

Always on Education Inside Hybrid Learning Spaces

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The possibility of being always connected to Internet and/or the mobile network (hence the term ‘always-on’) is increasingly blurring the borderline between physical and digital spaces, introducing a new concept of space, known as ‘hybrid’. Innovative forms of teaching have been developing in hybrid spaces for some time now, but as yet no in-depth parallel reflection on the enabling conditions which can guarantee their mass diffusion has been forthcoming. This paper proposes a possible model for combining the elements of so-called ‘always-on education’ with the conditions which make it truly sustainable.

Introduction

In the last thirty years, the process of introducing information and communication technologies into education has passed through various stages and undergone various transformations (rarely evolutions). These have mostly been directly related to the parallel process of technological innovation with constantly improved performance for devices and the spread of Internet.

In this situation, the application of technological innovation to the specific context of education has tended to produce rare, discontinuous results, mostly thanks to the effort of a single educational institution, or even of a single teacher.

These results have also often depended on the ability of the institution to create the necessary enabling conditions for propagating new models and teaching approaches

which can fully exploit the potential of those technologies that most of us now habitually use in everyday life but that are rarely applied in the educational context for didactic/pedagogical purposes.

Deep reflection is thus required as to how technological, particularly communication, tools can be fruitfully used in this sense. For some time now, these tools have created a strange mixture of the physical spaces we move around in and the virtual spaces we are constantly immersed in thanks to a permanent online connection (*always-on*) provided by the mobile devices we carry with us.

Identification of the above-mentioned enabling conditions is thus essential if we wish to create a model of sustainability for an educational approach which will increasingly involve so-called *hybrid learning spaces* (Trentin, 2015), and which is often associated with the term *always-on education* (Shen e Shen, 2008).

Hybrid learning spaces and “always-on” education

Today the most up-to-date and used technologies are not the ones made available by educational structures (with the obvious exception of the specific scientific/technological institutes), but rather those which the students and already many teachers use daily, which they have at home or carry with them in their pockets, bags or backpacks. So much so that a specific term, *Bring Your Own Device* (BYOD), has been coined for this practice (Alberta Education, 2012).

The concept of BYOD originates in the mass spread of mobile devices which, besides being part of our daily lives, amplify (a) the dynamicity of interactions among people and with online resources, and (b) the spaces in which these take place.

This situation moreover contributes to making the line separating physical spaces (e.g. the classroom) from digital spaces (e.g. online learning environments) increasingly less clear-cut, thus leading to a new view of the space of interaction which we might define as “hybrid” (Figure 1).

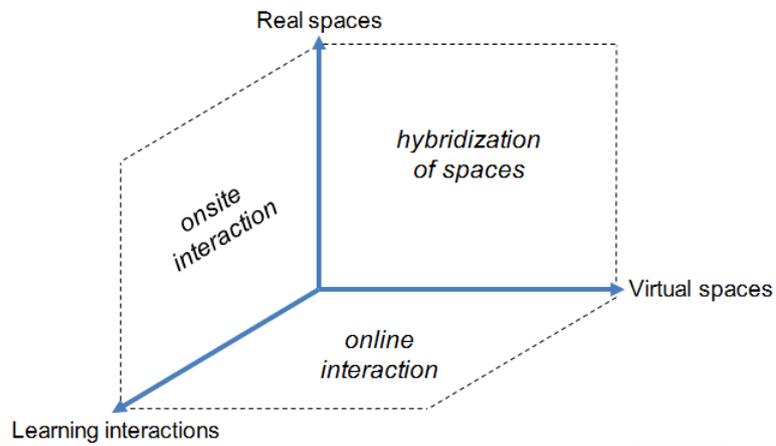


Figure 1 – Interaction spaces and hybridization of spaces.

Hybrid spaces are dynamic spaces created by the constant movement of users carrying portable devices which are continuously connected to the Internet and other users.

This “always-on” status transforms our perception of space to include contexts which are remote from those we are actually living in at that moment. In this sense, a hybrid space is conceptually different from what we call *mixed reality*, *enhanced reality* or *virtual reality* (de Souza e Silva, 2006).

