

Unibo Clil Training: Good Practices, Technology and Inclusive Education

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Abstract

This analysis aims at focusing on the close cooperation between the University of Bologna (Science of Education) and the Italian Ministry of Education issues in relation to Clil training courses addressed to secondary school teachers with different linguistic, pedagogical and technological competences. I was in charge of their technological and methodological didactic design. The right solution to these educational needs was given by the TPACK model, a new type of knowledge originating from the interaction among the knowledge of contents, pedagogy and technology in a well-balanced way, where technology itself represents the trigger to educational inclusion.

1. Introduction

This contribution of mine is the result and the testimony of an experimentation conducted by the University of Bologna in collaboration with MIUR (Italian Ministry of Education) aimed at training teachers of non-linguistic disciplines in relation to the Clil methodology. In particular, the Faculty of Science of Education, due to its own specificity, has taken on the task of guaranteeing the success of this experience by mediating between pedagogical competence, linguistic competence and innovative teaching methods together with technologies, thus creating a unique training project in the field of the application of the Clil method in schools. This testimony promises not only to report the data and impressions of that time but also to report the state of the art and the different feedbacks of some of the most committed students. The role of Prof. Azzaro as head and supervisor has allowed a constant connection between school and university united in the project of Clil training, in accordance with the guidelines and training policies relating to lifelong learning and training.

2. Clil and the Italian school scenario

These courses, addressed to secondary school teachers of non-linguistic subjects, targeted trainees with different linguistic, pedagogical and technological competences, highly motivated and deeply involved in their new learning adventure. The

students, all belonging to the upper secondary school, are provided with highly diversified profiles in linguistic, professional and pedagogical terms, but they all share the belief that English as a vehicular language represents the necessary tool for a decidedly European outgoing profile of the Italian student. In Italy the presence of some universities that use English as a language of teaching and communication had been pointing out the need to provide a previous competence in these terms. According to my didactic approach I deeply believe that Clil has a series of strengths that can be adopted and applied from the first orders and degrees of school without leaving too much design responsibility to teachers of high school. Far from being a merely lexical approach that characterizes the typical micro-languages of strictly disciplinary fields, I consider the Clil methodology as a wide-ranging linguistic approach of a transversal type and that attempts to reconstruct the reality of study in the mother tongue.

3. Clil: an integrated, flexible, interactive, highly usable learning path accessible to anybody.

This mosaic-like scenario aroused curiosity and awareness for a new didactic Clil approach. My contribution should be interpreted as a real mosaic whose tiles represent my language training, my field of experience as a trainer and my constant research-action that led me to the identification of a Clil training path for teachers. This innovative approach copes with and goes beyond the obstacles represented by the deficiencies both in the language field and in the didactic-pedagogical one, taking into account a level of acceptability around the B2. This configuration of my Clil methodology, which highlights the valid presence of glotto-technologies, has from the outset seemed to be particularly motivating as a highly integrated, flexible, interactive, adoptable and accessible learning path for the most diversified levels and competences. In these terms, Clil becomes more high quality and increases self-esteem both in the learner (gratified by the discovery of being able to learn in another language) and in the teacher, who feels self-confident about his/her ability to manage his/her own teaching, equipped with many

tools and able to show his/her students adequate language paths.

4. 21st century education: trainee teachers, learners and critical thinking

It is undeniable that education for 21st century society requires a wide-ranging approach, embracing the know-how related to the use of Information and Communication Technologies (ICTs) and, above all, opens up to the awareness that these technologies have become a necessary tool for learning and knowledge (LKTs). The citizen of the 21st century has to deal with this reality and consider it as a characteristic element of an active, conscious and committed citizenship in that lifelong learning that today's society, in continuous and rapid evolution, requires. This scenario represents 'the great challenge' for the preparation of teachers in training and of all learners in general, since the passage from ICT to LKTs (from Information and Communication Technologies to Learning and Knowledge Technologies) requires the development and strengthening of that critical thinking that allows us not to stop at mere knowledge but to go further, knowing that we have acquired skills capable of promoting and strengthening the capacity for analysis, synthesis and critical evaluation of the best choices to be made, even in relation to 'themes' apparently only 'technical' or 'technological'. My experience as a learner, learner-researcher and learner-trainer has led me to make didactic-methodological choices that have included the use of LKTs as a lever capable of motivating, involving, enriching and orienting learners towards new and interactive approaches to the teaching-learning relationship.

