



Learning on Gaming

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

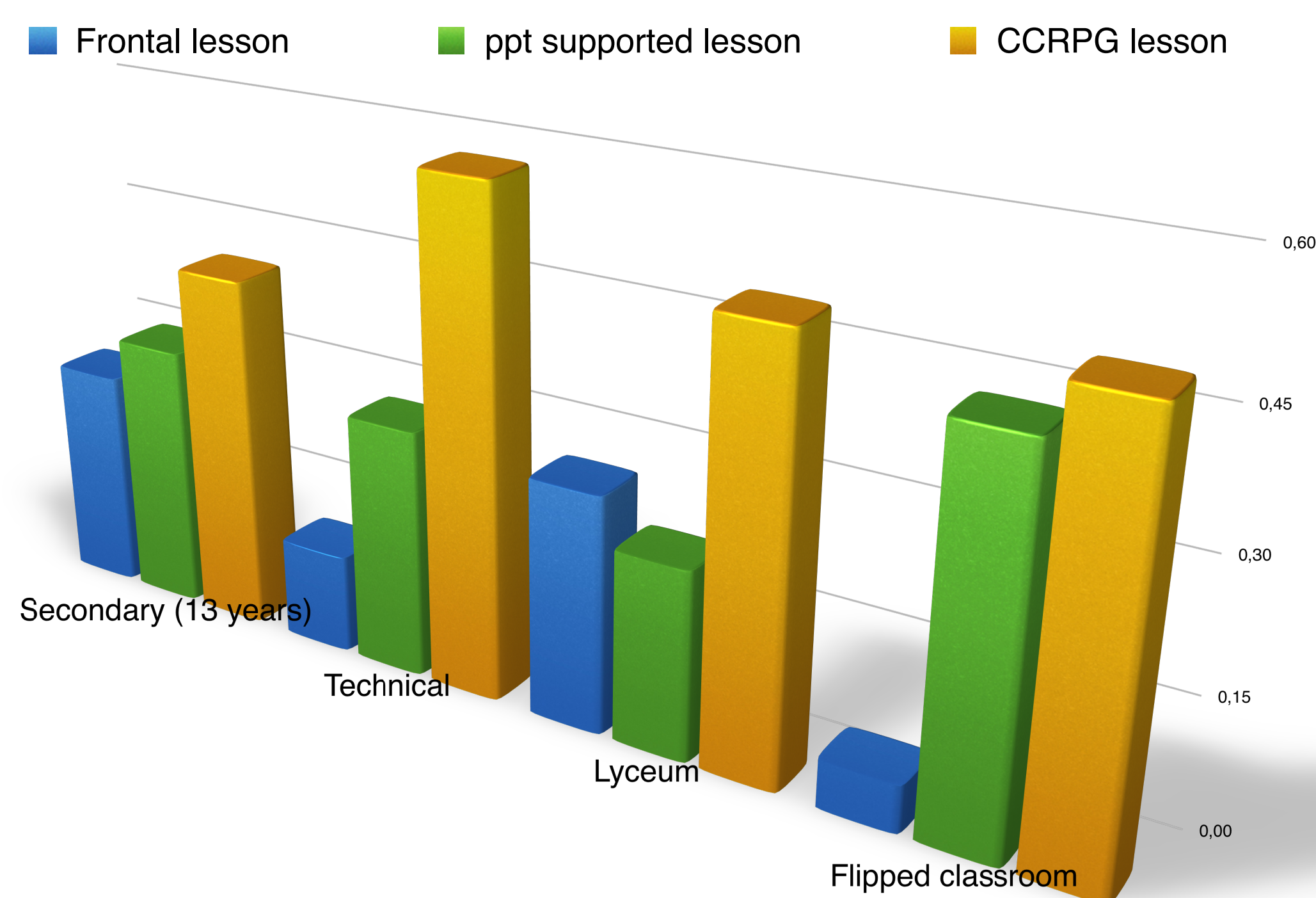


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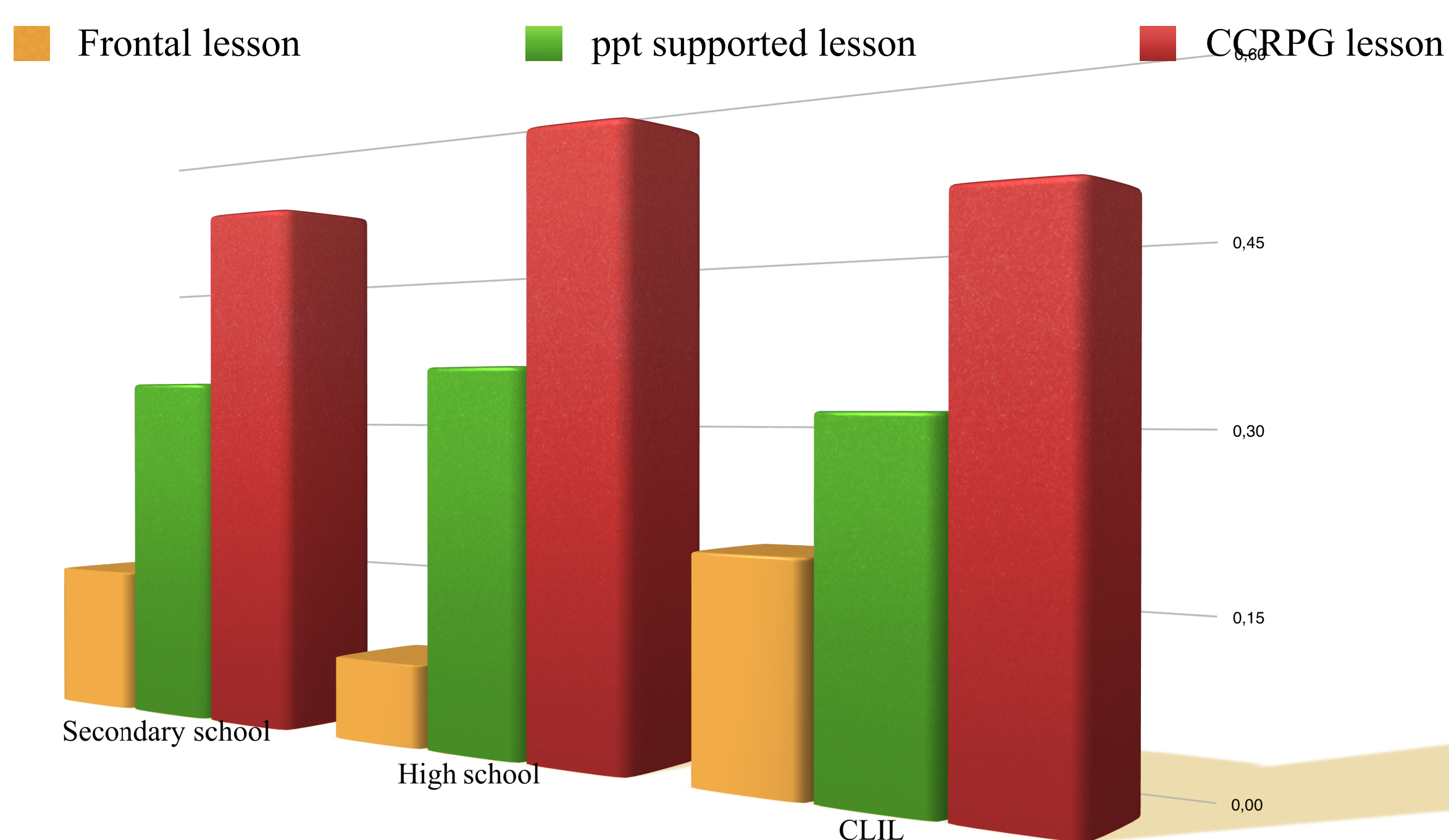
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We developed a digital educational environment based on adventures games to be played by the class as a whole:

Learning on Gaming (LoG)



