Chapter 10
Video Game Making and Modding

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ABSTRACT
The purpose of this chapter is to provide an overview of current literature on video game making and modding (modification). The chapter describes key game making tools and educational programs that incorporate game making, to promote student outcomes ranging from media literacy to the development of computational thinking and greater interest in computer science. This is followed by a discussion of empirical literature on game making and modding as fan practices, and an overview of new game making tools and communities that are blurring the lines between educational, professional, and fan-driven game making practices. Lastly, the chapter addresses key issues, directions for future research, and recommendations for policy and practice.

INTRODUCTION
Video games have existed almost since the creation of computer technology, and these games have grown rapidly in popularity, diversity, and sophistication along with the growing pervasiveness of computing. Video game, as an all-encompassing term, in this chapter refers to all types of digital games, ranging from simple, single player puzzle games to complex multiplayer games involving thousands of players. Currently more than half of all households in the United States own one or more game consoles, almost all children and teens report playing video games, and even the majority of adults, both women and men, play games at least occasionally (Lenhart, Jones, & MacGill, 2008). Games can be played on almost any digital platform, and mobile games, played on phones and tablets, have made gaming increasingly pervasive. The economic impact of gaming is huge: the Entertainment Software Association (2013) estimated that Americans spent more than $21 billion dollars on video games, hardware, and accessories in 2013 alone. The social impact of video gaming is enormous as well, ranging from gaming’s significance as a means of socialization

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(millions of players, for example, play games together online or face-to-face), its impact on popular culture in general (as an example, note the pervasiveness of the Angry Birds product line) to the growing interest in the use of games and gamification as tools for education, health promotion, scientific research, and a host of other “serious” purposes (ibid).

Academic interest in video gaming has exploded over the last couple of decades, and scholars have approached the study of gaming from fields as diverse as cognitive psychology, medicine, economics, sociology, law, computer science, and education. Much of this scholarship has focused on video game play; that is, who plays what kinds of games, how playing games affects cognitive, emotional, social or physiological capacities or dispositions, the dynamics of social interactions associated with game play, and so forth. A more limited amount of scholarly attention, primarily in education, has been devoted to making games as a practice associated with gaming and as an activity in its own right. Making video games encompasses all aspects of creating a game, from the more technical aspects of writing software code or graphic design to the more conceptual tasks of identifying engaging game goals, actions, and themes. As we will describe below, game making has been popularized through the availability of simplified game design tools that can be readily used by aspiring game makers of all ages and backgrounds. Scholarship on game making tends to take one of two directions. One line of investigation has focused on understanding game making, or in particular game modification (modding) as a fan practice. (This is in contrast to research on game design as a professional practice, of which there are surprisingly few studies; Khaled & Ingram, 2012). Video game modding, and to some extent, game making, is a popular leisure pursuit among game players, and there are many fan communities devoted to sharing game mods, advice, tutorials, and tools. The second line of work focuses on the use of game making, or less frequently, game modding, as an educational strategy. Video game making has been increasingly adopted in K-12 educational settings, both in school and in after-school programs, as a means of introducing young people to programming, computational thinking, or other skills and dispositions. Research, often in the form of evaluative studies, has explored the outcomes and less frequently, the process of game design, in such settings. Video game design courses and programs have proliferated in post-secondary education over the last decade. These are primarily professional preparation programs (preparing students for jobs in the game design industry) and studies of such programs will be excluded from our chapter.

In this chapter we will review and discuss key literature on video game making and modding in both of these contexts. While there is great interest in game making and modding as fan practices and as educational approaches, the empirical literature on these topics is relatively sparse. In addition, the tools and practices associated with game making and modding are quite varied, which makes it difficult to draw conclusions about what students might learn from making games in school, or how participation in game modding communities might require particular forms of knowledge or skill. In addition, the lines between making and modding games and other forms of interactive media are often blurred in practice as well as in research. We will argue that such diversity of tools and practices and artifacts is valuable, in providing multiple gateways into game making and modding and potentially into broader forms of productive digital practices and communities. However, we also discuss the need for educators to make stronger connections between classroom-based programs involving game making/modding and informal fan communities devoted to game modding/making. We also call for more attention to the value of game making and modding; that is, understanding how games are a particularly powerful focus for the development of particular forms of knowledge and skill, and their potential as a focal point for
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