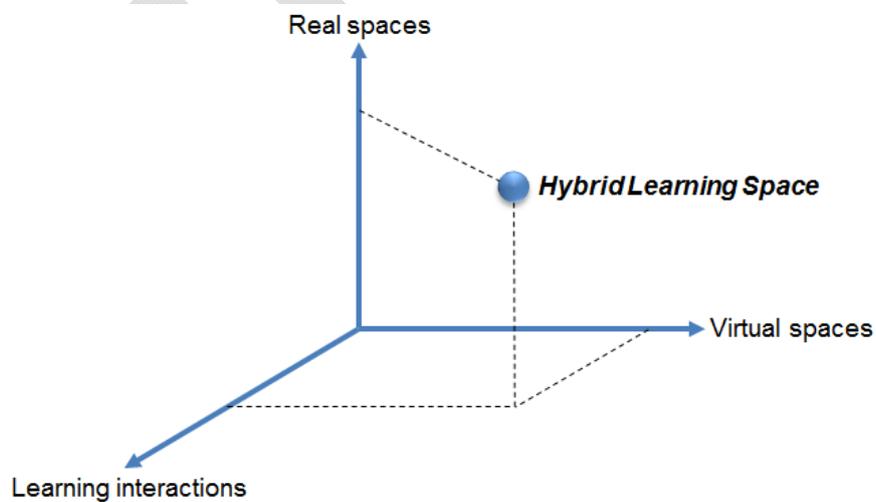


Figure 2 – Hybrid Learning Space dimensions.

In this radical change of scenario, learning spaces too can thus take on hybrid connotations (Figure 2) fostering so-called *always-on education* (Shen and Shen, 2008). In this type of education moreover, formal and non-formal learning processes are more likely to blend with informal ones thanks to the sharing of experiences and personal knowledge which is amplified by the group and individual social interaction offered by social networks and instant messaging apps (Whatsapp, Telegram etc.).

An example of a hybrid learning space

The concept of “hybrid space” inevitably attracted the attention of people having to deal with disadvantaged situations like those for example which prevent regular school attendance: children and young people who because of physical or health problems (or particularly disadvantaged geographical situations) are homebound for long periods, if not permanently.

For these situations it is almost instinctive to seek for a way of exploiting the potential of the new technologies in order to find a solution for their socio-educational inclusion. At the same time, these special situations offer extraordinary experimental scenarios (Trentin, 2014) for innovative solutions which can then be extended to so-called “normal” teaching.

An experimentation of hybrid learning spaces is currently underway with the TRIS (Tecnologie di Rete e Inclusione Socio-educativa - Network Technologies and Socio-educational Inclusion) project¹. TRIS is coordinated by the Institute for Educational Technology of the Italian National Research Council in the context of a three-year framework agreement between the Ministry of University and Research, the National Research Council and the Telecom Italia Foundation. The focus of the agreement is on the research and experimentation of new models of schooling for students who are temporarily or permanently unable to take part in regular education.

Without going into the details of the project (Benigno et al., 2015), it might however be useful here to examine how it has used the idea of the hybrid space to include some students who are homebound due to Multiple Chemical Sensitivity (MCS). MCS is a

1. The portal of the TRIS project is on webpage <http://www.progetto-tris.it/>

serious form of allergy to particular chemical substances which makes sufferers unable to stay in closed spaces like the classroom.

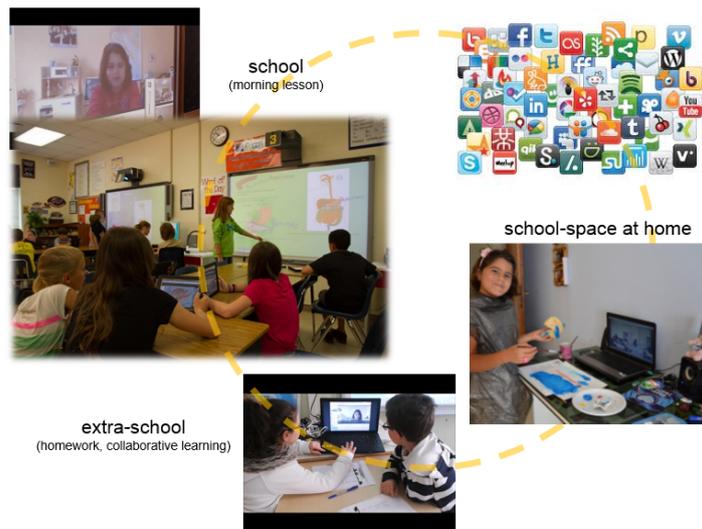


Figure 3 –TRIS hybrid learning space

Figure 3 shows key settings and moments in which the hybrid space is created:

