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Published in:
Digital Culture & Society

DOI:
10.14361/dcs-2019-0208

Publication date:
2020

Document Version
Publisher's PDF, also known as Version of record

Gaming Musical Instruments

Music has to be Hard Work!

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Abstract

This article addresses the relationship between labour and learning a popular musical instrument like the guitar in the specific context of a video game. Most gamification theories promise that using a video game makes it easy to learn (Kapp 2012; Deterding et al. 2011). Even if this holds true, I argue that this kind of playfulness causes some backlash, which I observed during an experiment in which students played the music video game Rocksmith 2014.

Learning and playing the guitar through the medium of a video game comes with diverse experiences as well as expectations that are closely related to the dichotomies between play and work, often discussed in game studies based on the famous texts by Johann Huizinga (2004) and Roger Caillois (1960). Learning any traditional music instrument requires much effort in several skill areas, for example, dexterity, hearing, sight-reading, and performance. In other words, it seems to be hard work and not at all playful like a video game. In this article, the various aspects of playful work and labourious play, found in both music education and guitar games, will be discussed against the backdrop of empirical findings including data from online interviews, research diaries and video recordings.[1]

Keywords: Rocksmith game, guitar, learning an instrument, hearing, sight-reading, performance

The Experiment

In the academic year 2016–17, seventeen students in Cultural Studies (pathway Media Studies) at the University of Hildesheim, Germany, participated in an experiment on learning to play the electric guitar by playing the video game

1 This article provides first insights from my research, which has been published in German language under the title *Music as video game. Guitar games in digital music education* (Claussen 2020). It describes further outcomes regarding the developed musical skills and special user scenarios of music video games, and deals with the relationship between music and games.

DOI 10.14361/dcs-2019-0208

Rocksmith (Ubisoft 2013). An advertisement on the website of the video game company Ubisoft, who created Rocksmith, claims that anyone can learn to play the guitar in sixty days by using the software one hour per day.[2] These premises served as the basic framework for the experiment. Every student was given an electric guitar, the videogame and a cable for the connection between instrument and computer. Since the students' university term comprises about ninety days, they were instructed to practice the guitar for a minimum of sixty days by playing the video game alone at home.

Even though many of the students admitted that they did not manage to practice one hour a day, at least 14 out of 17 students stated that they practiced more than three times a week. The results are consistent with the statistics of Rocksmith by counting an average usage of 34 hours during the whole time of the experiment. Besides playing the game, students discussed their experiences and progress on a weekly basis. They also made several recordings (sound and audio-visual) and presented their new skills at the end of the semester in a concert-like situation.[3]

For my research on ludomusicology (Kamp/Summers/Sweeney 2016; Austin 2016) and gaining musical skills by playing video games, I collected a large amount of empirical data during the experiment. Students had to take an online survey at the beginning and end of the experiment as well as to keep a weekly diary to reflect on their video game usage and their progress in guitar playing. These included questions about their experience before, during and at the end of the experiment addressing the overlapping contexts of musical instruments, videogames and education.

Especially these diaries that cover an overall number of about 190 pages (67494 words) illustrate the participants' ambivalent perspectives about playing a video game while learning a musical instrument. On the one hand, the students were keen to admit that they liked to play the game just for fun and not for learning the guitar, because they found that concentrating on the instrument interrupted their playful experience. On the other hand, whenever they were having a playful gaming experience, they believed that they were not learning the instrument at all.

2 "Rocksmith-Website" (9 December 2019). Retrieved from http://rocksmith.ubisoft.com.

3 This event was documented by video "Playing Games with Guitars Rocksmith 2014" (9 December 2019). Retrieved from https://youtu.be/lXrCCT6r7vA. The students were also recorded while playing a chosen guitar riff from the song "R U Mine" by the Arctic Monkeys at three stages within the experiment to document their individual progress as a guitar player.

Learning the guitar becomes a playful experience through guitar games?

Learning an instrument is not easy. Guitar games try to make the musical experience of playing an instrument more joyful, especially for novices. The well-known *Guitar Hero* series was first released in 2004 and has since sold more than 25 million copies. Its goal was to help people experience a rock performance rather than to teach them how to play the guitar (Steinberg 2008; Miller 2011; Moseley 2013).

In fact, *Guitar Hero* and *Rocksmith* share many attributes as both videogames offer simplified and broader access to music for everyone, including people without any previous music education. However, both games differ to a great extent, especially regarding their controlling devices. While *Guitar Hero* uses a plastic miniature guitar controller, *Rocksmith* is playable in connection with any standard electric guitar. Some people who play *Guitar Hero*, especially people playing "conventional guitars", observed that *Guitar Hero* is "not like playing the guitar at all," because the complexity of the interface has been reduced considerably (Arsenault 2008; Sarker 2008; Jäger 2009). For example, the plastic guitar controller has five buttons and no strings, while an actual guitar has six strings and more than twenty frets, which adds up to at least 120 different finger positions. In addition, there are several possibilities for playing the same note and even varying the original tone by using lightly different pitches on a real guitar, so the buttons on the plastic guitar controllers might be a bad choice. The goal of *Guitar Hero*, however, has never been to teach users to play the guitar, even if the user acquires certain skills, like rhythm, pitch, dexterity, hand-eye coordination, and/or sight-reading (Roesner et al. 2016); rather, it is to help the user feel like the eponymous Guitar Hero.

