

TEACHING FINANCIAL LITERACY AROUND THE TOPIC OF GAMES: A CASE STUDY

T. Wernbacher¹, N. Denk¹, A. Pfeiffer¹, S. Bezzina², M. Fleischhacker³

¹*Danube University Krems (AUSTRIA)*

²*B&P Emerging Technologies Consultancy Lab Ltd (MALTA)*

³*Space21Future (AUSTRIA)*

Abstract

In the last decade, various pricing models have been developed around computer games. The classic model is games that are bought at a fixed price and no further spending is necessary. However, for some of these games, there are frequent content expansions, such as new stories, available to purchase. Other games have an initial price and a subscription model. A further concept, which can be seen in well-known esports games, such as "League of Legends", but also in mobile games, such as "Clash of Clans", is the free2play model. Here, the game can basically be played for free, but there are in-game purchases or so-called season passes, where rewards can be earned more quickly. In all models with in-game purchases, it is always the same procedure: for real money, a further type of in-game token (for instance, jewels in Clash of Clans and "FIFA points" in FIFA) can be bought in addition to the in-game currency that can be earned by playing the game. However, it is only possible to invest money in the game, but not to convert the in-game currency into real money (although there are workarounds like using eBay or other platforms and sell the game accounts or meet in game to transfer in-game currency which has been purchased with a peer2peer FIAT transaction before). In some cases, that secondary currency, which is intended to be purchased for real money, can also be earned, but usually only very slowly and with a lot of effort while playing, which might have legal reasons, so the games cannot be blamed to fall under the gambling jurisdiction. This paper takes the esports School League Floridsdorf+ in Vienna as an example to examine how the topic of digital games and their respective around the game and in-game economy can be used to introduce students to the topic of financial literacy. This can also be facilitated to explain classic financial topics such as interest rates, inflation, deflation, savings accounts or new technologies such as blockchain in an applied and sustainable way.

Keywords: Game-based Learning, Financial Literacy.

1 INTRODUCTION

Various pricing schemes for computer games have been created throughout the last decade. The traditional concept involves games that are purchased at a set price and do not require additional expenditures. Some of these games, however, have regular content expansions, such as new storylines, that may be purchased. Other games offer a one-time purchase fee as well as a subscription plan. The free2play model is another notion that can be observed in well-known esports games like "League of Legends," as well as mobile games like "Clash of Clans." The game can be played for free here, but there are in-game purchases or so-called season passes that allow you to collect rewards faster. The mechanism is the same in all models with in-game purchases: for real money, a different sort of in-game token (for example, gems in Clash of Clans and "FIFA points" in FIFA) can be purchased in addition to the in-game coins gained by playing the game. However, you can only invest money in the game; you cannot change in-game currency to actual cash (although there are workarounds like using eBay or other platforms and sell the game accounts or meet in game to transfer in-game currency which has been purchased with a peer2peer FIAT transaction before). In certain circumstances, that secondary currency, which is designed to be acquired for real money, can be obtained as well, but only very slowly and with a lot of work while playing, which may be for legal reasons, so the games are not considered gambling. This study examines how the topic of digital games and its respective around-the-game and in-game economies can be utilized to introduce learners to the idea of financial literacy through using esports School League Floridsdorf+ in Vienna. This can also be used to explain traditional financial concepts like interest rates, inflation, deflation, and savings accounts, as well as emerging technologies like blockchain, in a practical and effective way to the target group, meaning pupils and students. But what is financial literacy? Financial literacy has been defined in a variety of ways in the literature. We like to refer to Fox, Bartholomae, and Lee [1], who asserted that financial literacy denotes one's

understanding and knowledge of financial concepts and is crucial to effective consumer financial decision making.

2 FLORIDSDORF+ ESPORTS SCHOOL LEAGUE

The esports school league Floridsdorf+ will start the next round in September 2021. Teams of 3 girls and 3 boys will play various youth-friendly games competitively. The game FIFA is particularly suitable for linking to the school topic of financial literacy. This is the overarching theme for this season with regard to the creation of teaching and learning content around our esports league.

3 METHODOLOGY

For this case study paper, the games FIFA, Clash of Clans and League of Legends were analyzed in regard to how these games, which influence the lives of many of our children, can be used to create financial literacy education. The aim is to create a learning transfer from experiences in the games to real life. In the following, some of the key elements from these games and their association with real-life processes in regard to financial literacy will be presented.

4 RELATED WORK AND PROJECT IDEA

The idea of using the topic of games to teach financial literacy is not new. There are, for example, a number of board games, both commercial and special educational games, that are dedicated to this topic. The best known are certainly Monopoly or DKT (Das Kaufmännische Talent). In the digital world, for instance, financial football is well known. This is a free2play mobile game that was developed by the NFL together with the credit card company VISA and deals with the topic of financial literacy embedded in the context of American football.

