When Distance learning Forces Tradition to Offer Solutions in Language Teaching: Educational-Digital Ecosystems

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Abstract
From the scientific literature on language teaching and teaching in general, solutions have already been found in the past that may be applicable to the emergency that occurred following the quarantine imposed by the pandemic caused by the Sars-CoV-2 virus.
A bibliographic survey, between 1979 and 2020, on ICT and the social groups that use them, offers the scientific basis on which the observation concerning the teaching of languages during 2020-2021 in Italian universities and schools.
Language teaching must be oriented and adapted to learning groups that have the characteristics of educational-digital ecosystems. This distance teaching must equip itself with adequate tools and specific training for teachers. It must also continually deal with other didactics, typical of other educational-digital ecosystems.
Distance digital teaching cannot replace face-to-face teaching, but it can and must be a valid solution in times of emergency and can be an excellent supplement to face-to-face teaching when the emergency will cease.

1. Introduction
In the teaching of languages, as well as in the teaching of any discipline, it is always necessary to deal with the social context inside and outside the institutions. Language education, in fact, is also education in communication and, as such, must lead to the understanding and communication of the reality and the historical moment in which it operates, even when this is complex and communication is hindered by contingent factors, as in the case of the interruption of lessons in presence caused by the quarantine imposed following the pandemic.
During 2020, the Italian school, in all its levels of education, had to deal with the deprivation of sociability and had to adopt specific digital and multimedia tools, as emerged from the ISTAT survey of 6 April 2020\(^1\).

The school and the university first started using multimedia tools to react to the emergency by transferring face-to-face teaching to remote teaching. Only later both designed digital teaching as a new teaching method was conditioned by the protracted pandemic.

In language teaching, for some time now the debate on technologies has expressed contributions (among others, Porcelli, Dolci 1999 and Garelli, Betti 2010, D’Angelo 2014) and reflections on the possibility of innovating didactics.

The consequences determined in the educational field by the Sars-CoV-2 pandemic will engage the scientific community in the reflection of what was experienced in 2020 and 2021.

A first reflection concerns the type of environments that were formed in the months of quarantine and that have assumed the characteristics of real educational-digital ecosystems.

The linguistic interrelationships that have been created in these environments and the attempts at teaching proposals designed by the teachers in the first emergency phase have seen an equation of digital teaching with distance teaching. Digital teaching and distance learning, however, constitute two different strategies, which can coexist, but which are not coincident.

Language teaching must also identify in technology only one of the possible tools for achieving its educational goals and these objectives are achievable through techniques and strategies already consolidated but adapted to new educational contexts.

2. Digital ecosystems and educational systems: educational-digital ecosystems

The rush to emergency solutions caused the following suspension of face-to-face teaching. It has imposed a sudden, at times improvised, use of technological tools and environments, which, however, have progressively contributed to modifying, at times radically, teaching and teaching in the general didactic landscape and in the language class.

Taken together, the environments, tools and practices adopted constitute a new environment. This environment applies to education as happens in the biological and IT fields, when a set of living and

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non-living organisms are integrated. Through this integration, a self-sufficient system called "digital ecosystem" is created (Califano, Di Salvo 2019).

Even in a digital ecosystem, each person involved has a precise and specific role and the action of the individual contributes to the life of the macrosystem. In the context of the web, therefore, the community of individuals who meet, exchange information, and develop skills to achieve their goals, constitutes a digital ecosystem.

Similarly, in the context of language education, the classes interact online through digital tools and the ecosystem that is created, to acquire a language, should be self-sufficient. Each study group pursues its own purpose, everyone has a specific role that integrates with the other subjects of the same group. For this reason, the language learning process should be collaborative, as the action of everyone pursues the goal of the individual, but also contributes to the common goal of the group. The action of each individual affects and modifies the action of the group. Without collaboration between all the participants it is not possible to achieve the common educational goal (Hess, Ostrom 2007). Finally, it should be connectable and integrable.

Each ecosystem can, however, enter a relationship with other ecosystems and be part of a more complex network, in the same way in which the single cell of a hive enters a relationship with the hive. The Italian school situation before and after the suspension of face-to-face teaching had to quickly transform from a simple system to a complex system, from a social ecosystem to a digital ecosystem and to a digital linguistic ecosystem. The deprivation of social space in presence has in fact, on the one hand, imposed a confrontation between each teacher and each learner, a personal computer, the network, and other subjects, in turn connected through a digital and multimedia tool. On the other hand, with the continuation of the quarantine, this system had to quickly evolve into an integrated system and had the opportunity, in part, to recover sociality through teaching that considered different environments, tools and strategies. Furthermore, the deprivation of social space has deprived the language class of the authentic confrontation with all the para- and extra-linguistic elements that are an integral part of learning, especially of an L2.