- the morning lesson, during which the homebound student is actively involved in listening to the teacher’s explanations, in discussion with classmates, or in doing exercises (in pairs or groups), using screen sharing, Internet services for collaborative development of artefacts, etc. During these moments the homebound student is constantly connected to the class in videoconference mode, “virtualizing” his/her presence in the classroom through the IWB (Interactive White Board, see detail at top left of Figure 3) or, when interacting in pairs or small groups, simply through a mobile or tablet placed on a desk. In this way, a true hybridization of contexts is achieved; a portion of the home-space is incorporated into the classroom-space and vice versa;
- in extra-school hours during homework, collaborating with one or more classmates, each one from his/her own home.

In order to make participation in classroom activities as realistic as possible, a school-space is set up in the student’s home, to be used during the scheduled times for

the morning lesson or afternoon homework. With regard to this, there is an amusing anecdote about one the youngest children involved in TRIS. In the morning, at the beginning of the lesson, he hangs a notice on his bedroom door saying “Class IVB”, to show that at that moment he is not at home but at school with his classmates.

Obviously, the aim of TRIS is not only to find technological solutions for connecting school and home, but it also extends to the study and trialing of new schooling models based on the regular, methodical use of the new technologies and the new spaces created by them. This not only helps the management of the teaching/learning process but also fosters communication among the various subjects who come into contact with the young person (teachers, classmates, parents, health workers), and also among the teachers of the various subjects and various school years of his/her school career.

What type of approach for “always-on” teaching?

As pointed out above, a hybrid space develops from interpenetration of the spatial and virtual dimensions. In order for a hybrid space also to become a teaching/learning space, it is necessary to adapt it to the didactic/pedagogical context (Trentin, 2015). Essentially, it is the educational plan which is conceived to integrate the spatial and virtual components which transforms a “simple” hybrid space into a “hybrid learning space”.

At this point, in order to fully exploit the educational potential of hybridized spaces, the “always-on” concept must be accompanied with truly innovative pedagogical strategies. This is a crucial step if we wish to ensure that the innovation is not only technological (because there is a personal use of network and mobile technologies - NMTs²), but also and above all didactic/methodological.

From the pedagogical point of view, hybrid spaces offer today an ideal context for developing consolidated theories inspired by *learning-by-doing pedagogy* (Dewey, 1916) and for *networked collaborative learning* (Trentin, 2010), in a way which is

² In this article, the term NMT is used in a fairly broad sense, incorporating both communication technologies and web resources which can be used through them (e.g. cloud, social media, instant messaging, apps for collaborative work etc.

closer to the new generations' habits of acting and communicating. Let us consider the *learning-by-doing pedagogy* worked out by Dewey (1916) according to which:

“... students should be given something to achieve, not just something to study; doing requires ‘thought and reflection’ and an attention to ‘interconnections’; for this reason learning is naturally generated by doing”.

Dewey worked out this concept at the beginning of the last century. Today, however, the new technologies offer a solid framework for it to be fully applied, particularly as regards the development of “thought and reflection”.

Learning-by-doing pedagogy is based on the premise that the student must have control over and responsibility for his own learning process. To do this he/she must however be provided with suitable tools and resources. The teacher acts as a mentor, a guide who helps shape and direct the learning path, encouraging and nudging the learner on. But when the teacher finishes his/her action of direct facilitation of the individual (or learning group), technology can take over and offer learners (or learning groups) other types of support (for example the educational apps, the OERs - Open Educational Resources, etc.) enabling them to pursue their learning paths autonomously.

It is precisely in this way that always-on learning has the potential to foster students' active and collaborative participation in a “doing” rather than “listening” type of learning.

