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What kind of teaching in the post-digital era? The challenges of schools and universities after the pandemic: An explorative survey at University of Bari Aldo Moro[1]

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Abstract

All around the world, schools and universities should re-think and update teaching to adjust to technological changes and exploit their potentialities by means of hybrid teaching (Limone, 2013). Considering teaching in presence as absolutely good and online teaching as bad and necessary only during the pandemic is ideological, reductive and wrong (Ferri, Moriggi, 2018). If properly used in an ad-hoc pedagogical approach, technology represents an opportunity for students (Bonaiuti, Dipace, 2021), who can participate in training and updating processes and better adapt to changes. The long and complex post-pandemic period should allow the experimentation of a better integration between teaching in the classroom and technologically 'augmented' teaching. The process of digitalisation and methodological innovation should become permanent, as suggested in Mission number 4 – Education and Research of the NPRR. This was the starting point for an explorative survey (Lucisano, Salerni, 2002) conducted with 400 students of the University of Bari in order to research their challenges and levels of satisfaction with the online courses attended in the a.a. 2020/2021. The survey shows the difficulties with distance teaching and presents an overview on possible future blended approaches.

Keywords: *Blended learning, University, technology, effective teaching.*

1. What kind of teaching in the post-digital era?

The lockdowns due to the Covid-19 pandemic have accelerated digitalisation and the implementation of technologies in educational processes. Both UNESCO and the World Bank have created two dashboards to monitor the effects of the policies introduced in schools and universities in order to prevent Covid-19 spread and try to protect more than one billion students around the world. According to a survey promoted by UNESCO, most of the 61 monitored countries turned to online didactics; digital platforms have been widely used in teaching, though at different levels of expertise and knowledge of e-learning resources. In Italy, the results from the most recent national survey on student achievement (Invalsi) during online teaching are to be considered with caution, because without an effective model for designing teaching in online learning environments, most teachers have simply reproduced their class activities on a screen. On the contrary, if properly used, technologies can motivate students and favour the achievement of better results. Indeed, it is necessary to get rid of an ingenuous approach based on technological determinism (Bonaiuti, Dipace, 2021); if properly used within an ad-hoc pedagogical approach, technologies can provide students with opportunities of training, updating and adapting to changes. All over the world, schools and universities should re-think and update teaching to adjust to technological changes and exploit their potentialities by means of hybrid teaching (Limone, 2013). Even learning analytics can provide interesting data on the development of the preceding school and university years. Hence, if included within effective didactic strategies, technologies can contribute to the improvement of traditional learning procedures without limiting the learning practices (Jung, 2005). Considering teaching in presence as absolutely good and online teaching as bad and necessary only during the pandemic is ideological, reductive and wrong (Ferri, Moriggi, 2018). And the best solution is not to have at the same time half students in presence and half at home, on a Zoom platform, and call this a 'hybrid approach'. The long and complex post-pandemic period should allow the experimentation of a better integration between teaching in the classroom and technologically 'augmented' teaching. The process of digitalisation and methodological

[1] Alberto Fornasari wrote paragraph 1, Matteo Conte wrote paragraphs 2 and 3.

innovation should become permanent, as suggested in Mission number 4 – Education and Research of the National Plan for Restart and Resilience by Mario Draghi. At school and university, the post-covid era should be based on both presence and distance teaching. The two approaches should alternate in a diachronic – and not in a synchronic – way. According to Paolo Ferri, 'teachers can start and follow their activities in presence and allow their students, also after the pandemic, to stay at home and develop their projects in online learning environments as shown in the cooperative learning or in the project-based learning approaches. Their achievements could be followed and assessed by the teacher either in presence or online; or they could be presented in the classroom by the students themselves' (Ferri, Moriggi, 2018). Technologies can enlarge learning opportunities; they cannot be used simply to produce video lessons that replicate lessons in the classroom. Learning can be personalised; teaching can be individualised by means of teaching tools that support microlearning and opportunities of situated learning that favour inclusiveness (Rivoltella, 2013). What should be clear now is that after the pandemic, schools and universities will have to change; the challenges and reflections that the pandemic has stimulated will have to merge in a school and university reform. The experience of the last two years must not be lost. Though not adequately trained on innovative teaching and technologies for learning, school teachers and university professors experienced augmented teaching through the use of digital tools such as online group activities, just-in-time tests (Mentimeter o Kahoot), flipped classrooms, and everyday use of online learning environments (Rivoltella, 2020). This experience needs to be capitalised and sytematised, and what schools and universities experienced in the last two years must become the pre-condition for accepting new digital languages (Stensaker & others, 2007) and reduce frontal and transmissive teaching, which already John Dewey and Maria Montessori condemned in favour of pedagogical activism. It would be much more effective to use alternative and laboratory approaches, as inquiry-based learning or problem solving; this is the only way to live and understand in a critical and conscious way our technologically hybridised world (Ranieri, 2020). Further, learning analytics allow us to obtain an impressive amount of data on the strengths and weaknesses of the teaching practices of the last two years. This was the starting point for an explorative survey (Lucisano, Salerni, 2002) conducted with 400 students of the University of Bari in order to research their challenges and levels of satisfaction with the online courses attended in the a.a. 2020/2021, during the university lockdown due to the Covid-19 pandemic.

