Serious gaming in Science: Creating awareness about far-reaching economic and social implications on water stress problems using games

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Water stress is a global problem with far-reaching economic and social implications. The mitigation of water stress at regional scale depends not just on technological innovations, but also on the development of new integrated water management tools and decision-making practices. Simulation games, in particular, can leverage the anywhere/anytime nature of mobile computing, extending student respectively stakeholder engagement with content beyond face-to-face discussion time and asking learners to synthesize digital information with real-world observations. Moreover there are investigations indicating, that in 2008 about 40% of U.S. companies will adopt serious games in their training efforts (http://blog.nelearning.org/?p=37). Triggered by the Aquastress Project (http://www.aquastress.net/) Alterra B.V. Wageningen picked up this issue designing and implementing a serious game to transparently reach a broad community informing a broader more general public about water management and land planning by visualizing the interactions between ecological and economical impacts on water stress. In doing so the application "HydroSyplash" was created that represents a water domain specific game based on the integration of simulation models and raster data. The progress of the project and the request of different stakeholders have proven that the game could be applied in a broader context than just teaching the public e.g. as a medium for lessons at universities. The basis of the game is based on raster maps so a variable playing fields are easily created from real world maps. As the application is still focused solving technical (IT-relevant) questions the utilization or integration of real remote sensing data is still rather conceptually than practically

performed. So one question addresses the discrepancy between performance on the one side and the complexity of real world models on the other side. As game must respond quick enough to the actions of the player, attempts were undertaken to simplify the underlying models balancing the trade of to what extent models can be simplified without loosing to much reality (and thus possibly disappointing the player with already some knowledge about the models). However the real integration of remote sensing data is foreseen for a next step of the implementation as the application admits that a certain extent the underlying hydrology and economical models can be altered without changing the source code of the game. The Splash game proofed itself very suitable to address al kinds of water management and land planning related issues to a broad public.