Guitar games combine musical notation with experience from video games. Musical symbols in Ubisoft's *Rocksmith* game reveal the complexity of this language. As Michael Custodis rightly points out, standard guitar notation would be too complex for games like *Guitar Hero*:

> "As the songs roll forward, the use of a regular notational system would be far too difficult to coordinate and would limit the attraction of the game to a handful of specialists capable of sight reading. To name the precise note on a guitar to be played, song books combine the system of five notational lines with tabulator symbols, but this correct but doubly complex notation of musical information is unsuitable" (Custodis 2013: 167).

By contrast, audio-visual recordings of *Rocksmith* players (see Fig. 1) on YouTube help other people learn songs.[4] These *Let's Play* videos show the continuation of representing numbers of frets and strings like in tabulator symbols.

4 This was also described by Elliot Rudner, manager of the Fan-Website "Riff Repeater" when I met him in San Francisco in March 2018. "Riff Repeater" (9 December 2019). Retrieved from https://theriffrepeater.com.

Fig. 1: Rocksmith *Learn-a-Song Mode,* Let´s Play *video*[5]

However, the *Rocksmith* website simplifies this complex visualization, which it describes this way: "*Rocksmith* is designed to match the way your guitar is laid out, so there's no need to interpret tablature or learn sheet music to get started. Have strings on your guitar? You'll see strings on the screen."[6] In other words, there is a strong tendency to make musical notation for guitarists less abstract and more self-explanatory. But obviously this notation is less universal. For a person playing the piano, it would be hard work to play the notes of a song sheet that used fret-numbers.

In addition, notation has become dynamic and gamified. *Rocksmith* offers a broad variety of options to help users learn how to play a given instrument. There is a *session mode*, which allows users to practice music scales with a background track that changes automatically in response to what is being played on the guitar. There are little arcade games (Guitarcade) that allow users to focus on several guitar techniques – such as bending, sliding, or flageolets[7] – and there are many video lectures about the intricacies of playing the guitar. The main mode, which is called *Play a Song*, features the so-called *Riff Repeater*, with which one can choose which parts of a song to repeat.

5 Recordings of the experiment have been produced in this layout and are reachable online: "Music as Video Game" (9 December 2019). Retrieved from http://gegenwaerts.com/musik-als-videospiel.

6 "Rocksmith: why it works" (9 December 2019). Retrieved from https://rocksmith.ubisoft.com/rocksmith/en-us/how-it-works/index.aspx.

7 *Bending* means to push the string with the left hand across the fretboard in order to make the pitch go up. *Sliding* is used by guitar players to glide between different frets on the guitar without detaching the fingers of the left hand from the fretboard. *Flageolets* or *harmonics* are guitar techniques for producing high pitch and flute-like sounds by lightly touching the strings instead of pressing them down to the fretboard.

One advantage of *Rocksmith* is it that takes users through a dynamic learning process. At the beginning, users are only given a few notes of a chosen song; *Rocksmith* will add more notes while the users are playing. At the same time, users listen carefully to the original song. The software counts how many notes the students have missed and adjusts the number of notes until the chosen song part is complete and played on the guitar like in the original song. Gamification by confronting the user with dynamic difficulties is responsible for the so-called flow experience, which emerges when the degree of difficulty for each individual player is challenging enough without being overwhelming (Claussen/Herzog 2018). Through changing the song's difficulty level, trying to match it with the optimum challenge for the user and constantly delivering feedback, the game keeps the users' motivation high to learn any chosen song part.

Rocksmith claims that its approach allows users to learn how to play the guitar in sixty days. In this sense, the statement that *Rocksmith* is the fastest way to learn how to play the guitar might be true; however, someone who tries to learn the guitar with the help of books or videos and who practices one hour a day may show the same results. The problem is, of course, that he or she is unlikely to practice that often. Even if one were to practice every day, practicing might not be as much fun as playing a video game. Many dimensions of the game-world make these kinds of experiences enjoyable: points and badges, a growing community, activating new content like songs or additional guitar sounds, virtual applause in response to an awesome performance, and other kinds of feedback. These kinds of rewards have not always been rated as motivational by the participants of the study, who have instead praised the dynamic difficulty and direct feedback throughout the game.