2. Students' perception: an explorative survey at University of Bari Aldo Moro

In this exploratory quantitative descriptive survey, an 18-multiple-choice questionnaire was administered to 400 students selected among the students of the 2nd year of the course in Educational Studies and of the 3rd year of the course in Communication Studies, both at the Department of Education, Psychology, Communication of the University of Bari Aldo Moro. In order to be selected, students were required to: a) be enrolled in the II and III years in the a.a. 2020/2021 or to have participated in online teaching during the second semester; b) be able to fill in the questionnaire online; c) voluntarily accept to participate. Literature and consultation with experts were the two sources for constructing the questionnaire: a review of the scientific literature provided a theoretical focus on the factors that favour and/or hinder the effectiveness of online teaching, whereas brainstorming with experts provided an informed discussion on the theory. After these two steps, the questionnaire was finalised and administered.

The main variables that have been considered concern students' sociographic features, their motivation, relationships with professors, strengths and weaknesses of distance teaching, feedback, the use of technology in teaching and their perceived effectiveness. The questionnaire, produced with Google modules, was sent to the students in July 2020 at the end of the examination session. The results are shown below.

After a short analysis of the sociographic characteristics of the participants (276 female and 124 male students, all living in Puglia), the first question focused on the levels of satisfaction and motivation in attending online lessons.

As shown in the following graphic, for 67% of the students, the level of motivation is 3 or more (on a scale from 1, *low*, to 5, *very high*); aggregated data say that 26% are very highly motivated, 33% have low motivation, whereas the remaining 41% are moderately motivated. A figure that differs from the average recorded by the study carried out by the DRC - Disability Research Centre of UNINT - University of Rome, where motivation to study in this period appears to have decreased in 42.7% of cases.

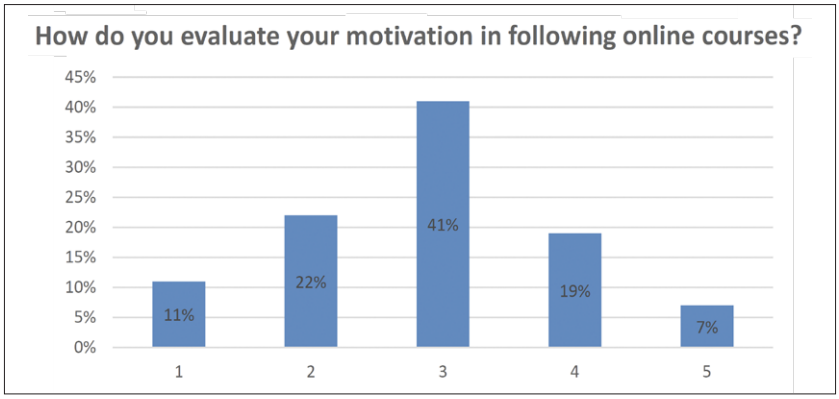


Fig. 1. Motivation in following online courses.

Interaction among students was one of the key elements for supporting and encouraging motivation that, according to students, has not been properly stimulated. Among the elements that could have enhanced motivation are: less study load (29%), more interactions among students (26%), laboratory activities (17%) and more interactions with professors (13%).