The web plays a central role, but the internet is not the exclusive protagonist of this type of teaching. Its role is not disconnected from the social context, it does not act separately from the physical world. "Internet-centrism" tends to look at technology and the network as a sector separate from the "physical" world, and as if this worked according to its own rules, where social dynamics would not reside, but only those of a hypothetical and sublime "cyberspace" (Califano, Di Salvo 2019: 11-12).
Internet and the net are tools that allow the realization, also and above all in a moment of great social and health emergency, of a certain type of educational and social relations. Distance teaching has been made possible quickly and in emergency contexts, thanks to the help of the network and technology, and the use of these tools has avoided the suspension of study activities in study institutes of all levels. However, this did not avoid the interruption of everyday sociality, of relational space-time, which is an integral part of school education and of language education, from early childhood to university\(^2\). A conscious language teaching in an educational-digital ecosystem must also and above all consider the social needs of all those involved in the process and must find the tools so that the social dynamics of every age, educational and linguistic-cultural context can always be verified.

A systematic and complete review of the virtual environments and technical tools of digital teaching aimed at education and language education is referred to another location (see, among others, Banzato 2002, Pederzoli 2019, Barbuto 2020). Instead, this contribution will propose a reflection on the didactic strategies that best realize some fundamental principles in language education such as self-sufficiency, collaboration, connectability and integration and we will cite, by way of example only, some tools that allow the realization of these principles.

### 3. Digital teaching and distance learning

The school, in all its institutions of all types and levels, is dedicated to the development of social skills that allow you to definitively bring the learning experience closer to that of life.

A school that does not guide its students to the conjugation of knowledge into historical and social reality fails its mission. This important assumption constitutes one of the principles developed by the European Council in 2002 in the "Lisbon Strategy"\(^3\).

The school, therefore, cannot exempt itself from both the use and the inclusion in the curricula of specific disciplines for the knowledge and use of these tools\(^4\).

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\(^2\) A significant contribution on the elements apparently external to teaching, but in fact, integral parts of it, is due to Galimberti A., Reflections on distance learning, at http://www.anils.it/wp/riflessioni-sulla-didattica-remote/, last consultation: 03/08/2020.


\(^4\) In 2012, a course called "Digital Revolution" was established at the Politecnico di Torino, which has several objectives, including “The objective of this course is to contribute to the education of digital individuals (as well as future engineers
In 2006 the MIUR (Ministero dell'Istruzione Ministero dell'Università e della Ricerca, then the Ministry of Education) launched the DIGI Scuola project\(^5\), which aims to encourage the introduction of digital content in educational work. In 2007 the LIM (Lavagna Interattiva Multimediale, that is IWB) was introduced in the Italian school. Furthermore, in 2015, the "Piano Nazionale Scuola Digitale (PNSD)" was drawn up, which constitutes the policy document of the Ministry of Education, University and Research in favor of an overall innovation strategy of the Italian school and positioning its educational system in the digital age\(^6\).

The school reality is therefore not new to the use of digital resources. However, it has almost always experienced them in *praesentia*. However, some teaching methodologies, including the Flipped Classroom, require the multimedia aid to be particularly productive, especially outside the classroom (Maglioni, Biscaro 2014; Strayer 2012). Therefore, a space-time of study is foreseen in *praesentia* and one in *absentia*.

Digital teaching, therefore, does not automatically decline a scenario in which the student finds himself alone in front of a multimedia tool. It indicates a didactic that adopts digital and multimedia tools and rethinks its strategies by virtue of these tools. Both teaching in the presence, as much as distance learning can equip themselves or not with these tools.

### 4. Distance digital teaching in language teaching

The evolution of communication in a highly technological society also implies an evolution in language teaching and teaching. The use of technology in teaching languages

deve essere inteso non come un approccio metodologico a sé stante, complementare, ma come strettamente integrato. L’uso delle tecnologie è una conseguenza dell’evoluzione della società. Se


imparare a comunicare efficacemente è la meta principale dell’educazione linguistica, comunicare linguisticamente e culturalmente con le tecnologie deve far parte integrante degli obiettivi per rispondere ai bisogni attuali della società e di chi vi opera. È quindi necessario identificare un approccio idoneo più generale che deve dare risposte in termini di strumenti, strategie e competenze, nel quale apprendimento linguistico e tecnologico si integrino maggiormente (Dolci, 2011: 369-370).

