Chapter 2
Coding CLIL Paths Inworld: Engaged Learning in Multilayered Environments

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ABSTRACT
Cross-curricular, content-based CLIL learning paths have been experienced extensively in a middle school class TEFL context, with students aged 11 to 13 for a period of three years. A Learning Management System (Google Apps for Education), fully integrated with free/open web tools, open source software and a school virtual world 3D environment based on Sim-on-a-stick and OpenSim, through overlapping ‘making’ activities based on coding (Scratch animations), textual collaborative editing (Google Drive/Doc), web design (Mozilla html tools) to graphic design of 3d shapes (Blender) and virtual world texturing, building and scripting “learning objects” on prims. The primary aim has been the cooperative construction of ‘one’ three-layered (real world + web + virtual world) synergic, learning environment that would increase students engagement by challenging their cognitive, socio-emotional and making skills and propose itself as a functional model of blended environment for the whole educational community.

INTRODUCTION
The Primary aim and theme of this project, carried out during the last 4 years and still in progress in six middle school classes of an Italian state school, beyond that of integrating specific tools and software in a TEFL/ESL context, has been the experimenting and successful integration of a blended learning - web based - environment with an immersive, opensim based, environment into one multi-layered learning environment that could be easily reproduced at class or school level.

It looks there is a big difference in the outcomes of technologies integration into teaching activities depending on a few key factors: 1) whether technologies are adopted on a sort of individual basis (e.g. by teachers willing to use a given tool or software to set up a concept map or a video footage for a project or to create a class blog or a website, to store and share their students products) or they are used at a ‘system’ level by all teachers; 2) whether technologies are used occasionally or systematically, by teach-

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ers and students, creating productive networks of software and tools and capitalising sharable resources that can be implemented from that time on within the different subjects/areas of the school curriculum; 3) whether technologies are used not just to show but to ‘make’ things that students can easily and immediately visualize or even ‘touch and feel’ as their own creation, gaining that sort of awareness and short term feedback that would work as a powerful drive, boosting up further activities.

This 1+2+3 addition seems to produce - as from the experience carrying out the project this article relates to - the ideal environment to let the right mindset grow both in the teacher’s and the student’s cognitive and emotional self, increasing quality and levels of their motivation, skills and competences and making the same more stable and durable.

Reflecting upon the outcomes in terms of efficiency and efficacy, strengths and critical issues emerging throughout the project, the same evaluation seems to be applicable to immersive teaching activities: the full and permanent integration of virtual world activities into the ‘real world’ and ‘web’ curricular workflow, versus an occasional or isolated use of the immersive environment, seemed to produce, again, more stable and durable results. Scaffolding on knowledge and concepts students go through while switching from one environment to the other - real, web or virtual world - discovering the carefully planned ‘spiral’ paths coached by the teacher and made up of common contents and/or type of activity - e.g. practising the same CLIL content knowledge, following coding, graphics or robotics threads, rotating through the three different environments - appear to produce quite naturally a successful integration of virtual world, web and more traditional real world teaching activities and a sensible balance between students engagement (crucial factor) and curricular outcomes.

Computational thinking, being at the very base of nearly any digital (web or immersive) learning activities, lends itself to be the common ground for a wide range of learning activities where web and virtual world approaches can integrate and, above all, act synergically: each activity scaffolding on former and boosting further knowledge, gaining added didactic as well as motivational value from operating within different environments and with different, though still digital for the most part, tools and software: think of coding, computer graphics, 2d and 3d image and video/audio editing and data mapping in correlation with texturing concepts and activities.

In this project a ‘technical’ LMS - Google Apps Educational with Google Drive basic suite of programs - has been just the framework onto which a selection of key web tools and software, opensource or web-based, freeware or with a free (sometimes free/edu) version, have been used for synchronous and asynchronous class work and homework, carried out mainly collaboratively, by pairs or groups of students guided by the teacher.

The CLIL approach, though not mandatory at all in the middle school curriculum, has been extensively used but limited to a range of contents strictly related to the objective of the activity - e.g. text based activities using tutorials on electronics and robotics supported the creation of a web page with Mozilla Thimble or a Scratch animation illustrating skills and competences involved in the building and scripting of a prim quiz in world, ultimately used for the (Second)language and content assessment (and fun!).

Contents, written and dealt with in L2, were mainly borrowed from the curriculum, acting as introduction, consolidation or further development of fellow school subject matters contextualised into practical activities with the aim of feeding motivation while deepening students knowledge and skills beyond the Digital and the ELT curricular objectives.

The Tools used, overlapping one another, once overcome the ‘getting started’ stage, have been Open-Sim, above all - the open source 3d virtual platform, used in combination with SOAS, Sim-on-a-Stick.
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