5. My great challenge: Clil formation through LKTs (Technologies for Learning and Knowledge)

On one hand these courses with their practical needs and final goals, on the other the Milan Politechnic (POLIMI) innovative guidelines and specific suggestions represented my double way of managing and performing as a Clil trainer and researcher as well.

First of all, as the person in charge of the technological Clil training of the course, it was for me as much necessary as fundamental to understand that the inclination to use LKTs in education by trainee teachers is a crucial variable, which can potentially put at risk a good part of the course. I have always kept in mind that teachers often do not consider themselves sufficiently prepared to use technology in the classroom and therefore do not appreciate its value for teaching-learning. The low self-esteem that often derives from these circumstances, together with a

fragile professional conscience that calls into question the value of refresher and training courses, has, over time, prevented teachers from having significant access to this world, making it impossible to integrate these tools in a wider educational context, up to date and able to indicate educational-didactic paths never undertaken before and now, instead, magically possible. The challenge I was faced with was enormous: not just Clil formation but to open the door of access to Clil through LKTs. Therefore, in the context of the so-called "competences for the 21st century", the mastery of information and communication technologies is both an objective and a tool to expand the evolution of the functioning and learning of other competences of the 21st century such as collaboration, problem solving, creativity and critical thinking (Finnish National Board of Education, 2014; see also Voogt & Roblin, 2012). And while this is true for learners in general, it is even more true for teachers who are asked to adapt to the changes and needs of society. The critical step is not so much learning how to use ICTs as knowing how to use them in teaching in pedagogically meaningful ways. Yet not all teachers have the same sense of self-efficacy in relation to the fact that they are able to implement a certain behaviour [1]. It became clear to me, therefore, that it was necessary to identify a theoretical and practical framework at the same time, capable of overcoming such obstacles, often represented mainly only by prejudices deriving from a lack of professional self-esteem. Nonetheless it was also crucial to set teachers as well as students on the road to discovery, experimentation, innovation on the technical (tools), methodological, pedagogical and content levels: a path in which linguistic and technological elements together worked as a necessary and sufficient glue and lever for the acquisition of 21st century skills.

6. The TPACK model: the right solution to a variety of educational needs

My objective was clear: to find strategies for teachers to develop a use of technology consistent with the pedagogical beliefs adopted [2]. I identified the solution and the answer to these educational needs in the TPACK model ("Technological, Pedagogical and Content Knowledge"), a model of teachers' knowledge for the integration of technology; a new type of knowledge that originates from the harmonious and balanced interaction between content knowledge, pedagogy and technology. (We also have a model called the DD-TPACK or dynamic TPACK distributed according to which the various knowledge should not be considered as belonging only to the teacher, but 'distributed' among the various actors within the learning process. The dynamic aspect is represented by the fact that each actor- and not only

the learner - acquires new knowledge. The fundamental idea is that the teacher can exploit the resources of the environment to perform complex tasks such as project-based learning where technology plays an important role). The framework is based on the construct of content and pedagogical knowledge of Lee Shulman [3], [4] (PCK) and includes technological knowledge. The TPACK model for teachers' knowledge is represented as a complex interaction between three sets of knowledge: content, pedagogy, and technology. The interaction of these knowledge, both theoretical and practical, produces the types of flexible knowledge needed to effectively integrate the use of technology in teaching. The development of TPACK by teachers is crucial for effective teaching with technology.

