

SOSTENIBILITÀ DELL'E-LEARNING, UN APPROCCIO ECOLOGICO ALLA DAD

E-LEARNING SUSTAINABILITY, AN “ECOLOGICAL” APPROACH TO DISTANCE LEARNING IN SCHOOLS

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Abstract

This contribution is a reflection on the main aspects of the sustainability of online teaching, a theme that has assumed particular relevance in the acute phase of the Covid-19 emergency but which, having a more transversal value, maintains its significance even in blended or face-to-face teaching. Below we will try to tackle the theme of teaching sustainability by examining the three levels that characterize teaching: course design, practice and evaluation (Castoldi 2010). Each plan is examined in relation to four categories which in the context of the emergency have assumed particular importance: frameworks, times, technologies and skills.

Il presente contributo rappresenta uno stimolo alla riflessione sugli aspetti principali che riguardano la sostenibilità della didattica online, un tema che ha assunto una rilevanza particolare nella fase acuta dell'emergenza Covid-19 ma che, avendo una valenza più trasversale, mantiene la sua significatività anche quando si imposta una didattica mista o in presenza. Di seguito proveremo ad affrontare il tema della sostenibilità della didattica prendendo in esame i tre piani che la caratterizzano: la progettazione, la pratica e la valutazione. Ciascun piano viene esaminato in relazione a quattro categorie che nel contesto dell'emergenza hanno assunto particolare importanza: i contesti, i tempi, le tecnologie e le competenze.

Keywords

Learning sustainability, learning design, teaching practice, learning assessment, e-learning
Apprendimento Sostenibile, Progettazione Dell'apprendimento, Pratica Dell'insegnamento,
Valutazione Dell'apprendimento, E-Learning.

Introduction

First of all, let's begin with a definition of sustainability. Originally the issue was related mainly to the ecological problems, paying particular attention to the issue of the environment and consumption patterns. In recent years, the concept of sustainability has assumed wider dimensions, also referring to the social dimension and, more generally, to the quality of life of people (Moore et al. 2017).

In our discussion, the issue of sustainability refers to the ability of the family-school system to support distance learning, especially in the situation dictated by the emergency, what with a view to strengthening the teaching. It is therefore to be considered that the potential models and content, despite being implemented in an emergency situation, can also be suitable in teaching and learning after the emergency.

The focus is on the way learning design, teaching practice and learning assessment can adapt to the different framework, timing, skills and technologies that characterize the Covid-19 emergency in schools. With a special emphasis to the new relationships among teachers, students and families.

To better understand the starting scenario, let's start with some data provided by the ISTAT Citizens and ICT 2019 report (ISTAT, Citizens and ICT, Report 2019), a document that was released on December 18, 2019, just before the outbreak of the emergency. From report it emerges that 74.7% of Italian families have a broadband connection, a percentage that reaches 78% in metropolitan areas; while we have a good diffusion in the major urban centers, in some provincial areas the diffusion drops to about 68%. This is still a fairly high penetration rate if we think about the orographic characteristics of our country. Again on the basis of the data released, we can say that: approximately 67.9% of the population over the age of six potentially has access to the internet; about 29% of internet users between 16 and 64 years of age declare that they have high digital skills (the report refers to DIGICOMP, Framework for Developing and Understanding Digital Competence, adopted by the European Commission since 2013); among young people between the ages of 20 and 24, the percentage of those who claim to have high digital skills reaches 45%. We have therefore an overall positive scenario, even if it presents lights and shadows. On the basis of the report, among the motivations of those who do not have access to the internet there is mainly the lack of adequate skills (56.4%), or the perceived interest and usefulness of the tool (25.5%); those who claim to have economic reasons represent about 13%.

Age and education are the determining factors. Almost all the young aged 15-24 are surfing the net (over 90%), while among the 55-59 years the use of internet goes down to 72.4% and reaches 41.9% among people 65-74 years. At the same time, the report records a strong stratification with respect to the social and cultural dimensions: about 82% of those who have at least a high school diploma claims to have internet access, while among those who declare as qualification middle school the figure is 51.9%. From the point of view of the school this is a relevant element. The tool used for internet access is another fact to consider in thinking about teaching: most users aged 14 and over tend to use smartphone only, just under half are serving pc and few reports the tablet or other instruments.