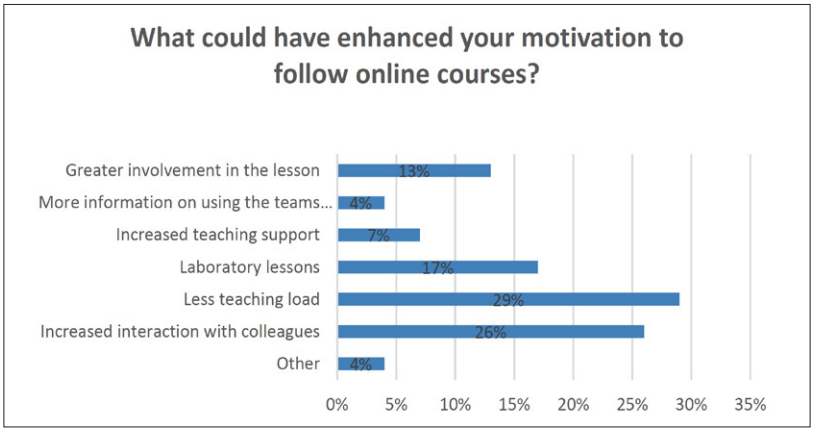


Fig. 2. What could have enhanced your motivation to follow online courses?

Negative aspects of distance teaching: the main difficulty is due to unstable internet connection (32%), followed by devices (21%) – probably not all of the students owned devices that could enable them to follow the courses, and concentration problems (15%). Difficulties are also due to low interactions (13%) and time management (9%).

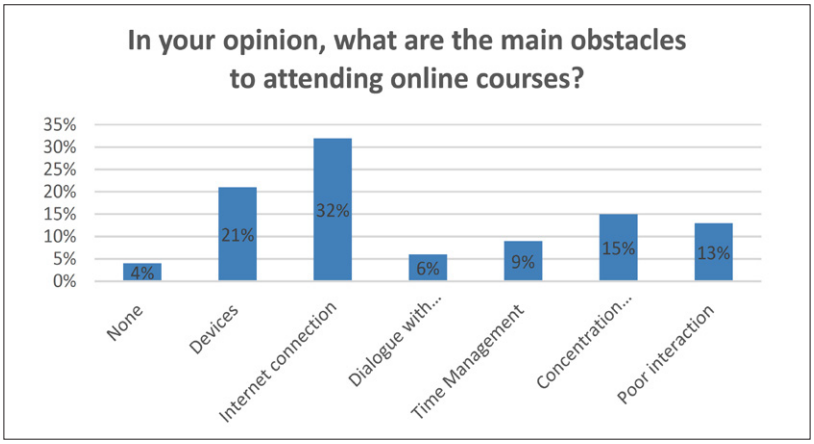


Fig. 3. Main obstacles to attending online courses

Accessibility (29%) and availability of study materials (19%) seem to be the main strengths of distance teaching and learning; 16% of the participants think that distance teaching and learning make the student more autonomous, also thanks to laboratory activities (10%). An extremely important point concerns time management (18%), probably because students were able to reduce the time needed to reach university, especially off-site students.

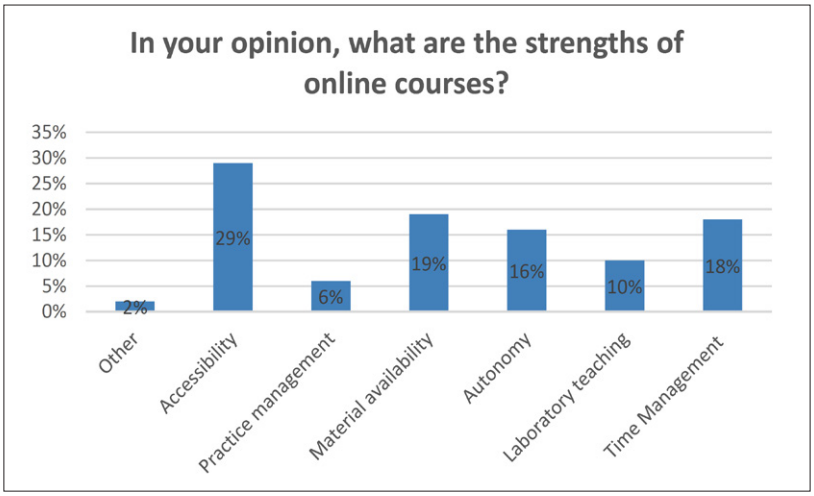


Fig. 4. What are the strengths of online courses?