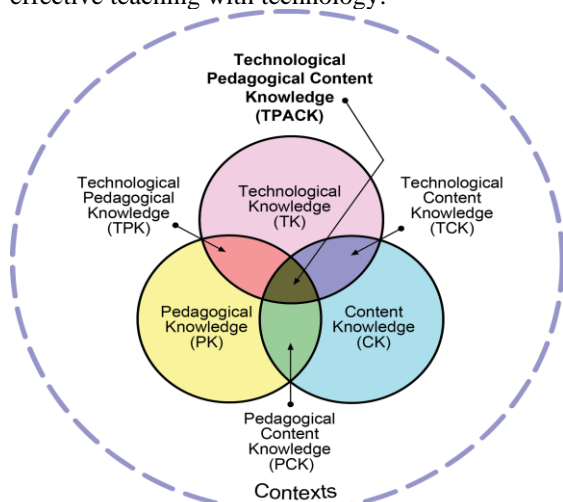


Figure 1. TPACK model and its knowledge components <http://tpack.org>

TPACK is different from knowing the three areas separately because it requires understanding of how to represent concepts using technologies, pedagogical techniques using technologies in constructive ways to teach content; knowledge of what makes learning easy or difficult and how technologies can help to present differently the problems students face; knowledge of students' previous knowledge and epistemological theories; knowledge of how technologies can be used to build on existing knowledge to develop new or strengthen previous epistemologies [5]. The outer circle marked with the label "contexts" emphasizes the awareness that technology, pedagogy and content do not exist in a vacuum, but are rather placed in specific teaching-learning contexts. For example, let's consider two different classes, one in which each student has a notebook connected to the Internet and another equipped with only one PC in front of the class. Clearly, the type of didactic interventions that the teacher can arrange will be very different in the two contexts. Similarly, schools and school systems that allow or block access to certain websites (such as Facebook or YouTube) determine how teachers can

structure their lessons and activities. By simultaneously integrating the technological, pedagogical, content and contextual knowledge in which they operate, experienced teachers use TPACK in all their teaching interventions. Each situation presented to teachers is a unique combination of these three factors, and, consequently, there is no technological solution acceptable to every teacher, every course or every teaching idea. Ignoring the complexity inherent in each knowledge component or the complexity of the relationships between components can lead to simplistic solutions or failure. Therefore teachers need to develop cognitive mastery and flexibility not only in each of the key domains (T, P, and C), but also in the way these domains and contextual parameters are related, so as to elaborate effective solutions. This is the kind of nuanced, deep, flexible, pragmatic conception of teaching with technology that we understand in considering TPACK a construct of professional knowledge. Considering technology, pedagogy and content as three interconnected knowledge bases is not obvious and straightforward. Teaching and learning with technology take place in reality in a dynamic transactional relationship among the three components in our model; a change in any one of the factors must be "compensated" by changes in the other two.

This compensation is most evident each time the teacher has to deal with basic educational issues using a new educational technology and reconstruct the dynamic balance between all three elements. This view reverses the conventional perspective that pedagogical objectives and technologies derive from content area-based curricula. Things are rarely that simple, particularly when the latest technologies are used. The introduction of the Internet, particularly the birth of online learning, is an example of the arrival of a technology that has forced educators to think about fundamental pedagogical issues, how to represent content on the Web and how to connect students to and between content [6].

7. The TPACK framework implemented through the S.A.M.R. model

The S.A.M.R. model was the key to this new educational Clil approach proposed by UNIBO. Taking into consideration the teaching methodology scenario, the competences and the cognitive and social profiles characterizing the citizen of the 21st century, the educational needs of the teachers, the role I personally experienced in the field of research-action has resulted in the identification of the 'concrete' and 'expendable' path that each teacher should undertake in order to enrich his or her operational didactic competence. The S.A.M.R. model [7] has proved to be particularly suitable because it is simple, reassuring and widely applicable. I will summarize the salient

passages of this model. The S.A.M.R. model is a theoretical framework of reference for the integration of new technologies in teaching. It was developed by Dr. Ruben Puentedura in 2010 and has had a significant diffusion in recent years. SAMR stands for (Substitution) Replacement; (Augmentation) Increase, Increase; (Modification) Modification; (Redefinition) Redefinition. This model aims to provide a format, then a technique, so that the teacher can adopt technologies, at different levels and degrees, adapting them to his/her educational objectives, promoting and encouraging not only an improvement in the quality of learning in learners but also in teaching in teachers. The aim is to (make) experiment technologies in a more significant way, abandoning in a conscious and resolute way the use of technology as an end in itself. We are all now aware that the simple use of web applications, digital devices, etc. does not necessarily produce that fateful improvement of the experience related to teaching-learning and that adequate pedagogical knowledge is the necessary basis from which to start for the integration of technologies within the teaching activity.

How does the SAMR Model work?

