

Learning on Gaming

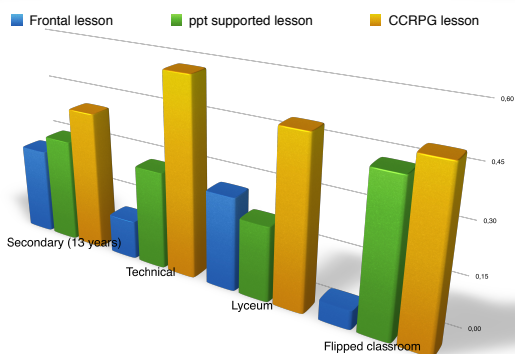
Improves Integrated Development of Basic Science Skills
and Fosters Curiosity towards the Earth Sciences



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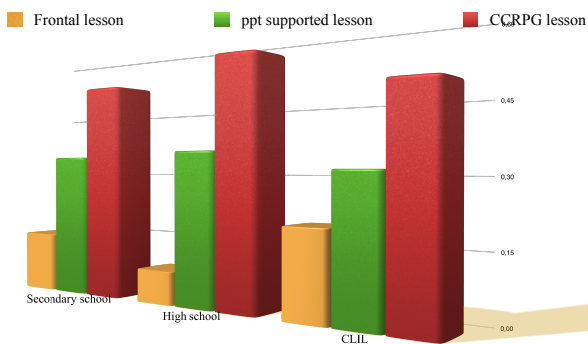
We developed a digital educational environment based on adventures games to be played by the class as a whole:
Learning on Gaming (LoG)



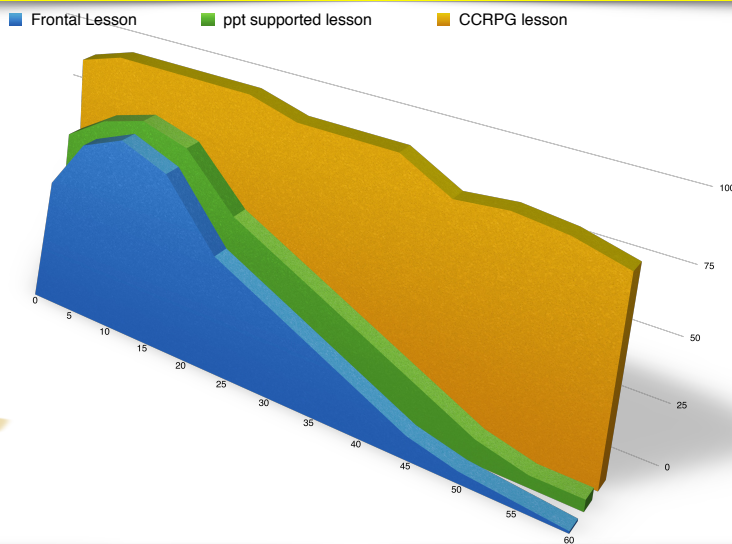
Percentage right answers post-test / pre-test, measured after frontal teaching activity (bleu), after multimedia teaching activities supported by PowerPoint (green) and after GeoQuest teaching activities (yellow), respectively in secondary school (13 years aged), in technical high school, in lyceum high school and in a classroom with "flipped" teaching approach.

Characteristics	<i>GeoQuest Project: CCRPG (Computer Classroom Role Playing Game)</i>
Immersion	Narrator speaking voice, sounds effects, photo, original designs, musics, create a totally immersive environment
Engage	thanks to storytelling, mystery and suspense
Changing Environments	adventure pathways change depending on the players' choices
Mystery	each path may have a different finish; fantasy is blended with real world
Shared Experiences	all players follow game on the same multimedial whiteboard, or other screen
Cooperative Learning	shared experiences foster cooperative learning
Lab	possibility to have lab activities or watch related videos
Immediate Feedback	Game engine indicates immediately whether the answer provided by the player is correct or wrong; in the latter case, the exact answer is indicated
Interactivity	players interact with the game trough their own smartphones or tablets, using a LAN
Interdisciplinarity	Science topics are treated with humanities
Multilanguage	adventures pathways available in any language
Inclusion	accessible design creates an inclusive educational environment: different communication codes (video, audio), notebooks ad hoc
User Friendly	Software is specific for this CCRPG and it can also be used by non-experienced teachers

This approach is based on a new didactic methodology:
a Computer Class Role Playing Game (CCRPG)



Percentage of right answers post-test / pre-test, measured after frontal teaching activity (yellow), after multimedia teaching activities supported by PowerPoint (green) and after GeoQuest teaching activities (red), respectively in secondary school (13 years aged), in high school and in all cases with CLIL approach.



Percentage of attention level measured after frontal teaching activity (bleu), after multimedia teaching activities supported by PowerPoint (green) and after GeoQuest teaching activities (yellow). Average calculated on 26 classes.

Attention rate for the frontal lesson and the one related to the multimedia lesson are similar: the multimedia activities (ppt supported) allow only a degree of attention slightly larger. This may be the contribution of the multimedia tool, which increases the perception.

The student perception increases but has the same small attention duration and the same drop out.

Instead, the CCRPG allows a significantly greater attention, with a persistent attention during the whole game. We can conclude that it is not the multimedia tool itself to give a more profitable learning environment, but the engaging and the interactivity.