As shown in the graphic below, among the most effective teaching activities are live video lessons (21%), group discussions (17%), laboratory activities (16%), sharing of handouts (14%) and ways of studying autonomously (11%). Among the less effective are case studies on a given topic (8%), questionnaires and tests (4%), watching movies (4%), tasks to be performed in the classroom (3%) and others (2%).

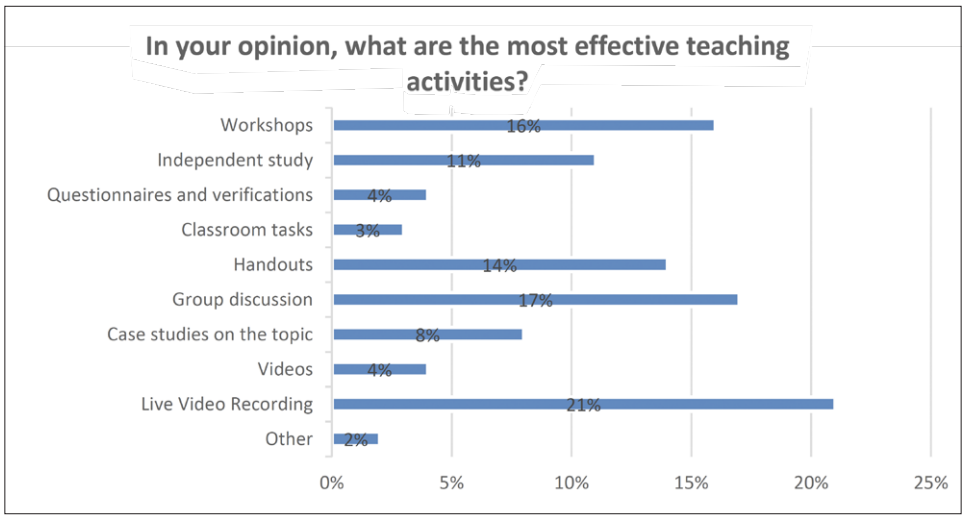


Fig. 5. What are the most effective teaching teaching activites?

Students were also invited to evaluate interactions with their professors; aggregated data show that for 31.1% of participants, the interactions were excellent/very good, 54.4% were good/right, while 14.5% were poor/very poor. In this regard, it emerges from a research conducted by Parole O_Stili and Istituto Toniolo on over 3,500 secondary school students and about 2,000 primary and secondary school teachers that one student in four has suffered a worsening of the relationship and dialogue with the teacher. Despite the different levels of education, the "relational distance" that the pandemic situation has generated is confirmed.

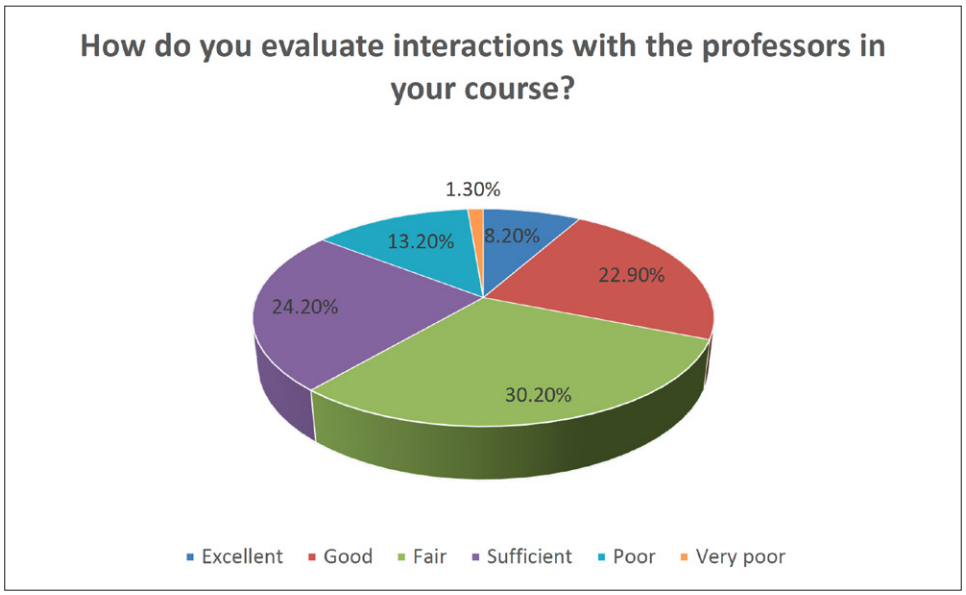


Fig. 6. How do you evaluate interactions with the professors in your course?

