Chapter 12


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ABSTRACT
The case for utilizing computer game modding in an architectural design curriculum is a strong one. The rich intertwining of real-time spatial, material lighting and physical simulations reinforce spatial visualization, navigation, and mental rotation. In the past two decades many researchers have implemented games engines in architectural curricula, but in every case, the courses have been in upper years of their students’ degrees, with small, elective classes rather than core courses. That this is in contrast to the wider computer game modding community, suggesting that the difficulties previous researchers have had may actually be mitigated by implementing the technology, along with aspects of computer game modding culture, in large first year classes. Case studies of student work collapse Stockburger’s distinction between the game designer and the game player to further his extension of Lefebvre’s and Soja’s thinking about space as it relates to computer gaming. The chapter concludes by reconsidering the term ‘player’ as a ‘game designer in testing mode’.

INTRODUCTION
Section one will contextualize the chapter by making a case for utilizing computer game modding in architectural design curricula and briefly surveying serious games from a wide variety of fields (including military and surgical training through to economics and other social interactions). The section will then compare and contrast computer game modding with conventional architectural animation to build an argument that computer game environments are more than ‘skin deep’. The section will conclude with the proposition...
that computer game environments can be considered as both a computational technology and methodology.

Section two considers the implementation and interface of computer gaming technologies within architectural design curriculums. Questions arise such as; should the use of computer game engines be limited to small classes in the upper years of their degrees? What experience in computing do students need to be able to engage the technology effectively? Are there examples of collateral learning going on? What are the weaknesses? This section is bound together by a consideration of the culture surrounding computer game modding and the lessons that might be learnt or methodologies that may be transferred. For this reason section two will focus on four commercial (as opposed to independent developers) game engines with large modding communities. Case studies here will focus on curriculum design and development rather than student work directly.

Section three considers the ‘World Builders’ of computer game engines as a medium, as one might consider traditional sketching or painting with watercolours. By referring to case studies of student work this section examines the effect that designing utilising computer game engines has on architectural outcomes. Do the plans or sections of a student’s project resemble those designed using conventional digital modelling for example? Is the media promoting a new architecture? Section three will also outline representation and conceptual issues raised by computer gaming technologies and the implications of these for students. Finally this section will argue that looking beyond the distraction of weapons and vehicles present in many modifiable computer games is critical so that they may become instruments that are able to contribute to architectural design and interaction.

Section 04 presents two case studies on work outside the architectural design studio and notes on the use of computer gaming technology in practice.

Note: to fully appreciate the architectural tests and resulting innovations described in Sections 03 and 04 the author would like to share the full computer game environments. There are however, some practical impediments in doing so (as noted in Section 02). To facilitate the richest engagement with the case studies described in Sections 03 and 04, in an easily digestible fashion, links to video captures are provided via author’s website: www.russelllowe.com/publications/cdmt/cdmt.htm. Alternatively readers can email the author directly to request specific computer game files; a current email address will be provided within the webpage noted above.

SECTION 01: A CASE FOR USING COMPUTER GAME MODDING WITHIN AN ARCHITECTURAL DESIGN CURRICULUM

To understand why academics or students should consider using computer gaming technology within the context of an architectural design curriculum a brief overview of the computer games historical and cultural development alongside its key elements is useful.

Recently a new category of games has emerged; called serious video games they take advantage of a technology that has been pushing the envelope for the past 30 years (Microsoft, 2004). For followers of contemporary media it’s not surprising to find that computer games are capable of being “serious”. Looking back to the late 50’s and early 60’s one finds that the origin of the technology had very serious purposes indeed; military air defence systems such as projects “Whirlwind” and “SAGE” (Rheingold, 1991). So even though one should understand serious games as a technological imperative coming full circle rather than emerging innocently from our entertainment media there is one obvious and major difference this time around; many, many more people are involved.

One set of statistics describing American computer gamers in 2010 (Online Schools, 2010) show that 65% of US households play computer games
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