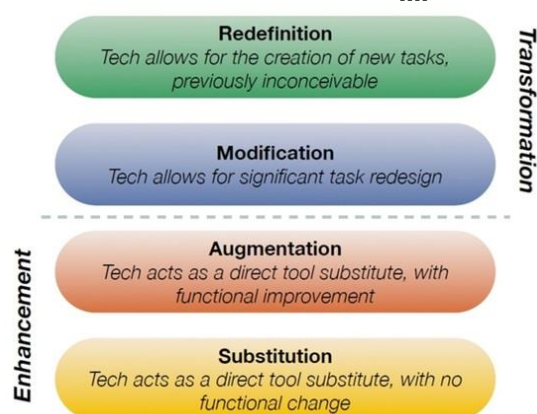


Figure 2. Based on Kate Schrock's Guide to Everything - Samr and Bloom

It consists of four distinct operational phases.

Level 1 - Replacement: Technology replaces traditional tools without any advantage and improvement in terms of learning and teaching (e.g. traditional writing replaced by digital writing).

2nd level - Improvement, development: technology replaces traditional tools with advantages and improvements especially in relation to the way in which the assigned task is carried out (e.g. digital writing that makes use of all the potential that a writing application offers: spell-checker, image insertion, hypertext, etc.).

3rd level - Modification: technology makes it possible to restructure the activity by enhancing the teaching-learning experience by initiating a decisive

transformation of the same (e.g. collaborative writing in the cloud).

4th level - Redefinition: technology allows a clear enhancement with experiential modalities that would not have been possible otherwise and transform 'exponentially' the teaching-learning experience (e.g. document written in a collaborative way and published on a website).

Let's move on to a more concrete example: how to modify a geography lesson.

Original task: 'Write, on paper, a general overview of a locality, for example, of England, gluing on the notebook some images taken from magazines.'

Substitution: Use a software, such as Google Slides or Prezi, to build such a presentation on the chosen location.

Improvement: integrate audio, video, links into the digital presentation to enrich it and make it more engaging.

Modification: create a digital leaflet that incorporates the above audio, video and links, perhaps even adding a video self-produced by the students.

Redefinition: publish the locality's advertising leaflet on the school's website or on a website specially created for the occasion. It is evident that the transformation phase, which includes modification and redefinition, is in close and essential relation with the HOTS of Bloom's taxonomy[8]: analysing, evaluating and creating and it is, at this point, equally easy to see the link between our 'modified traditional lesson' (see above) and the documentative-technological competence (website where best practices are shared and made public), first learned by the teacher and then transmitted to the learner as a transversal competence necessary to the citizen of the 21st century.

Glottodidactics had long pointed out the need to find an adequate harmonization with technologies, since the connection between communication, language and technologies represents the integrating background of our society, which we cannot avoid; on the other hand, even in the most advanced territories, school reality seemed to prefer a multidisciplinary rather than an interdisciplinary discourse. At this point, techno-documentation appears as the overcoming of cultural and strictly methodological barriers, it identifies the importance of a linguistic code in continuous evolution and finally opens the doors to communication in the broad sense, also encouraging the comparison and sharing of good practices among colleagues, an aspect that has always been very problematic. Glottodidactics and technologies compensate each other and find in the documentation the connection par excellence. Documentation, which is apparently something static, represents that essential element that allows language learning and training to transcend cultural and disciplinary boundaries thanks to the intervention of an adequate technological education.

8. Technology: A trigger to educational inclusion

In a context of research and didactics more and more active and present on the side of attention to educational inclusiveness, this paper also aims to deepen the relationship between educational inclusion and the new technologies of learning and knowledge (LKTs), in relation to which the "educational inclusiveness" is not considered as an episodic practice and remedy of urgency, but as a habitual and consolidated practice of the "modus docendi" and perhaps as the only viable way for the "educational success" of students (Italian National Indications and Guidelines, 2012).

8.1. How the concept of inclusion was born

According to Kustermann's analysis of the situation of the Italian school [9] when the interactive whiteboards were introduced "...when we talk about integration, "traditionally", common sense recognizes as the central focus of the work the pupil with disabilities, to whom institutional practices, teaching strategies and facilitation of participation in school life, certification techniques, functional diagnosis, "tailor-made" educational planning etc., etc., are addressed. Today, the term "school integration" has been replaced by the term "inclusion", meaning by this the process through which the school context, through its various protagonists, assumes the characteristics of an environment that meets the needs of all children, not just children with special needs.