The solutions adopted in the various educational institutions have been many, but practically all have made use of platforms - such as Moodle, Google Classroom, Microsoft Teams, just to name a few - within which to host shared materials, and software - among other Hangouts Meet and Zoom - which allowed communicative interaction.

Some of these tools, adopted for teaching in general, have proved to be particularly effective in language teaching (Nitti 2016). Oral communicative interaction represents the greatest challenge in teaching remote digital: it is, in fact, more complex to train learners in the skills of production and, even more so, oral interaction, although online tools can be used that can represent an important ally for oral and written production.

This challenge has increased its proportions, moreover, due to the deprivation of social space typical of the traditional study environment. In fact, learning a language, especially if L2, also involves learning the culture of the people who speak it. The learning process benefits if the learner is immersed in the socio-cultural system of the language, especially if he can learn an L2 instead of an LS.

The network now offers the possibility of being interconnected with authentic and continuously updated materials, to be able to expose learners to authentic linguistic stimuli, but the material available on the net certainly cannot replace the reality experienced firsthand. There is no doubt that this aspect constitutes the weak link in digital distance learning: a digital ecosystem in which a language is learned must also be able to be a social ecosystem.

According to Bronfenbrenner's (1979) ecological model, the way in which human beings create the environments in which they live contribute to understanding their development and progress. Similarly, the study of an ecosystem contributes to understanding others (especially if connected) and to understanding the progress of society itself.

Behavior and development, according to this model, are strongly linked to each other. For the purposes of this contribution, it is interesting to consider three of the five environmental systems theorized by Bronfenbrenner: the Mesosystem, the Exosystem, the Macrosystem. The mesosystem concerns the
interconnections between microsystems, that is, the interactions between parents and teachers, learners and teachers, between learner and the family environment. The Exosystem concerns what is "external" to the individual, or what happens in the teacher's microsystem and the consequences that may fall on the learner's microsystem.

The Macrosystem, on the other hand, concerns cultural values, customs, laws and in general the culture in which individuals live. In an educational-digital ecosystem, therefore, didactics must be based on a reality summarized by figure no. 1.

![Image of the educational-digital ecosystem]

**Figure 1** - Relationships that affect the educational-digital ecosystem.

- **Macrosystem**
  - Cultural values
  - Customs
  - Laws
  - Culture

- **Mesosystem**
  - learners - teachers
  - parents - teachers
  - learners - families

- **Exosystem**
  Consequences of other microsystems (technological problems, family problems)
And it must interact with it according to the scheme summarized in Figure 2.

Table 2 - Frequency of use of ICT in organizing and managing one's teaching job at home.

In this context, teaching must develop precise strategies and must consider all the interactions that may or may not develop. Educational-digital teaching must also provide for specific techniques that can translate the points described above into actions, the design of which is effective for the purposes of language learning.

5. Didactic strategies in digital distance learning

By examining the five points described in Figure 2, we will propose some actions that can hopefully prove effective in distance learning-digital teaching and that provide for the continuous interaction of all stakeholders. Families, in fact, cannot take the place of teachers both for skills and for the management of teaching. Furthermore, adult students are not always willing to collaborate, especially if, following an economic transaction, they have purchased an asset aimed at their own education, demanding its full usability and quality assurance.

Collaboration, however, can occur when students, teachers and even families collaborate in a peer tutoring relationship.

*Peer-tutoring e peer-education* identificano un modello educativo collaborativo volto ad attivare un processo spontaneo di passaggio di conoscenze, emozioni ed esperienze da alcuni membri di un
While referring to another location a more precise description of the advantages offered by collaborative teaching (Ballarin 2019), here we will offer some proposals that are believed to be effective in distance learning-digital teaching.

The family in general or adult students cannot and must not replace the teaching activity of the teacher, even if the latter provides precise indications. Parents are not required to operate in the presence, when the teacher is unable to do so, and the adult student cannot limit himself to performing prepackaged tasks.

Family and learners need to be fully involved in teaching with their own roles. The educational-digital ecosystems, therefore, are the ideal location for the establishment of "communities of practice" (Wenger 2006), in which the goal is the production of knowledge and in which continuous learning can occur through the sharing of knowledge, one’s own and that of other subjects. In this type of learning community, roles are not defined by a hierarchy, but are determined by the skills and needs of everyone.

The shared leadership action that can be used in digital distance learning therefore involves a joint action designed by the teachers, but co-managed together with parents and learners: the former covering the role of “facilitators”7 in finding them online materials useful for the fulfillment of a task prepared by the teacher, the latter in deepening through materials prepared by the teacher and uploaded to the network similarly to what also happens in the Flipped classroom.

