This study basically confirms the same findings emerging from several surveys conducted in other universities across the country (Note 5). Based on these end results and initial research questions, the following conclusions can be drawn.

This emergency period has forced many instructors to switch to online teaching with the advantage of creating a ready-to-use, well-structured comprehensive course package, available for future non-attending and extended-plan students.

At the same time, all uploaded materials, recorded video lessons, and chats can be conveniently used by students to make up for missed exams and support those who cannot attend courses in person.

By the time we get back to normal, this experience will have affected our teaching methodology. Thanks to all our newly acquired skills we will feel more comfortable dealing with technology and will be able to enrich frontal lessons with already structured paralleled online activities, with greater confidence and less waste of time and energy.

We will indeed save time by offering already structured or in-progress *bibliographies and glossaries*. We will be able to collect written assignments in an orderly way and by scheduled deadlines (*Assignments, Wikis, Workshops*). We will be able to receive constant feedback (through *Surveys and Forums*), thus helping our students with their self-assessment through *quizzes*, prepared over time and accessible anytime in the future. All of this without abstaining from physical contact, nor depriving us of interested or bored looks on students'

faces, their intelligent or funny expressions, their jokes, their light spirits, and commitment, which we teachers value so much.

Furthermore, we must consider that the challenge we had to face has also offered us a unique opportunity to reflect on teaching methodologies in addition to disciplinary content and place the student at the center of the learning/teaching process.

Since the present research is based on a small sample of respondents due to the size and enrollment figures of our university, the findings of this project could be further developed and complemented by future studies. First of all, it needs to be stated that we might have obtained different results, had our institution been more flexible in imposing the use of Moodle on all faculty staff. Besides, this paper focuses on data from instructors due to space constraints, while data collected on student impressions and moods will be analyzed in future research. One additional aspect we might need to consider in the future is classroom observation in order to unveil real teaching performance and actual use of IT in the post-pandemic period. Finally, to gauge student learning outcomes, we could collect data on their successful performance in exams prepared through online education to be compared with test score data recorded in pre-pandemic education.

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Notes

Note 1. FAD is the Italian acronym for Formazione a Distanza

Note 2. The phrase 'practice community,' first introduced by Étienne Wenger (1998), refers to both Pierre Lévy's collective intelligence theories (1998) and De Kerckhove's studies (1993, 1997) on connective intelligence.

Note 3. A parallel study conducted on a group of students from the University of Urbino will be discussed in a forthcoming paper. F. Sisti, "University students' views on courses delivered via online," (in print).

Note 4. CISDEL is the Italian acronym that stands for Centro Integrato di Servizi Didattici ed E-learning (integrated centre of didactic and e-learning services).

Note 5. Università La Sapienza, Roma: https://www.uniroma1.it/it/pagina/valutazione-della-didattica-distanza ; Università di Milano Bicocca: https://www.unimib.it/news/survey-ricerca-dare-valore-allemergenza ; Università di Roma 3: https://economiaziendale.uniroma3.it/wp-content/uploads/sites/9/file_locked/2020/11/WP12-LA-DIDATTICA-A-DISTANZA-AI-TEMPI-DEL-COVID-19-IL-PUNTO-DI-VISTA-DEI-DOCENTI-E-DEGLI-STUDENTI-UNIVERSITARI.pdf; Università di Bologna https://oaj.fupress.net/index.php/med/article/download/8979/9014/ ; Università di Torino e

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