

TECHNOLOGY IN ACTION, THE ROAD TO INCLUSION. THEORETICAL FRAMEWORK

UNESCO¹ talks of employing an overall approach to Information and Communication Technology (ICT) within education, and believes that using it will help tackle issues including universal access to education, inclusion, development of digital competences, as well as equality and quality within education.

The use of ICT in education can therefore be approached from different aspects. Here, we aim to relate technology to inclusive education and see how it enables and facilitates inclusive, equitable and quality education for all students - one of the Sustainable Development Objectives under Agenda 2030.²

From this viewpoint of inclusive education, technology helps break down barriers by facilitating accessible environments, removing potential social or skill-related digital divides, encouraging personalised learning, and enabling richer learning for all students.

This topic therefore focuses on students' use of technology in education. Although teachers digital competence is a priority and should not be overlooked, in this unit we are looking at students.

ICT and inclusive education

The use of ICT and accessibility is already widespread and currently attracts considerable attention, with the two being viewed as firm allies. However, we can't talk about accessibility without incorporating Universal Design - or design for all - a concept that involves a paradigm shift, by transferring the term disability from the individual to the environment. Thus we talk less about disabled people and more about disabling contexts and environments.

Universal Design considers that products or environments should be created in ways that mean everyone can use them. For example, lifts, escalators, predictive text, Siri and Cortana (intelligent personal assistants that help complete tasks), TV subtitles and so on... were all originally designed for groups of people with disabilities but are now used by everyone. This is a key concept for high-quality inclusive education.

This also has a significant impact on education, since it changes the segregating-integrating idea that previously prevailed - the idea of focusing on the special educational needs of an individual with subsequent adaptations being made later but which tended to be unappealing to students and costly for teachers. It is a tenet of this concept of Universal Design for Learning (UDL) that diversity is inherent among human beings and therefore alternatives benefiting all students in a class should be

¹ To find out more <http://es.unesco.org/themes/tic-educacion>

² On 25 September 2015, world leaders adopted a set of global objectives aimed at eradicating poverty, protecting the planet and ensuring prosperity for all - as part of a new agenda for sustainable development. Each objective has specific goals that must be reached over the next 15 years, and the fourth of these focuses on education. To learn more <http://www.un.org/sustainabledevelopment/es/>

incorporated from the outset. Teaching plans should take everyone into account, and the aim is that subsequent adaptations should not be required - thus improving the choices for all students.

What do you know about this subject? Are you aware of accessible digital materials based on UDL principles? When drawing up your teaching plan, do you take account of Universal Design for Learning guidelines that allow barriers to be removed and make the curriculum accessible?

Technology in this area is an important ally because of the great versatility it offers, by allowing different formats (image, video, text, etc) to be combined and easily changed. Thus, the use of ICT also provides the opportunity of personalising learning, allowing different students to learn together, respecting their different rates of learning, and aligning with their individual needs and interests - which, in turn, means personalised results and empowered students.

This significant potential from using technology in education needs to be exploited - because simply using technology guarantees neither sufficient focus on diversity nor improvements in student learning. It is here that the digital competence of teachers becomes a necessity. In order to develop digital competence among students, properly trained, competent teachers are needed.

In the same vein, current models of pedagogical understanding advocate that technology should be integrated with teaching and that, in twenty-first century education, these disciplines must go hand in hand. We refer to the TPACK model³, which combines curricular content with pedagogy and technology.

Today, educating within a culture of transmedia and digital is a necessity and goes beyond the use of ICT in education. We talk of teachers' digital competence and students digital competence when talking about the skills needed to use IT creatively, critically and safely. We also talk about Learning and Knowledge Technology (LKT) and Empowerment and Participation Technology (EPT). And these must be considered when the curriculum is being planned as part of an overall framework of inclusive education - education that advocates the use of active methodologies in which students play an active role in their own learning. Before we continue, let's clarify these concepts.

- ICT - Information and Communication Technology - implies focusing on the technological aspect, and placing emphasis on the tool and learning how to use it.
- In Learning and Knowledge Technology (LKT), however, the emphasis is on using the tool to facilitate learning. In the classroom, for example, it could be used to enrich learning, create products, build and so on.

³ To find out more, see the article on this topic by Javier Touron in the magazine INED 21 <https://ined21.com/tpack/>

- Lastly, from the perspective of Empowerment and Participation Technology (EPT), technology is viewed as being beyond just an educational resource. From this perspective, technology is seen as a tool to enable participation and collaboration - not just for students, but also for their families and teachers. Thus, it advocates a social and constructivist model of learning based on its social construction, which takes account of and fosters social interactions, interpersonal relationships, egalitarian dialogue and so on.

How to apply this in the classroom, in school. Teaching suggestions:

- Use active methodologies that enable technology to be used for learning and knowledge, and contribute to competency tasks that involve creating a product.
- Use pedagogical models like the flipped classroom which allow learning to be personalised.
- Introduce augmented reality into the classroom which offers other options for presenting information and which helps all students understand new knowledge.
- Use a classroom blog and the schools website to ensure work that has been done is visible.
- Use social networks that enable best practice to be disseminated.
- Develop oral expression among all students with initiatives that enable a school radio station and recording studio to be set up.
- Develop maker spaces that enable STEM skills to be developed - as explained further in the Architectural Redesign Teaching Unit.
- Form collaborative learning networks in schools that enable the lines between formal, non-formal and informal learning to be blurred.
- Make schools accessible schools, with digital environments for all, that enable true social inclusion for all students.
- Eliminate the digital divide to help minimise any inequalities in regard to use of technology.

In short, an inclusive school advocates transformation - by breaking with the traditional pedagogical model, by restructuring spaces and time, by investing in the use of didactic and evaluative methodologies that take account of all students at all times from the early planning stage, and by promoting active participation and collaboration. And remembering that we are immersed in a transmedia and digital culture and we must educate and socialise in that context.

To learn more about the suggestions made on this topic, you'll find supplementary information about interactive online training on our competition website.