Enabling and sustainable conditions

For some time now, interesting developments have been taking place with the always-on condition, albeit “behind the scenes”. For some time, in fact, we have been seeing a kind of “backstage” use by students and teachers of those skills which have mostly been spontaneously acquired by the everyday use of mobile devices for social activities or access to information. They are being used for informal interactions during study or, in the case of teachers, interactions linked to their profession (collection of

online information and materials for lesson preparation, participation in professional communities etc.). So we might ask:

- how can we exploit these spontaneously-acquired skills to set up didactic models which are favored by the always-on condition and are able to integrate formal, non-formal, and informal activities?
- what are the enabling and sustainable conditions for these models?

In this regard Roth and Erstad (2013) suggest thoroughly studying how students and teachers use NMTs in their daily lives. From this we can understand the right process for adapting them to the new typically 21st-century learning needs and methods, rather than persevering in the normal teaching practices which are unstimulating and boring for the new generations.

The need thus arises for educational operators to develop their understanding of the interconnection between these two apparently (or maybe actually) parallel moments, school and out-of-school, which already exists and is destined to increase.

This process requires great care however, since the ICTs, particularly the mobile and Internet technologies, are based on general functional models which do not consider their specific use for teaching and education. Consequently, all those initiatives which propose them without linking them to specific pedagogical choices and precise analyses of learning and organizational needs (times, spaces, etc.) are bound to be unsuccessful. As Euler and Wilbers point out (2002):

" ... if a foreign body is getting implemented in a system, either it adapts and will not be regarded as alien or it will continuously be identified as a foreign body and be eventually rejected from the system. "

It is now clear to everyone that it is not so much technological inundation that produces innovation in education, but rather a deep restructuring of times, spaces and scholastic practices. The aim is to create a continuum and strong integration between school life and life outside school, using technologies to meet needs and resolve didactic, organizational and pedagogic problems.

Experience in this sector has substantially taught that the diffusion of a habitual, methodical use of ICTs in school is not just a question of technological availability. What can promote this diffusion is not the quantity or type of technologies used but an understanding of why and how to use them to potentiate, improve and even revolutionize teaching/learning processes by exploiting the new means of communication and knowledge acquisition which the same technologies have brought to everyday life.

There must at the same time be an ever closer reciprocity between technological functions and pedagogical approaches. In this regard, Cousin (2005) claims that pedagogy necessarily implicates communication technologies, since the history of pedagogy is inextricably linked to media history. Pedagogy cannot live independently of the media which pervade daily life, just as technology must interact dynamically with pedagogy in a process of mutual conditioning.

McLoughlin and Lee (2011) contend that it is precisely thanks to the type of technology available to us today that it would be possible “...to open the doors to a more participational, personalized and productive pedagogy”.

At this point it might be usefully emphasized that while on the one hand NMTs would allow students to be more easily involved in learning processes centered on doing, teachers too should consequently receive more encouragement to propose this type of approach.

This might be true pedagogically speaking, but it is not enough for a real, lasting large-scale integration of NMTs into teaching practices. Parallel to the pedagogical choices, other key elements need to be defined to guarantee the sustainability of this integration into the institutional context.

There are two in particular: (a) new educational strategies which are functional to the pedagogical choices potentiated by technologies, with the consequent organization and systemic management of teaching/learning in the physical and virtual spaces where this takes place; (b) the professional development of school staff and cultural development of all the stakeholders (from decision-makers to parents), to convince them that an always-on approach is now a compulsory choice for true didactic/pedagogic innovation.

This second element introduces a further strategically important question regarding the teachers training.

If we wish to diffuse knowledge, skills and culture about always-on education, it is necessary in training teachers to use tools and approaches which are based on the same (technological and non-technological) resources and didactic/educational methodologies which they in turn will be proposing to their students.

Hence, not only formal training approaches (participation in classroom or distance courses), but actions centered above all on informal learning processes which exploit the potential of mobile and Internet technologies to access and share information, resources, knowledge and good practices. This involves direct consultation of sources and social interaction in online communities of practice made up of teachers tackling the everyday problems of their profession. In this way a real, effective process of continuous training is created.