The space-time that, traditionally, is dedicated to the frontal lesson is reserved for personal study and the teacher can invest time and resources in the interaction of the class group. The vision of the outside world can, as already mentioned, be facilitated through authentic materials available online, but these

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materials do not provide and do not allow interaction with the society that speaks the language of study. A long-term digital distance learning must therefore foresee contact through a series of planned actions between digital ecosystems.

The eTwinning\textsuperscript{8} program constitutes a platform where the community of European schools can connect and establish relationships and share ideas and programs.

In the case of teaching adults, however, contact must be sought through the planning of actions that create exchanges in real situations, such as transactions between groups belonging to the same professional area – in the case of teaching micro-languages – or scientific, or simply by providing that the learners in guided autonomy carry out direct actions with the language of study (such as requesting information or news from organizations, institutions, offices, shops in the country of the language of study).

The intervention of the family, the contribution of the adult student, but also direct contact with the outside world can find their active role in remote digital teaching even in the facilitation or resolution of technical and IT problems.

The action agreed between the family and the teacher, but also the use of a tutorial in the language of study are precious resources and all these resources never involve taking on a role that is not one's own, but rather respecting the roles of each and are all aimed at developing the autonomy of learners in learning.

Some teaching techniques, which lend themselves well to this type of teaching with a strong collaborative character, can translate the planning designed by the teacher into teaching. The requisite condition is that each technique finds space in multimedia materials, suited to a necessarily multimedia teaching (Torresan 2012). The matching activity, exclusion or inclusion exercises, the use of grids, the interlocking of jokes, comics, dialogues – just to mention some useful techniques for the purpose – can give space:

1. On the initiative of the student, who can independently search for the solution to the question at home or online.

2. To the collaboration between students if they decide to collaborate "as equals". This solution can favor, even at a distance, the development of a sense of group and can favor social motivation.

3. To collaborate with family members who are not called to solve the problem but can contribute to it with a facilitator role by providing learners with materials where the solution to the question can be found.

4. Contact with the outside world, if the solution to the question is sought directly from an interlocutor who speaks the language of study.

Rethought didactics can therefore respond, at least in part, to the social need that the interruption of face-to-face teaching can cause. The weak link of distance learning can thus be strengthened and can constitute a convincing response in times of emergency.

6. Conclusions

The recent pandemic caused by the SARS-CoV-2 virus has forced the Italian school to offer an immediate response and to invest every available resource to respond to the interruption of face-to-face teaching in educational institutions of all levels.

The Italian school provided digital teaching and delivered it remotely. This fact in a short time caused a great effort in the teaching staff in terms of training and self-training, preparation of materials and the use of multimedia and digital tools. On the other hand, it has highlighted the criticalities of this response and caused the need to look for tools for the future.

This same situation also involved, a fortiori, the teaching of languages, especially L2, as there was no contact in the presence of the socio-cultural context in which the language is spoken and studied.

If on the one hand this situation, which has persisted over time, has forced all the teaching staff to convert a need, due to events, into an opportunity for updating and experimentation, it has also brought out the need for social confrontation, especially in the younger age groups of learners. Social motivation has, therefore, constituted the most critical element of remote digital teaching, especially for language teaching.
The study environments that have been created have taken on the characteristics of educational-digital ecosystems that require specific teaching, adequate tools, and continuous comparison and interrelation with other educational-digital systems.

Therefore, language teaching has shown evidence of the need for the necessary immersion also in the cultural heritage of the language of study. Distance education-digital teaching of languages therefore needed specific attention in this sense and the answers it found will be the subject of study and research for the next few months.

The scenario that opens still appears uncertain, even though medical science has quickly provided, albeit partial, answers by launching an impressive vaccination campaign which, however, fails to provide a solution that covers the needs of the world population. Therefore, the pressing question of how to design effective teaching for the next school and academic year remains open.

If for schools, in fact, it is likely that the next few months will see a return to face-to-face teaching, also integrated with digital teaching, for the university, on the other hand, the situation is still very fluid, especially as regards international student mobility.

The uncertainty of the evolution of the situation makes any didactic planning complex and it will be interesting to wonder if in the future the impossibility of going to a foreign country to study will also have repercussions in the number of those who decide to study a language.

However, as we have seen, language teaching has for some time been questioning the potential and criticalities of digital teaching and the principles of language teaching allow us to resize the criticalities that digital distance teaching has highlighted.

Distance teaching certainly cannot replace face-to-face teaching, but, if faced with the appropriate scientific knowledge and with adequate means and tools, it can offer effective answers.

**Bibliography**


