Play with Money: The Role of Digital Games in Promoting Financial Literacy

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EXTENDED ABSTRACT

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financial literacy, economic games, educational games, game economy, simulation, simulators, business simulators, game history

INTRODUCTION

Although the adult education level in general is on the rise, some learning areas are still heavily underdeveloped although being unanimously considered important. One of these areas is financial literacy, the significance of which only increases as the global economic perturbations and changes in social security systems are intensified. According to several studies (e.g. de Bassa Scheresberg 2013; Willis 2008), financial literacy of adults remains relatively low, despite specialized educational programs. Many individuals lack basic capabilities to manage their own finances, which in the long run may lead to impoverishment, excessive stress, and decreased quality of life. More specifically, low financial literacy is correlated with phenomena such as deficient preparation for retirement, lack of financial investments, use of high-interest debt, and overindebtedness (see Lusardi & Mitchell 2014).

A natural reaction to this deficit of financial literacy is to try to improve the situation by educational interventions. However, the effects of current financial education programs have been debated, and the record of successful implementations remains constricted (Carpena et al. 2011; Hastings et al. 2013; Pinto 2013). A relatively new and promising way to deliver financial education is game-based learning. Games can be a way to naturally expose students to economic concepts, personal financial decision-making, and various theoretical macro economic models through the means of simulation. Ample evidence exists (e.g. Maynard et al. 2012; Harter & Harter 2010) that games are an effective way to provide financial education. In addition to the so-called serious games and the use of games in schools, financial literacy can be greatly improved also in informal settings and through regular gameplay. This is the starting point of this paper.

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Our research project focuses on the economic aspects of mainstream, recreational digital games; we analyze how these aspects can promote financial literacy and skills. We start from the foundational observation that many design characteristics and mechanics in games can be interpreted and analyzed as a part of a wider economic context. Even more importantly, these ludic features can be utilized for the simulation of financial decision-making thus providing players with a test environment for learning about real-world situations and events. What we have termed 'economic games' include features that simulate at least some of the basic concepts of an economic system (e.g. supply, demand, scarcity) which help players understand personal finances through this simulation.

Whereas educational games designed to promote financial literacy often explain economic concepts and simulate personal finances such as getting loans (Liu et al., 2011), the majority of digital games do not explicitly focus on economic themes. In order to evaluate the commonness of economic aspects in digital games, we first compiled a database including all commercially published digital games for all known platforms (excluding mobile games due to lack of available data). Our full database comprises of nearly 100,000 digital games released between 1963–2017. Out of these we sorted out 'economic games', i.e. games that simulate an economic system or financial aspects according to our criteria. This query resulted in a sample of 1,295 games.

As the set of 1,295 games would be too large for a detailed textual analysis in this paper, we iteratively selected a sample of the most popular games on the basis of four criteria: 1. the level of economic simulation (personal/business), 2. scale (micro/macro), 3. theme (general description), and 4. game mechanics (general description). As we are interested in seeing how games can promote financial literacy, we reasoned that the more popular an economic game was, the more effective it was also in the context of learning. Thus we collected a dataset of 92 popular games, in English, released between 2000 and 2017. We thoroughly analyzed their contents by playing the actual game and/or reading game manuals, game reviews and forum posts, and watching 'let's play' videos on YouTube. Relying on the crowdsourced Mobygames database (Mobygames 2019), we were able to develop a classification system for these games and explore their economic aspects in detail.

On the basis of our big data, starting from the 1970s, diverse economic elements can be found in a great number of both serious and commercial games released on all platforms, from major micro computers and consoles to current browser-based games. The pinnacle of economic game releases on the aforementioned platforms is observed between 2000 and 2005. One interesting preliminary finding is that the vast majority of economic games features a simulation of running a business rather than of personal or macro economy.

Learning from games and with games, as well as their special connection to various literacies and their development have been thoroughly explored by game studies scholars, starting from Gee (2003; 2004). However, informal 'sandbox' learning of economics and finances in games has never been the focus of game researchers. Economic concepts and mechanics have been present in games throughout their history. For instance, elements of game design such as made-up currencies, game mechanics such as resource management, and ludic narratives such as running a company, building an economically viable city, or becoming a business tycoon have been fundamental game contents throughout decades. Some of the classic board games like *Monopoly* and *The Game of Life* also feature the characteristics of economic games: they focus on economic themes, employ transaction of resources

(buying and selling) as a game mechanic, and have their own currency to measure the value of in-game items.

In summary, our paper provides an overview of 'economic game history' from the 1960s to this day, focusing on the period between 2000–2017, and highlights the economic aspects of 92 popular games in the categories of simulation, scale, theme, and game mechanics. On the basis of this analysis, we are able to suggest how games promote financial literacy. The potential of games should be considered an important method for empowering players to not only know more about economics but also make reasonable and unbiased financial decisions in their lives.

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