In the last thirty years, those who have found themselves working in the world of disability and school have witnessed the change of several watchwords. Each of them has symbolized the way in which these people (handicapped, disabled, people with disabilities) were defined or the theoretical and operational thinking that moved policies and actions in favour of them. So if in the 70's the watchword was 'insertion', at the end of the 80's it turned into 'integration'. Since a few years, quite explicitly thanks to the UN Convention on the Rights of Persons with Disabilities approved in 2007, we have witnessed a new change: the new watchword has now become 'inclusion'. Initially this choice left us a little bewildered, either because it seemed to represent a step backwards from the concept of integration or perhaps because it recalled the old word 'insertion'. Only a careful analysis of the concept it represents has allowed us to grasp the potential and strength of this change of perspective: it concerns all people and the human condition, which in turn can present difficulties in life and situations of disability. The concept of inclusion leads to the recognition of a right as a form of contrast to its opposite: exclusion. It leads to the assertion that the strategies and actions to be

promoted must tend to remove those forms of social exclusion from which people with special needs suffer in their daily life: school experience often lived on the margins of the classroom and not always adequately supported, school dropout, failure to learn social and life skills, exclusion from the world of work, emotional experiences often relegated to the family environment, poor participation in social and leisure activities.

Going down the road of social inclusion basically means raising the issue of inequality in the social dimension of the right to citizenship, because it concerns all those who participate in social life within a given context: inclusion means offering the opportunity to be a full citizen. This does not mean denying the fact that each of us is different, but it means shifting the focus of analysis and intervention from the person to the context.

On the basis of the above, inclusion" can be explained as a "dynamic and multifactorial process aimed at creating networks of significant links that encourage the active and organic participation of all subjects in the fundamental areas of democratic living, preventing processes of exclusion and marginalization" [9].

8.2 What is inclusive education?

The concept of inclusion in education has been theorized since the mid-1990s thanks to some documents aimed at promoting "Education for All", disseminated by international organizations, such as UNESCO, an institution that has been committed to the conceptualization of inclusive education, as can be seen from the documents of the Salamanca conference in 1994, the World Education Forum held in Dakar in 2000 and the text "Open File on Inclusive Education" dedicated to teachers. In Geneva, November 2008, UNESCO held the 48th session of the International Conference on Education dedicated to Inclusive education : The way of the future. "...The Conference highlighted the need to better specify the conceptual dimension of inclusion with respect to the theoretical constructs of Special Educational Needs and Integration. Inclusive education implies the elaboration and implementation of a wide range of learning strategies that respond to different learners in a timely manner. In this sense, education systems are required to respond to the expectations and needs of children and young people..." [10].

8.3. Educational inclusion: theoretical framework

In the pedagogical field, educational inclusion can be defined as an intentional educational process aimed at building knowledge, starting from the pupil, from the recognition of his identity, of the relational systems to which he belongs and from which he could

be progressively excluded. In order to achieve its formative objective, this process must build its own inclusive pedagogical communities capable of exerting an attraction such as to promote and cultivate the learning abilities of all students and to enhance their differences and otherness. The paradigm of formative inclusion has its roots in various theories of learning, and I will briefly illustrate the most significant ones.

The American Pragmatism developed the concept of learning community, research community. Among the most representative figures we remember: C.S. Peirce, G.H. Mead and J. Dewey.

The Constructivist Paradigm promoted the concept of knowledge as individual and social construction. Its most representative figures are Piaget and Vygotskij. The concept of constructivism views the student as an "active learner, who plays a central role in mediating and controlling learning. Emphasis needs to be placed on the student and how he or she learns" [18].

The most modern theoretical conception of constructivism recognizes, in particular, in Piaget and Vygotskij's analyses significant contributions to European psychopedagogical culture, as they allowed to reconsider the impact of the context on learning and on the development of intelligence itself. Therefore, the central vision of constructivism is the "context" in which learning takes place.

Piaget (1896-1980) was in favour of cooperation among children [11]. As far as the construction of knowledge through social interaction is concerned, Piaget believes that what most influences the individual in this process is the environment as a world of objects and actions. The socio-cognitive conflict that leads to learning occurs in the presence of equal roles.

Vygotskij (1896-1934) was a firm believer in the decisive role of the social environment in the acquisition of knowledge, and he argued that the historical-cultural environment in which the individual lives and the relationships with others in their social contexts are important for the construction of learning. What Vygotsky [12] considers most useful for the acquisition of knowledge by a child is a form of tutoring by someone more experienced than him. This tutoring can also take place within a peer group with heterogeneous skills.