Students were then called to express themselves on a list of questions and statements followed by a 5-point scale: completely agree, agree, partially agree, disagree, completely disagree.

72% of the respondents say that feedback from the professors is fundamental, whereas 24% completely disagree and only 4% disagree. This result enphasises the importance of feedback since, as stated by Ianes (2010), much is learnt through feedback, both in distance learning and in presence. If feedback is properly managed, it can help optimise learning and the development of student potentialities. In this regard, since 1998, the two British scientists Paul Black and Dylan Wiliam carried out a research project - Inside the Black Box - from which it emerged that feedback along with formative assessment are the elements that positively influence learning and teaching processes. In their original definition, feedback serves to regulate ongoing teaching and learning to improve student achievement of expected school goals. An element that turns out to be fundamental for most of the students in our study as well.

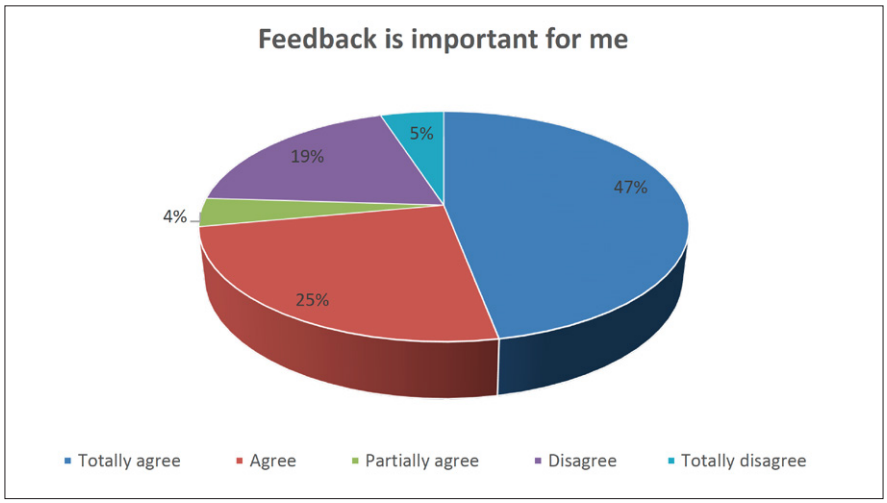


Fig. 7. Importance of feedback

Aggregated data show that commitment during online lessons increased in 39.2% of the respondents but did not increase in 38% of them. 22.8% of the students partially agree with this statement.

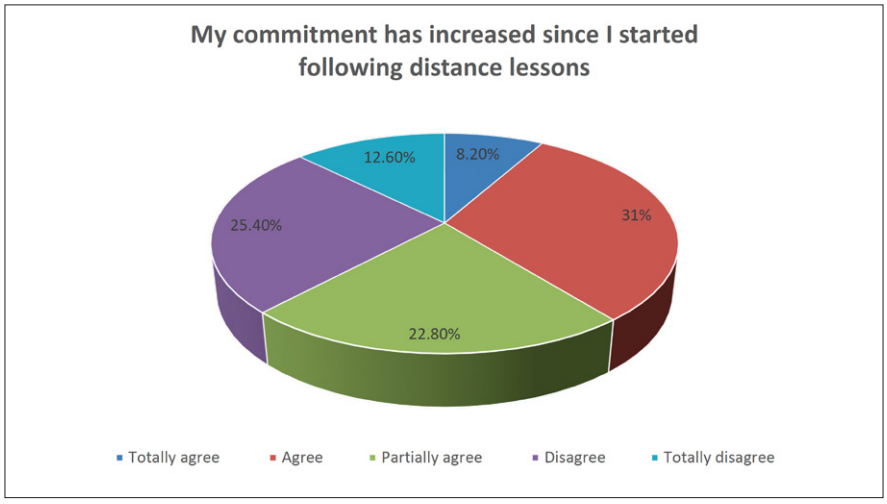


Fig. 8. My commitment has increased since I started following distance lessons

74.8% of the students disagree or completely disagree with this statement, whereas only 8.2% agree and 17% partially agree. As we know, cooperative learning can be an important approach to development on a learning environment in which interaction is highly encouraged: beside individual elaboration and assessment, lessons can be developed through several group activities that contribute to enhance dialogue and mediation among class mates.