Cheng [2] has created an analysis of selected digital games around the topic of financial literacy and evaluated them according to game design criteria. His results demonstrate that the organizational structure based on Kiili's [3] experiential gaming model. Kiili model combines flow theory, problem-based learning theory, experiential learning theory, and game design in order to improve educational objectives. His framework is intended to ground game design in effective learning theories and to establish clear rules for experiential games. The experiential gaming approach makes it easier for designers to build and teachers to find games that support experiential learning. Based on Kiili's model, we have identified the Ultimate Team mode of FIFA21 from the pool of esports school league Vienna games in regard to its possible use in the area of teaching financial literacy and would now like to present the results of the analysis.

The aim of the project is to create pedagogical instructions that are life-world oriented and implemented within the framework of the esports school league. In order to further increase motivation and to arouse interest in the topic, it is planned to conduct a financial literacy quiz before each tournament game. The winning team can then determine the settings for the next match, for example, in which virtual stadium the next game should be played.

5 INTRODUCTION TO FIFA ULTIMATE TEAM

FUT, abbreviated for FIFA Ultimate Team, is a unique, card-based mode in the game. Rather than selecting a pre-made team or drafting players, one creates a team using cards purchased with in-game gold or virtual currency (which have to be bought using real money).

As your team improves, you can participate in single-player leagues, tournaments, or special Squad Battles against AI-played teams. But of course, you can play the game online and compete against other players, here we have different modes, like friendly games, the Rivals online league or most important the weekend league, for which you have to qualify first. The weekend league gives you the opportunity to collect special edition of the best cards in the game, which are untraded and in a special red design. The weekend league is representing the esports part of FIFA. Everything you do earns you points (in-game gold) toward improving your team, and if you discover a player who no longer fits in your squad, you can sell him to other Ultimate Team players for additional currency.

When you have achieved special goals, you also receive packages to open. Here you have to differentiate between packs that contain non-exchangeable cards and packs that contain exchangeable cards. These can be exchanged for in-game gold on the transfer market. As a player, you often have to decide, for example in the case of the Rivals rewards, whether you would rather have 2 non-exchangeable or 1 exchangeable pack. The third option is to choose in-game gold directly in order to buy the right player on the transfer market. If you buy FIFA points for real money and open packs with them, they are always exchangeable cards. FIFA points can never be re-exchanged for real money. There are several million items on the transfer market with thousands of transactions per minute. In addition to players, you also have to bid for training cards which improve the players, managers or decorations for your own stadium.

Criticism has been raised against the game, because real money can be used to buy packages, known in the jargon as "loot boxes". These are repeatedly advertised with promotions and there is a real danger that you will spend more money here than you would actually like to spend on a game. This aspect is intensified by streamers who do so-called pack openings and often open packs for 100s of Euros a day. This questionable side is also a very important aspect and a point of discussion in relation to FIFA Ultimate Team and its use in the area of financial literacy education.

6 RESULTS

We would now like to outline various principles of finance and describe how they are reflected in FIFA, thus providing an opportunity to develop pedagogical material to discuss these important aspects with students.

✦ Value generation:

How is added value created? Using FIFA as an example, this can be explained by the fact that a certain amount of gold is earned with every game played. Depending on the mode, difficulty level and outcome of the game, the amount earned varies. Factors of value creation are therefore invested time on the one hand and other influences and factors on the other. These can be discussed further on, for example, on the basis of different professions.

✦ How auctions or stock exchanges work:

Another way of adding value, but also of losing value, is to store and trade the playing cards. This is a wonderful way to explain how auction houses and exchanges work. The topic of speculation and the associated opportunities, but above all the risks, can also be explained using simple examples around the FIFA player transfer market.

✦ Demand and supply:

Linked to this, the basic principle of supply and demand can be explained. If more people want to buy a player than there are sellers, the price rises. And vice versa, if there are too many sellers but little interest in a card, the price drops. Here, you can discuss price pressure and pricing very nicely by showing examples from the transfer market and how sellers who urgently want to sell a card can pull the whole market down and thus trigger a bear market.

✦ Price development:

Similarly, medium and long term pricing can be discussed by looking at charts of players over a longer period and analysing why certain price jumps have occurred. Players gradually receive new editions in the game. However, it is always only known one day before a "Team of the Week" update which players will be affected. There are also cards that are linked to real-life football events. For example, if a player scores 5 goals in a maximum of 5 games in real life, his card in the "what if" edition increases.

