Chapter 2.7
Electronic Gaming in Germany as Innovation in Education

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ABSTRACT

Electronic gaming in education remains a theoretical or at best marginal issue as long as it is not adopted in general educational settings. The latter, however, not only depends on the intrinsic values or advantages discussed in other contributions to this volume. Rather, electronic gaming in education provides an interesting example for a complex adoption process where individual choices, organizational frameworks, and educational policies, as well as attitudes in the society at-large, interfere in the diffusion of gaming devices and the adoption of gaming for learning processes. After introducing an analytical framework for structuring such processes of the diffusion of innovations, the authors present empirical evidence from the adoption process of electronic gaming in Germany. The results are discussed focusing on the role of several influencing factors on the scope and the speed of innovations. The chapter concludes with possible generalizations departing from the specific situation and the tradition of education in Germany.

INTRODUCTION

Today, electronic games have a history of more than 25 years and include, besides the original PC-based games, a variety ranging from online games for one, for two, or for thousands of simultaneous players to games played on mobile devices (like Game Boys or mobile phones) and even

combinations thereof (e.g., Kolo & Baur, 2004). Technological improvements, specific and intense marketing activities by the game industry, as well as an increasingly widespread access to electronic devices and competence in computer usage, have led to the fact that from the early '90s, electronic games became a matter-of-course in the everyday life of young people, including children in most industrialized countries (e.g., Fromme, 2003). This cultural and social significance of electronic games (e.g., Livingstone & Bovill, 2001; Singer & Singer, 2002) is also pedagogically relevant for at least three reasons:

1. Efforts by public institutions like schools at increasing ICT skills or media competence are generally preceded by children growing up (among others) within their "computer gaming culture."
2. As a time-consuming leisure activity, gaming plays an important role in the psychology of childhood development and in the ways social networks are knit among children but also among (young) adults. This in turn moulds—at least partly—formal and informal learning processes.
3. Games and gaming are eventually also seen as a new means for teaching and learning in a variety of subjects to support individualized learning processes.

This chapter is focused particularly on the latter of these three aspects of electronic games in the context of education. However, the public discourse on the first and second aspects strongly influences the pick-up of electronic games as an educational innovation. Effects of electronic games on childhood development are generally seen as very critical with few exceptions (e.g., Greenfield, 1984, 1996, as one of the earliest and persistent examples discussing also possible positive effects). Though the empirical evidence is ambivalent, even children and young people who are very engaged, in terms of frequency and general interest in playing electronic games, apparently do not give up other activities or become socially isolated (Fromme, 2003; Kolo & Baur, 2004). The discussion in Germany is mainly led by critics who regard electronic games as motors for social isolation, aggressive behavior, decreased school performance, and gender divide (e.g., Aarsand, 2007; Dittler & Hoyer, 2006; Schindler & Wiemken, 1996; Spitzer, 2005). Unfortunately, no empirical evidence is documented in English. In media and political debates, gaming activities of children and young people are rather associated with violence and crime. A link to teaching and learning is rarely found, neither in research nor in practice.

We follow the theory of mediatization (Hepp, Krotz, Moores, & Winter, 2007; Krotz, 2001), which assumes that "new" media do not replace traditional media, but enrich the media ensemble that is used. In management training, simulation games are increasingly common, though far from being widespread in Germany. There is strong evidence that gaming applications in this sphere are supporting learning processes in an efficient and effective way (e.g., Dörner, 2003). Other examples for the successful integration of simulation or gaming applications to support learning come from higher education (e.g., Ebner & Holzinger, 2007).

However, success stories from neighboring fields, promising concepts as well as concrete examples for applications as given in other contributions to this volume, are neither necessary nor sufficient preconditions for the adoption of electronic gaming in education on a larger scale—not to speak of its widespread use on the basis of general educational settings. In the following we will therefore introduce electronic gaming in education as a case in point for a complex adoption process where individual choices, organizational frameworks, and educational policies, as well as attitudes in the society at-large formed in public discourse, interfere in the diffusion of gaming devices and the adoption of gaming as an activ-

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