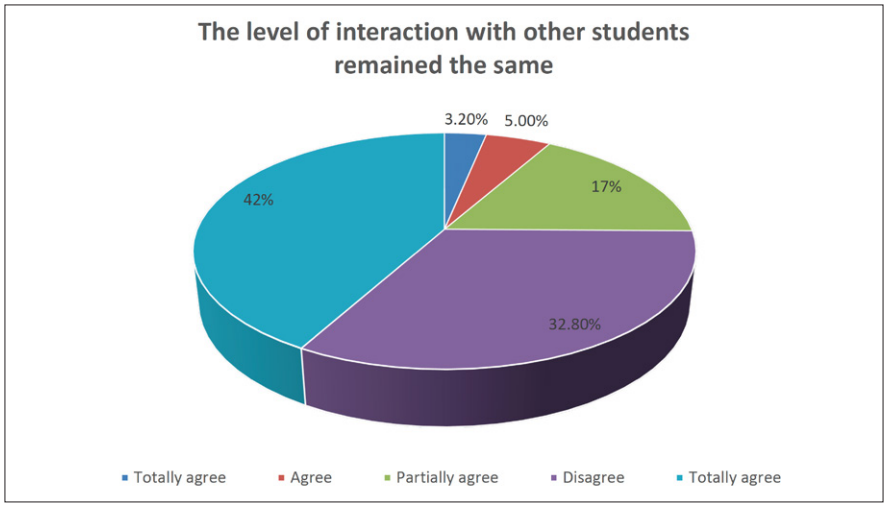


Fig. 9. Level of interaction with other students remained the same

Aggregated data also reveal that 70% of the students consider the effectiveness of distance teaching and learning excellent/very good; 3% say it was poor/very poor and 28% consider effectiveness of the online teaching activities good/fair.

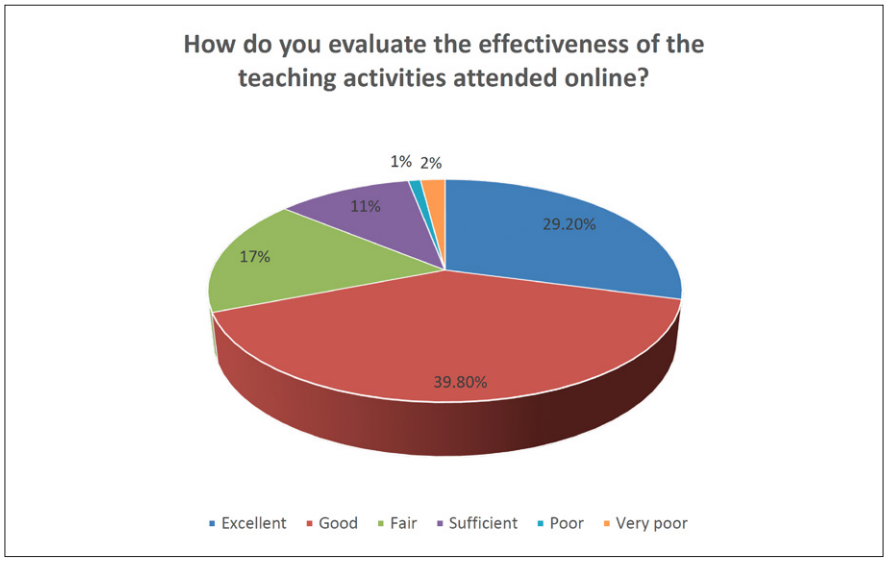


Fig. 10. How do you evaluate the effectiveness of the teaching activities attended online

At the end of the survey, students were asked to select the teaching approach they preferred. The answers, roughly divided into three groups, are represented in the graphic below, which shows that 34.8% choose distance teaching and learning, 33.7% prefer a hybrid approach and 31.5 the traditional approach. As for the latter, it would be interesting to research, by means of qualitative tools, the reasons for this choice – an activity that the research team will do in the future.