Conclusions

In conclusion, some of the main dimensions which we consider to influence the sustainability of always-on education are summed up in Figure 4 and thereafter briefly described.

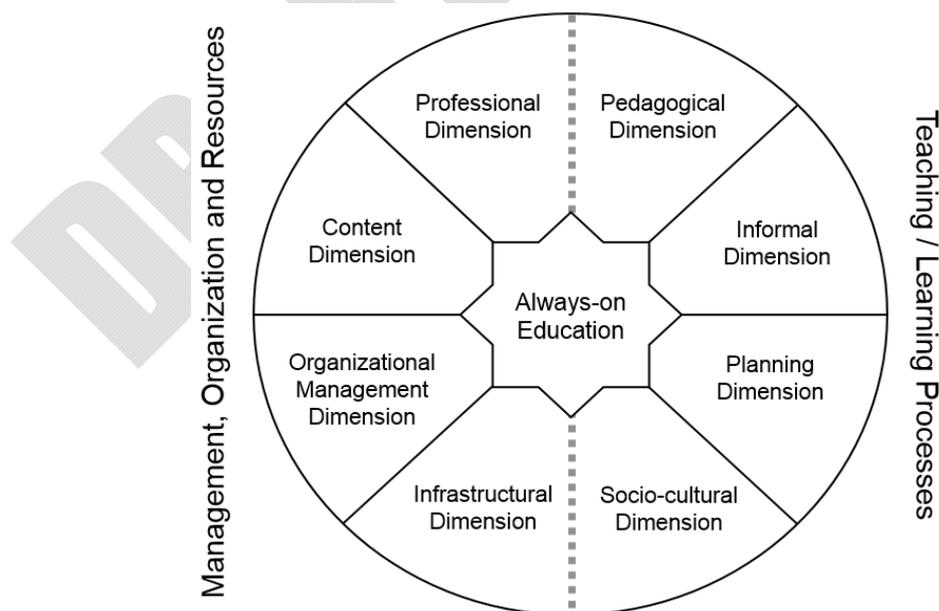


Figure 4 – Key dimensions of the sustainability of always-on education.

Pedagogical Dimension – Developing ways of using NMTs for enriching, potentiating and innovating the teaching/learning processes, with particular reference to constructivist/socio-constructivist pedagogical models and the corresponding assessment methods.

Informal Dimension —Exploiting the innate potential of always-on education for incorporating the informal dimension into learning processes.

Planning Dimension – Developing planning approaches centered on “scripting” (of educational activities) (Dillenbourg and Hong, 2008) for the planning, organization, management and assessment of the educational processes activated by the above models.

Socio-cultural Dimension – Diffusing a different attitude among teachers, students and parents towards educational models based on the social media and on the ways of using them.

Infrastructural Dimension – Improving the functionality, dimensioning and reliability aspects of an adequate technological infrastructure, and exploring the possibility of dynamically modelling the physical spaces so as to integrate them with the typical activities of always-on education.

Organizational/management Dimension – Creating conditions (adaptation of structures, processes, rules and regulations) which can foster the integrability of always-on education into institutional practices.

Content Dimension —Developing use of the wide online repertoires of educational materials (e.g. OERs - Open Education Resources), and of the ability to select them according to specific didactic needs but also to produce new ones for and with the class.

Professional Dimension – This is the key to the true sustainability of always-on education. It concerns an adequate professional development of school staff (above all teachers), one which will enable them to acquire the ability to: a) choose educational strategies for best exploiting the potential of network and mobile technologies; b) planning, facilitation and assessment of the teaching/learning process; and c)

organization of the physical and virtual spaces and of a time schedule which can favor this process.

Perhaps these are not the only dimensions which need to be considered in studying the conditions for the sustainability of always-on education. We might however reasonably posit that they are the core elements required for achieving the radical shift from an educational system based on (albeit technologically-equipped) “rows of desks” to one which is more in line with the lifestyles and communication habits of the new generations. A system which combines formal and informal aspects, and often places the learning process under the direct control of the students themselves; a system which tries constantly to interest and involve them; a system which obviously still depends on the careful guidance of a teacher, who now becomes the “script-writer” of educational activities with his/her students as the main actors.

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