✦ Market regulation:

And this leads to the next point of market regulation and market influence by the regulator - in the case of the game it is the developer EA. In real life, the government or central banks. In the game, the publisher sets a maximum price per card, this can move up or down if there is price pressure in either direction. If, for example, a normal gold card is always bought in an instant purchase for the maximum amount of 10,000 gold, the price range is increased to 100,000 gold. Up to cards that cost several million, because the cards are worth so much to the players. If the manufacturer now lowers this price range again, collectors of the cards potentially lose value in gold. Or if EA decides to start with specific

valuable players via the playable goals or the Squad Building Challenges, a puzzle game where you trade entire teams for a player, this triggers extreme price pressure on the respective tradable card in the transfer market. It is therefore an outstanding way to present market regulation in a tangible way.

These puzzle challenges are also a good way of explaining how funds are removed from the market. When you play those puzzle challenges, the cards are digitally returned to the manufacturer. If there are special cards that have to be sent in and if these cards were only available for special weeks, there will be fewer of these cards actively available in the game. There is a wonderful connection here with blockchain technology and the principle of asset burn addresses and the effect on trading through reductions in the maximum number of tokens available.

★ *Fraud:*

Another important point is fraud. Using FIFA Ultimate Team, cybercrime can be dealt with in the same way as fraud via trading on the transfer market. The aspect of how the manufacturer deals with it or which crimes are also the responsibility of the authorities can also be dealt with.

Using three screenshots, we would now like to illustrate the similarity of FIFA's financial market with the stock market and blockchain trading using the example of Ronaldo's gold card. On the website FUTbin.com, players have the same analysis tools at their disposal as traders on the stock markets. This is therefore a very exciting way to start this transfer from the game and also to work with older students with financial mathematics in connection with the game. What is particularly noteworthy is that on FUTbin.com all mathematical calculations and markings can be performed per player card, just as in the analysis of stock exchange or cryptocurrency values. We hope that the motivation to learn these processes will be higher through the game than in traditional lessons.

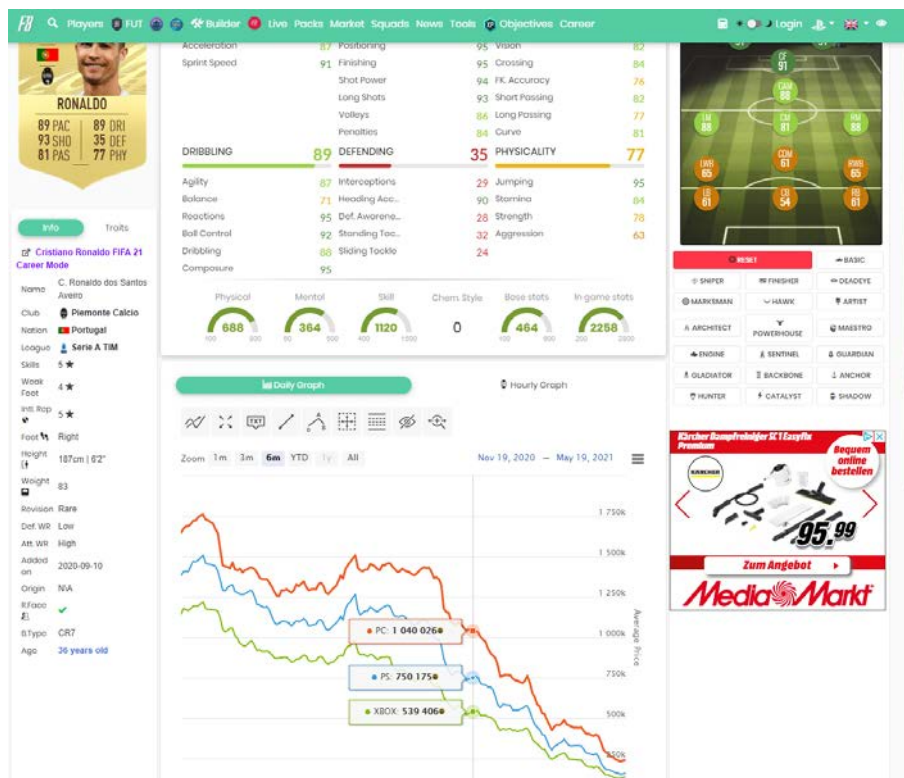


Figure 1. FUTbin.com showing the chart of Ronaldo's basic card.