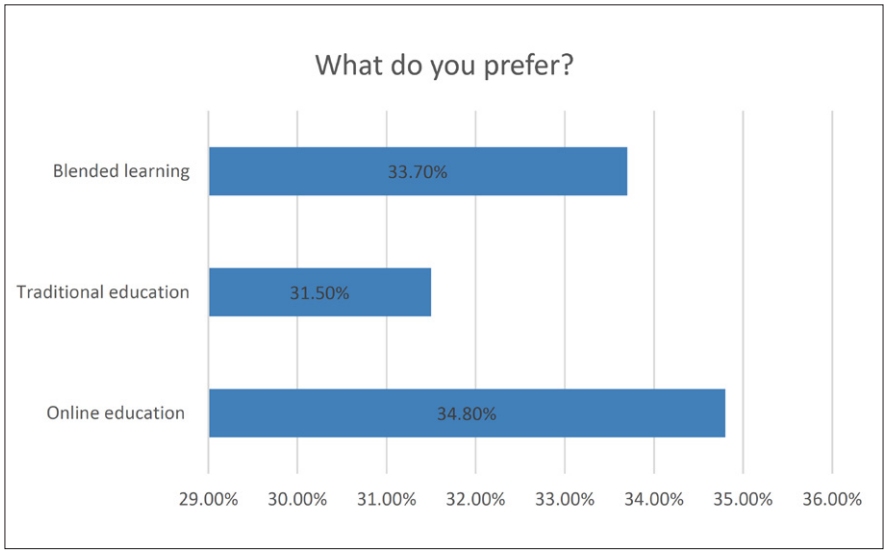


Fig. 11. Preferences

3. Conclusions

The debate on the use of technologies in university teaching is becoming increasingly important. The sanitary emergency due to the Covid-19 pandemic emphasised the need for a reorganisation of the space and time for learning. This requires a reflection on those educational environments where teaching and learning are independent from the presence of teachers and students (Guelfi, Shahaj, 2011). It is in this context that the importance of e-learning in education and training realities emerged, where the student is no longer a 'recipient', but a 'manipulator' of knowledge itself. This passage implies different approaches, especially a passage from transmissive teaching to learning based on construction and processes. The so-called blended learning is always more frequent as it integrates traditional approaches to teaching with innovative e-learning techniques. This teaching-learning process emphasizes the presence-distance dynamic that is at the basis of many instructional contexts.

As stated above, learning in a blended course does not mean that half of the students are in presence and the other half at home, following from a platform; rather, it requires applying the pedagogical models supporting this area of study.

A blended course can be broken down into three steps: it starts with lessons in presence; then students are encouraged to increase their learning using digital platforms; finally, it focuses on the 'learning community', that is a kind of learning based on confrontation among the stakeholders involved in the learning process.

Therefore, blended learning as just described can coincide with the concept of *complex learning*, a way of active learning aiming at *empowering the learner* through a continuous activity (Ferri, 2005; Nacamulli, 2003). In addition, from an organizational point of view not only does blended learning integrate didactic activities in presence and at a distance but it also exploits a variety of communication codes and favours the exchange of knowledge with people outside the organisation. However, the crucial aspect of this teaching system is represented by the design phase: for this model to be functional, a refined expertise is necessary in order to integrate different elements to produce effective methodologies that stimulate learning.

As stated by Limone (2021, p. 61), in a future, post-Covid perspective, it will be necessary to move from a face-to-face approach to a mixed (or hybrid) learning strategy based on flexibility, accessibility and collaboration. Online teaching can improve its quality – Limone says – by organising small group activities and ad-hoc monitoring, and among these activities, peer evaluation becomes indispensable.

It is clear that such an optimal condition in a blended course can be reached only after an appropriate methodological (and docimological) training and the development of a new *forma mentis* in teachers. Indeed, not all schools and universities are ready to face innovative teaching and learning modalities: in many cases, teachers asked to experiment new teaching methodologies simply transfer their contents on a platform and keep the same communication modality as the one used in frontal lessons.

Hence, the future challenge is represented by the choices that the whole world of education will be able to make for the post-pandemic era. If the innovative teaching practices just experienced will be valorised, and if we will not give in to the nostalgia of traditional approaches that go badly with the digital rationality of our students (Conte, 2021, p. 140), then we will be able to support teaching and learning approaches that can take place also outside the classroom and that are more effective in stimulating both critical and collaborative skills in learning and incisiveness in teaching.

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