1. Frameworks

By examining the relationship between frameworks and learning design, it is obvious that this has been complicated during the emergency phase. We were involved in a rapidly changing reality which we had to face through the redesign of teaching, even though it happens when it was already ongoing. We have witnessed a transformation of the teacher's role, it has become more central in moving "from school to home", but especially moving into an exclusively digital mediated dimension, becoming the only representative of the school as institution (Dhawan 2020).

This transition arises when the teacher face with the need to redesign the teaching units much more granular and more detailed than it happens in face-to-face teaching. She or he necessarily have to produce adequate content both for synchronous and asynchronous fruition. It

means to work differently than they did in the classroom because online teachers are less able to adapt online contents, especially those where limited interaction is expected (Hall et al. 2020).

The contents must necessarily become almost self-consistent, because it cannot be taken for granted that one can refer to external materials or links that may not be available at any time. A clear definition and sharing of learning objectives and course structure become even more important because most students, isolated in their homes, risk disorientation. There is also the problem of referring to educational contents already available online, also because the emergency times were stringent and this often represented an opportunity; while the advantage may be to have ready-made content, on the other hand the risk can be that it often reduces the reusability of the learning materials if it depends on other contents over which we have little or no control (Laici et al. 2016).

In the particular situation of Covid-19 emergency, the redesign necessarily had to coexist with the ongoing teaching practice on the basis of the contingent situation. Precisely because it was not possible to have an adequate time for the design of digital teaching, many points of attention emerged during the practice that inevitably brought back the focus on design (Lucisano 2020).

Surely the value of the school community was perceived more than before, it is likely that it has been considered as important as the disciplinary teachings. From the experience of the Covid-19 emergency also emerges the urgency to think about a new balance between school and family (Ricciardi et al. 2020). The school can become an even more relevant element for the whole community by helping to manage the sometimes-alienating effect of the digital mediation (Rivoltella 2017). For the school community, there was also the need to maintain collegiality among teachers since this too represents a critical element, especially in the evaluation phase.

Assessment proved to be a very complex issue both about the objects of assessment (skills, knowledge) and about the moments of assessment (in progress during the school practice, or in the final evaluation). Here, however, I would like to focus the reflection on the sustainability of the evaluation both from the point of view of the teacher and from that of the student and the family context.

Another aspect to care about is the importance of well explain the learning assessment, namely, taking what says Benedetto Vertecchi (2016), sharing the goals, criteria, metrics, but, above all, share the meaning of evaluation, explaining that it represents an opportunity for students to assess their own learning performances. Explain the educational sense of assessment becomes crucial because if we fail to communicate this, it will be hard to make the assessment process run properly.

2. Times

Timing have a significant impact on learning design and teaching practice (Milano et al. 2017), since we no longer have school time, structured in timetables and marked by the bell. The times of family and school overlap. Often within the family context, the timing of different schools must be managed together, so it becomes important to achieve a balance. In principle, the synchronous time, that is the video lesson, is more rigid and binding, while the asynchronous time, linked and all those activities that students can perform autonomously, is more flexible. However, we cannot forget that working independently may require a greater level of commitment and not just for the students. There may also be a need to face individual situation through a flexible learning design that can be adapted to students but also to the characteristics and conditions of families. The planning of teaching times will also have to pay attention to the social needs of the students and the collegiality of the teachers, dimensions that certainly cannot be lost in such a difficult moment (Ricciardi et al. 2020).

In the teaching practice it become important to recognize, understand and consider the needs of students and families, developing a new teaching approach able to mix the synchronous and asynchronous teaching practice with a continuous attention to the feedback of students and families. Teachers should be ready to change the initial design also by negotiating times and meth-

odologies. Therefore, the need arises to measure the synchronous and asynchronous teaching time to carefully evaluate the workload of the students and the level of supervision potentially required by other family members.