The Social Theory of Learning develops the idea of learning as a social phenomenon. A very brief reference to the contribution of the cognitivist psychologist J.S. Bruner, to recall how in his work he expressed himself in favour of group work and peer tutoring, even if his field of investigation was that of all-round cognitive learning. In Bruner's opinion, the teacher cannot be considered the only vehicle for the transmission of knowledge, as peers are also able to provide scaffolding, support (scaffolding) for the learning of peers in need of intellectual help.

However, the teacher must be able to read the tensions within the class in order to be able to recompose them. Learning theories have undergone a profound evolution in the last twenty years thanks to the contribution of social sciences and neurosciences. The new paradigm for designing teaching-learning has its foundations more in understanding than only in learning; the design of "meaningful environments" leads to the competent plural intelligences, using them in forms distributed in the "context". We have therefore moved from considering the teaching-learning relationship based on the transfer of knowledge, to its construction for meaningful learning that leads pupils to master it flexibly in different realities. For this to happen, it is important to metamorphose the teacher into a "learning facilitator" able to prepare the most suitable strategies to convert the acquisition into a "social event", based on the elaboration and structuring of experiences. Personal effectiveness is important for collective effectiveness and consequently for the predisposition of inclusive learning contexts based on student/student/teacher relations. It follows that in groups with high interdependence between members, such as the family and the school, the results depend above all "on the ability of the multiple actors to work in synergy" and success is given by the shared feeling of collective effectiveness of the group. The relational dimension of educational inclusion is well explained by these quotations: 'Knowing is an act of participation in complex social learning systems' [19]; 'Learning is a social process that precedes from interpsychic to intrapsychic' [20]; 'The cognitive component of learning is closely connected to the emotional one; Each class must be transformed into a learning community.

8.4. Principles of inclusive teaching

Inclusion aims to overcome barriers to participation and learning. In this background the target groups of the inclusive aims are not limited to pupils and students with disabilities and special educational needs, but include all pupils who have a school experience. Therefore, it is not a question, as in the case of integration, of finding a possibility of contact between the normal curriculum and that of pupils with disabilities or in difficulty, but of constructing personalised pathways for all students, requiring a wide margin of flexibility in the curriculum. Unlike integration, the principle of inclusion does not set parameters but concerns the ability to provide "a framework" within which pupils, regardless of ability, gender, language, ethnic or cultural origin, can be valued and receive the same opportunities at school. This new didactic model is based on the concepts of reflection, cooperation and sharing, on the awareness of interpersonal relationships between peers, and is defined "metacognitive cooperative", as it uses

metacognition (i.e. the observational and self-modulating capacity of one's own cognitive processes) and the student resource for the development of learning. Its theoretical foundations and its various applications create the prerequisites for the realization of inclusive practices inspired by the concept of "special normality", which "includes both normality understood as the need to be like others, and specialty understood as the acceptance of the special needs of each child" [13].

8.5 Technology to carry out an inclusive learning environment

In order to better respond to the special and normal needs of the pupils, the contents should also be adopted, not only the textbook equal for all but more texts and tools to support the teaching action. Collaborative learning is facilitated by the effective use of technologies in didactics which, through the development of targeted strategic projects, allow everyone to be active players. In designing inclusive learning environments, the teacher must put the cognitive and emotional relationships of the class group at the centre of the activities in order to produce forms of knowledge and dialogical knowledge, thus strengthening the individual social identity of each student. Its action must aim at the creation of "dialogic communities", where through the functions of dialogue and its forms, the assumption of different roles and different thinking strategies (sharing the cognitive load) is encouraged. Elements for a good dialogical quality are: verbal reflection, cohesiveness of interventions, richness of different points of view, participation of all members, presence of socio-cognitive conflicts. In this context, the teacher must possess both procedural and declarative skills thanks to which he or she prepares learning experiences that lead to processes of exchange and distributed construction of knowledge, and, at the same time, the teacher represents the reference that the class can use whenever necessary. Summing up, for the creation of a "class of all and of each one", lines of action are needed on the professionalism of the teachers, on the class climate; on the learning methods; on the contents and tools.

I would conclude with what Canevaro and Ianes said: "Inclusion requires many ideas, a lot of material, many didactic solutions. Organisational, projectual, many Good Practices" [13], [14].