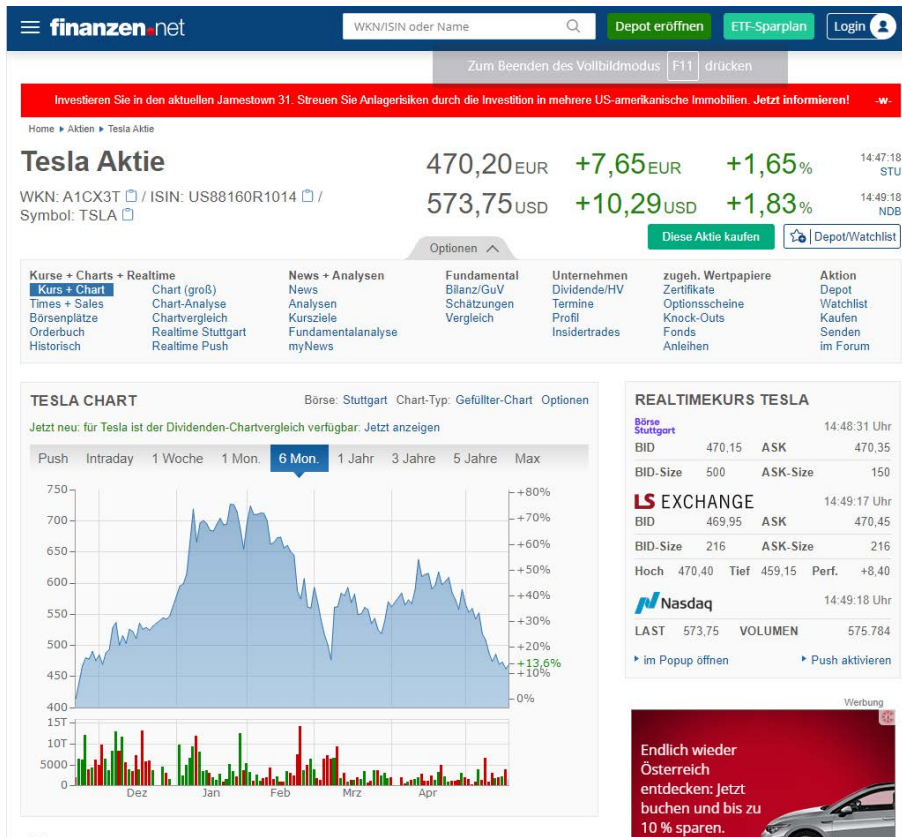


Figure 2. Chart of the tesla stock.

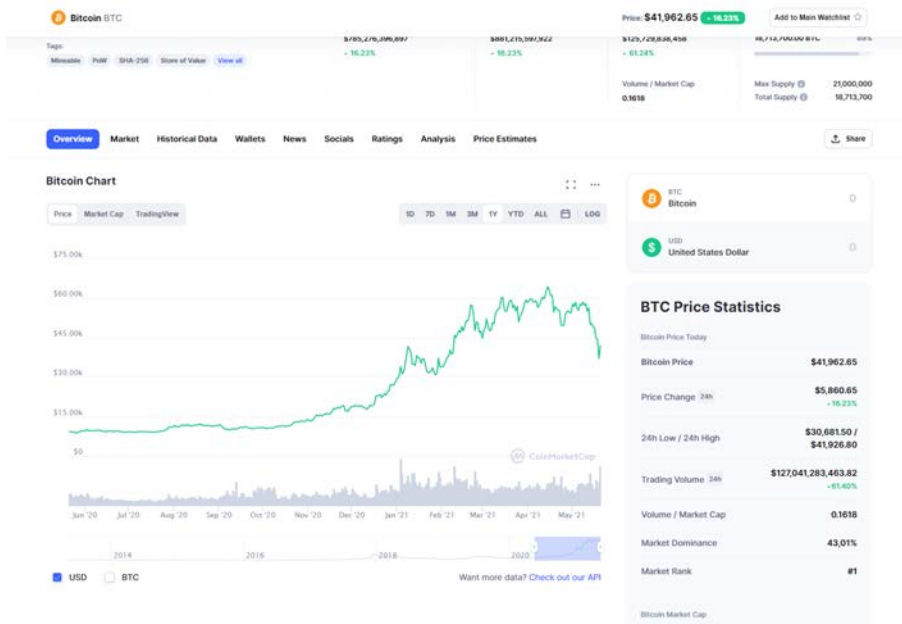


Figure 3. Bitcoin chart.

7 CONCLUSIONS

Unfortunately, due to the Covid 19 crisis, the implementation of the esports school league and therefore the application and research of our teaching materials has been delayed. The follow-up paper will therefore critically examine our assumption that esports, specifically FIFA, is a good tool to teach financial literacy. However, our preliminary work presented here suggest that the assumption around the game

used can work in teaching this important topic. Updates on the project can be followed at <https://www.esport-schulliga.at/>.

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