Do not understand or do not consider the family time, even in their diversity, could be disruptive in some contexts or do not provide sufficient stimulus to others. On the other hand, despite all the critical issues, the structure of synchronous school time remains an important element to help organize the days of students who otherwise risk to be lost as in a kind of digital continuum punctuated only by fragmented messages and communications (Daniel 2020).

In a moment such as that of exceptional distance learning, the teacher's feedback becomes essential, not only as a graduation, but also as a review of the work done online, both to students and families. We need to consider that in this framework the family necessarily take part to the assessment process and if it does not understand well its meaning, it could introduce distortion elements voluntarily or involuntarily.

A sustainable assessment in distance education necessarily becomes distributed over time; we all realized how important it is to accumulate information in teaching practice to then arrive at an evaluation. For example, it may be important to adopt solutions to collect items for the evaluation along the school periods, maybe using an e-portfolio (Wade et al. 2005).

3. Technologies

Technology is another key topic in learning design, it is important to consider several factors: firstly, the digital divide, considering both technological and cultural skills. We must consider not only the skills of our students but potentially also the skills of families and colleagues. This means to consider alternative technical solutions to mitigate the risks of skills weakness (Ranieri 2020).

It also means considering the need for collegiality among teachers also in technical choices: it will not always be possible for a single teacher to choose whatever platform they want because the choice will also depend on school policies and on the colleague's skills (Capperucci 2020). There is the need also to contain the proliferation of different technological solutions that could have deleterious effects both on teachers as on students and their families. Sometimes it is uneasy to become familiar with a technology solution, if platforms become many, it could result in an significant extra-load for all actors.

If we talk about digital content also potentially we will be dealing with different tools for producing and publishing digital contents. The software with which I build my contents may be different from those adopted to share them with students.

Students' school practice also becomes digital, since they must necessarily produce, modify and share digital objects. The skills of teachers and students in building and working with digital artifacts comes into play. Another essential skill of teachers is being able to modify the technological choices on the basis of the feedback from students, families and colleagues. Perhaps trying to always have alternative solutions available where students are not able to manage a technological platform. In this case it would be possible to scale down the complexity through another platform with a lower access threshold.

Another aspect not to lose sight of is the educational relationship: it is important to have the tools to build the contents, but also to master the communication and collaboration tools. Often this is a critical point, which requires continuous negotiation with students, families and fellow teachers. Maybe it can lead us to change choices that in the design phase had been considered differently. The content creation tools are less critical, especially from the point of view of teachers who choose according to their skills and affinities. Also keep in mind that when we ask our students to produce digital artefacts, they themselves must also use tools for creating content. In practice, therefore, it will be necessary to carefully evaluate the instructions to be given to students in relation to both their disciplinary and digital skills (Baldassarre et al. 2020).

Being able to be flexible in delivering content and tools is another key aspect (Santagati et al. 2020). The Istat report suggest that at least half of the families do not have adequate digital

skills, especially in the first cycle school, flexibility and ease in accessing content can also mean scaling down technologies and perhaps starting with instant messaging systems such as WhatsApp and then bring everyone to use smarter solutions gradually. Often the simplest and most effective solution is to involve parents in small meetings devoted exclusively to the use of basic tools like email or chat, perhaps with smaller groups selected on the bases of their digital skills.

From the point of view of learning assessment there are no technologies that can ensure an evaluation without interference, not even the most advanced proctoring systems. The solution cannot be technological but must also be based on the student's will to participate in the evaluation, therefore on the possibility of distributing the assessment process over time, focusing it on the skills and attitudes put in place (Baldassarre et al. 2020-1).

The risk of confusing disciplinary competence with that on digital tools must also be considered; obviously, those who are more "fluent" on technologies, have better access to the network, have a better computer or simply do not have to use a smartphone only, could do even better evaluation tests. It is therefore important that the teacher has the ability to discriminate these aspects to ensure that the assessment will not be distorted (Pentucci 2020).

4. Skills and attitudes

In the reflection on learning design it's worth dwelling on skills, taking into account the familiarity with the technologies not only of students, but also that of families. Based on the Istat report presented at the opening, more than only 25% of the sample 45 years claims to have high digital skills, while almost half say they have low or no digital skills. In the relationship between teachers and parents digital skills cannot be taken for granted, it is a matter not only of technologies but also referred to the broad definition of digital literacy, or the ability to critically use digital tools.