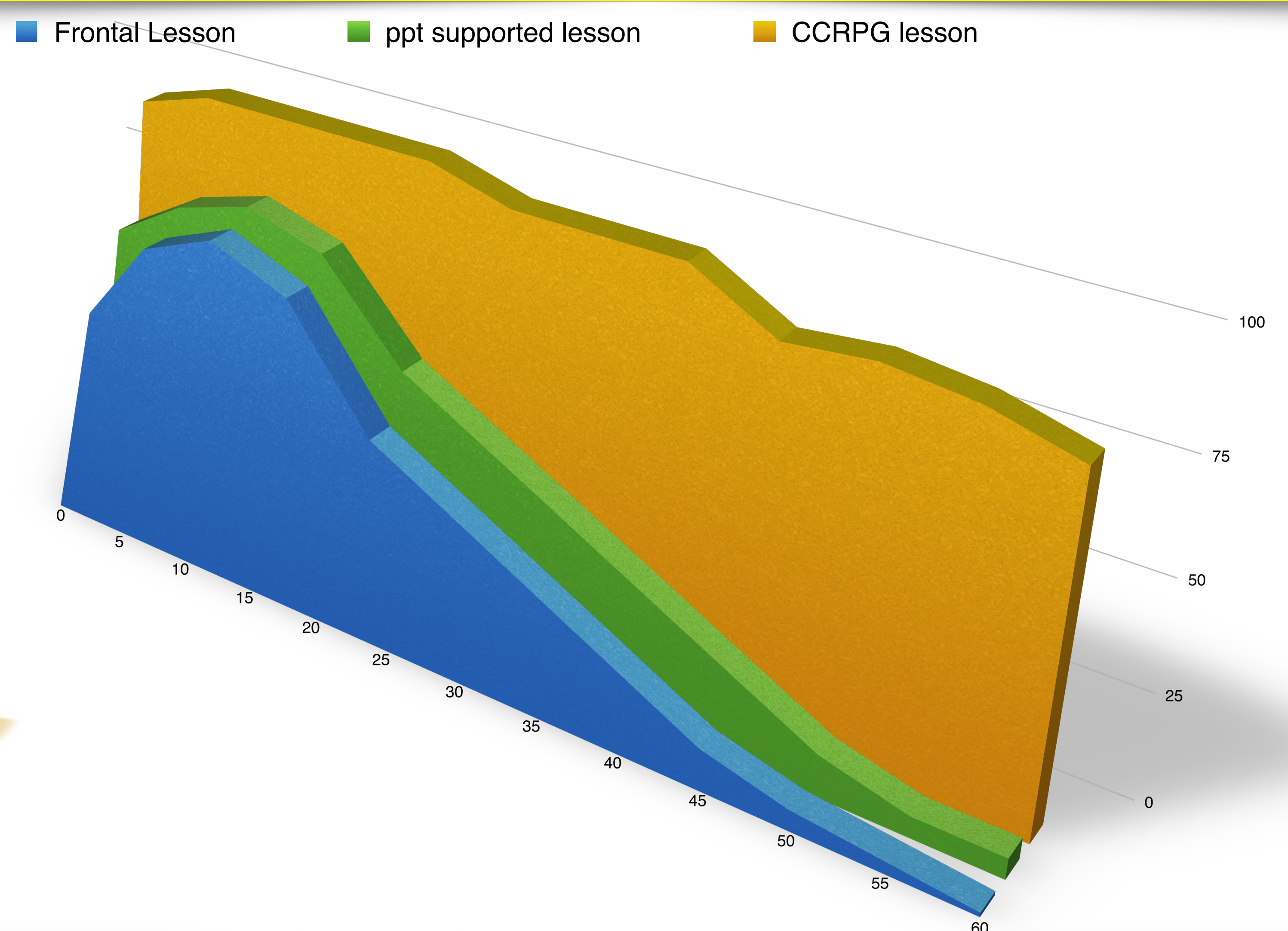
Percentage right answers post-test / pre-test, measured after frontal teaching activity (bleu), after multimedia teaching activities supported by PowerPoint (green) and after GeoQuest teaching activities (yellow), respectively in secondary school (13 years aged), in technical high school, in lyceum high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



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.

| Characteristics | GeoQuest Project: CCRPG (Computer Classroom Role Playing Game) |
|-----------------------|--|
| 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 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.



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