8.6. Techno-didactics: a teaching approach for everyone

Bertacchini [15] underlines the following: "The idea that the new technologies widen the channels of knowledge through a quantitative (availability of information) and qualitative (variety of sources and many disciplines of approaches) widening is a fact;

equally widespread is the awareness that the new technological language is deeply changing the modalities of communication. However, going beyond the attitudes of those who resort to a total acceptance of technology 'as a panacea to heal the ills of school' and those who deny its effective integration, it is necessary to be aware that new technologies alone cannot and must not exhaust learning and neither, if not properly supported on the pedagogical level, build a correct access to knowledge in the absence of an authoritative 'guide'. ...It is therefore necessary...to insert and use technologies '*within technological models of education, [...] of a preventive and conscious interpretative choice, of a pedagogical and didactic nature, of the meaning of education*', [16] precisely because technology is offering the possibility of rethinking the concept of education. [...] Only on these assumptions can a new didactics for teaching/learning be conceived and implemented in which technologies are at the service of pupils. [...] It follows from this conception of technology systematically applied to the world of education and training that the use of techniques and technologies for didactic mediation is carried out within didactic contents and methods in which the teacher plays a proactive (and not instructive) role in a cooperative (and not training) training environment. [...] Technologies have always played an important role in language teaching, but the bipolar didactic relationship between teacher/pupil is and remains the fundamental relationship between those who educate and those who teach and those who are educated and learn. However, studies in recent decades on communication [...] point to the influence [...] of teaching methods and the means through which the message is conveyed. It is therefore important to make use of audiovisual or IT tools or advanced teaching technologies in general. [...] In the 1960s and 1970s, Mac Luhan, who considered the media of physiological prostheses of the human body, developed a more organic reflection on the overall media system in language education, in particular audiovisual". If we then consider nowadays the diffusion of the internet, with its services, we see how the net is transforming every user into an information manipulator. [...] The considerations made allow us to note how the cultural climate in which one is immersed is never foreign to the approach to foreign languages; this being said, we believe it is useful to reflect on the glottodidactic scenario in which the foreign language teacher operates today and on how glottodidactic technologies can prove to be a powerful tool for language teaching". Today the foreign language teacher has at his disposal powerful tools for language teaching: he/she can use the Technologies for Learning and Knowledge (LKTs) applied to foreign language teaching. Not only the 'new' glottodidactic technologies but also the 'old' ones should be considered valid, because what makes the

difference is the methodological approach towards technologies and the relationship that the teacher manages to create between the students and the technologies themselves. At this point we can safely say that glottotechnologies are new and powerful tools of didactics. But through which methodological approach can they facilitate and favour the teaching-learning process? Bertacchini identifies the humanistic approach as the winning point of view, according to which at the centre is not the 'machine' but the pupil's person in its complexity and integrity and the interpersonal pupil/teacher relationship [15]. The teacher must always take care to verify the suitability of a glottotechnology and evaluate its potential with respect to the pupils in order to favour their cognitive and affective development.

"Glottotechnologies, i.e. an exceptional glottodidactic opportunity: the reasons and interactive multimedia, in fact, the law on school autonomy, which considers the need to diversify the educational offer in an individualized way, supports more and more various forms of organizational flexibility. [...] With respect to the exhibition lesson, largely based on the teacher's word, today there is a tendency to privilege more and more a type of constructivist didactics, centered on the learner's operativeness. Multimedia tools, which information technologies make available and which find support in the constructivist paradigms of learning, can offer this operativeness. [...]"

If we keep in mind the wide range of teaching activities, the languages of communication, the offer of digitalized sound, animations, graphics, videos, texts, endless possibilities of sharing ideas and materials and above all the fact that the way foreign language teachers organize knowledge and propose contents is never linear, it is evident that the multimedia and glottotechnological training path is congenial to the cognitive ways of learning of the human being compared to a linear arrangement of contents, so having the possibility to 'learn' in the same way you think is particularly advantageous. Interactive multimedia therefore makes it possible to effectively match the network structure of the disciplinary field with the semantic network of the learning subject. [...] and the school, as a formal system aimed at training the new generations, cannot remain insensitive to advanced information and communication systems [...] However, having them only available at school does not qualify them as an effective tool nor does it ensure motivation and help in learning the foreign language, it is necessary to integrate them into the curricular context in which the central components of the educational situation are the learning pupils, in interaction with each other, with the teacher and with the educational environment".