We can therefore examine the skills of teachers with respect to (a) content production; (b) platform management; (c) teaching/learning management; (d) participation in online collegiality. On the student's side, the focus will be above all on: (a) access and use of the contents; (b) communication; (c) sociability. With regard to families, on the other hand, in addition to the use of contents and communication, the capacity for technological and disciplinary tutoring also becomes relevant. In this scenario the tutoring for children and young in the use of digital tools can only come from the family, if they have enough digital skills. In learning design, it should be important to consider also for other family members some training spaces on basic digital skills.

Among the skills arise the relevance of those related to collaborative learning and educational technology, ie all methods that let to integrate the synchronous component with asynchronous component of e-learning, the activities carried out together with the online students and those students will accomplish by themselves. It is to emphasize how the teacher's feedback on these aspects is important both for the student and for families. In particular families should try to acquire the minimum digital skills to support teaching; often on the basis of the teacher's feedback, students and families can realize what the situation actually is and what skills they may lack of.

Digital skills naturally are on top of the usual work on disciplinary expertise that is central to the school. Even focusing on disciplinary aspects, it is needed to reflect on the skills that the family is able to put in place. In a context such as distance learning in the school, especially in the primary, the family has to play the supporting role that the school could fail to deliver because in the e-learning setting the family only shares the spaces and times with students.

As we have already seen, the assessment in distance learning must necessarily focus more on the learning process than on the results and not limit itself to measuring only knowledge but it must necessarily push itself to measure the competences, skills and attitudes acquired and developed by the student. It is a difficult process, but it is probably one of the few viable way for effective assessment, focused on skills and built on reality tasks.

On the skills assessment topic, it can be useful to refer to Bloom's Taxonomy reworked by some US authors (Anderson et al. 2001). In this work the different dimensions of knowledge are taken up; from the least to the most complex: conceptual, procedural, metacognitive. Of course, the cognitive psychological processes that can be applied to knowledge ranging from remembering to understand and apply, to analyzing, evaluating and creating. From this perspective, if we want to build evidence of effective assessment, we cannot limit ourselves on the first categories only (remember and understand), but necessarily involving mental processes that require a higher level of reworking (apply, analyze, evaluate and create new content).

It is important to explain the skill assessment because very often between teachers, students and families there is a shared understanding of the meaning of the evaluation. Explaining assessment as a feedback tool on the learning process is as important as sharing criteria and metrics. This is to explain what we are measuring and how we are measuring in relation to the training objectives, course properly at the age of the student who is in front. Share responsibility for evaluation does not mean negotiating the criteria of evaluation, since the process of evaluation is the teacher's responsibility; the sharing concerns the roles that each one is called to play in the evaluation process (Vertecchi 2003).

From a docimological point of view, the emergency situation has introduced an anomaly represented by the fact that the year-end evaluation is the result of face-to-face tests and tests carried out instead through digital tools. Even managing to recalibrate the evaluation mainly on the skills, then it will be necessary to define specific evaluation metrics and criteria for each type of test and make a final synthesis. In retrospect, perhaps a reflection will need to be made when we will be back to the classroom to improve tests and evaluation criteria with an attention even to the potential online requirements.

Conclusion

Summing up, sustainable education for families, for students and for teachers means to consider of the current scenario in terms of framework, available timing, technologies and digital skills of all the actors and stakeholders of the educational community. These elements have to be declined in the redesign of teaching, in educational practice and in learning assessment. Preparing to seize the stimuli and the critical issues that may emerge for cyclically improve the design itself, transforming as much as possible the learning assessment in a continuous feedback process.

The experience of the Covid-19 health emergency can trigger to a different approach to teaching, even after returning to school face to face. I think it is important not to forget how the digital dimension can continue to be a resource also for classroom teaching. It is now clear that digital skills have become an important part of the teacher's professional background. A digital skill that is expressed not only in terms of the best methodologies and technologies for face-to-face or remote digital teaching, but in the ability to contribute to the construction and functioning of a sustainable digital ecosystem for colleagues, students and their families.

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