After all that has been said and written, we can say that the fundamental question with respect to the

progress of technologies in terms of multimedia (quantity of information, possibility of connections, etc.) is not technological but is linked to the need to rethink the ways of using technology for teaching, enhancing the total learning environment. Therefore, the novelty is not represented by technology but by the adopted didactic architecture that must be supported by the computer.

9. Clil teacher training: a university 'craftsman's workshop'

In such a background scenario I considered the integration of new technologies of learning and knowledge (LKTs) essential. They represented the very trigger to educational inclusion and contributed to create the kind of learning environment needed to reach the final goals required by the training course: They helped me manage my personal 'craftsman's workshop' as Cangià tells us. She describes the 'craftsman's workshop' as a place where : " there were real projects [...] The apprentices learn not because they are in the desks in front of the teacher, but because they are around the same table and do the same things, at different levels, at the beginning and gradually at more and more perfect levels. How do you learn in the workshop? First of all 'seeing things done', having a model in front of you and then doing it yourself. [...] [17].

10. UNIBO Clil implementation framework through the TPACK model: main features and strong points

The technological aspect that very frequently influences teachers negatively, creating demotivation and anxiety, has been successfully overcome thanks to the implementation of the TPACK model through

- the building of an inclusive learning environment
- a strong trust in technology for learning
- the 'learning-by-doing' methodology
- the certainty of the acquisition of a new technological competence by the trainees
- the deep satisfaction deriving from the mastery of a flexible, 'fluid' teaching methodology addressed to all learners

The trainer was at the same time an

- educator updating trainees about the different sources
- instructor as far as the technological competences in progress is concerned
- designer of the learning paths

The S.A.M.R. model was the key to this new educational Clil approach proposed by UNIBO.

11. Conclusion

This contribution, which has pointed out both on a theoretical and on an action-research level, aims to confirm the validity of a Clil-technological model that can be implemented and applied in high school insofar as it intervenes on the educational and professional profile of the teacher who, from Italian, can become European when he/she acquires a techno-pedagogical mastery such as to allow him/her to manage his disciplinary teaching according to transversal, intercultural and multilingual perspectives. The final objective of this work is to focus attention on the opportunities that technologies offer relatively not only for teaching-learning disciplines in the perspective of inclusive teaching, but also and above all as endless multipliers of "learning opportunities" for both students and teachers, thus inserting in the perspective of in-service training, that Long Life Learning aimed at promoting the integrated development of a plurality of skills throughout the life of the individual.

Among the different strategies for data collection, I also turned to the open and closed questionnaire submitted in the three significant phases of the course: initial, intermediate and final (the first questionnaire was investigative; the intermediate one aimed at acquiring a first feedback in the field of collaboration, methodology and content; the last one related to evaluative and self-evaluation). In addition to the questionnaires aimed mainly at statistical purposes, the students were asked to write an open letter to their trainer: *My meeting-conflict with Clil*. The most significant responses were those related to the examination interview characterized by a conversation between us commissioners and the trainee on the basis of a didactic project agreed and implemented in their classes. After three years, it seemed to me particularly important and significant on the pedagogical level not only to re-establish contact with the Clil trainee teachers but above all to investigate the effectiveness of the proposed clil method and the possible repercussions and adjustments that might be adopted by the teachers themselves. A facsimile is reported.

- How do you evaluate your Clil competence acquired during the Unibo course after three years? excellent, good, sufficient
- Over the past three years, you have used Clil: often, sometimes, rarely
- In this three-year-period in the schools where you have worked as a permanent teacher you have found Clil experiences already started in a way: adequate, partially adequate, inadequate
- In this three-year-period, the Clil Unibo model was implemented by you using technologies: massively, partially, scarcely
- To what extent do you assess the improvement of your linguistic competence through the use of the proposed model? Significant, slight, limited
- In the event that you have used our Clil model regularly in the past three years at school, how do you assess your students' learning process in relation to the combination of communication and non-linguistic subject? Dynamic and integrated, systematic but anchored only to micro disciplinary languages, static and mnemonic
- Taking into account the modalities of the Unibo course you attended how do you evaluate the most recent methodological proposals by the European publishing world? Advanced and coherent, repetitive and episodic, unjustified and often forced.

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