There were seventeen participants in the experiment. Nearly half could play guitar previously, and even more have been playing video games and neither musical instruments before the experiment, some of them more than once a day. Most students made some kind of progress, and they rated their guitar playing skills higher after the experiment than before. The ratings from the software and the music teachers confirm this.[8]

The major advantage of this game is – as many students reported – that users receive a typical feedback loop that is common in several computer programs, especially games. Improving yourself while playing a new phrase of a song feels like making an essential jump at the right time over a cliff in a game like *Super*

8 The study does not claim to be representative in the sense of classic empirical methods of research. The sample (n=17) is small and it is influenced by the university setting. Nevertheless, based on the small and selected group, various effects and use cases can be discovered and analysed. These qualitative data indicate to what extent digital education takes place within a video game like Rocksmith, how it is perceived by the test subjects and to what extent this creates new media-musical practices.

Mario Bros. (1985). You will start over and over until you complete the level, the guitar riff, or the whole song. During this action, learning the guitar must not always be the focus and will not always be a side effect. Those participants who reported playing guitar at a higher level found that the experience of playing against the high score in one of *Rocksmith*'s so-called mini-games, like *Scale Racer* or *Ducks ReDux*, was a great and funny experience, even though their musical skills did not improve. One might say that they have just been playing around.

Fig. 2: Guitarcade mini-games: Scale Racer, Castle of Chordead, and Ducks ReDux

Playing versus learning and working

Rocksmith helps users to practice on a regular basis and to hit the notes of a given musical piece on the right string on the right fret at the right time. In this sense, *Rocksmith* is able to count virtuosity, as well as *Guitar Hero* was regarding buttons. This is an important aspect of the video game that, for many guitar players, seems to be a big help. However, hitting the right notes in time is definitely not all that is needed to become a virtuoso. For example, the important dimension of the electric guitar as a sound machine (Mießgang 2003; Waksman 2010; Millard 2004) is underrepresented by the video game. The software cannot measure (1) whether your vibrato comes close to that of the original guitarists, (2) whether you hit the note aggressively enough, or (3) whether you generated a distorted sound like that produced by the guitarists of the Arctic Monkeys, Muse, or the White Stripes. The software gives you the impression that you are a rock star by boosting your sound and playing the original recording as a background, in which the original guitar track is as loud as your guitar. Some playful aspects regarding sound and improvisation are dismissed by turning the guitar into a labourious game that focuses on skills that can be measured by *Rocksmith*. The software helps users to remember and to learn the notes with the help of what David Roesner (2011: 282) calls a "Real Time Watchdog".

In a video game like *Rocksmith*, there is always a balance between entertainment and learning. The players question why they are even playing *Rocksmith*. Is the game about playing itself, about progressing on the instrument, or about facilitating the routine of practicing?

"That's the thing again: Do you play for the sake of play or to get better and to 'practice' more? I actually got the impression that Rocksmith works more on the fun track, but on the

other hand, they simply promote the learning effect. And learning is not mentioned as a side effect, but what it actually is about. To stand alone as a game, it is just not entertaining enough and does not have enough game character, I think." (Leni, 14th week)

The main difference between games like *Guitar Hero* and *Rocksmith* is the goal of learning how to play the electric guitar, which is always addressed by users to *Rocksmith*. The game is not exclusively based on having fun, but it is also not exclusively based on making progress through the game. In *Guitar Hero*, players gain musical knowledge, though musical education is not explicitly marketed as a purpose of the game. *Rocksmith*'s assertion that musical learning is the game's primary goal can lower the motivation of the participants:

"Rocksmith is a game that clearly communicates that it should teach you something. It wants to teach something, and (though the handling is playful) it does. This reduces repeatedly the motivation and the desire to even sit down at the PC. Playing Rocksmith for me is not a pastime, not a relaxation, but a duty that I have to do for the university." (Michelle, 6th week)

If Michelle had been willing to play just a few notes to feel like a rock star, she might have had more fun with the video game. She might not have perceived the experiment as a duty and would, at the same time, have learned to play the guitar without ever being aware of it. This option is not only countered by the fact that the game suggests that you have to constantly increase and learn something. In addition, the learning experiment was part of a course at the university. The university setting reinforced the participants' feelings of playing out of a sense of duty rather than for fun.

Ultimately, however, an individual's attitude remains crucial for progressing on a musical instrument with a video game like *Rocksmith*. If players merely perceive their electric guitar skills according to a high rating from the video game, even though they realize that they do not play the electric guitar well, they deceive themselves. They consciously ignore it when, for example, *Rocksmith* does not recognize an unclean grip technique; sometimes they even deliberately play wrong in a way that the game recognizes as correct. Of course, you can have a good gaming experience and be successful with the video game, itself; but under such circumstances, you will become not much more proficient at playing the electric guitar. Miller (2009) classifies the players of games such as *Guitar Hero* as "score-oriented" or "performance-oriented", and explains that some of them are more interested in their video game scores while others are more focused on presenting a good performance. A performance in *Rocksmith* is directly linked to instrumental proficiency. For the progress regarding the instrument thus counts the repeated self-assessment of the player´s own performance during the play and not exclusively the evaluation on points.

Within the game modes, the participants in the learning experiment sometimes distinguished very precisely between moments that are focused on playing games and those moments devoted to learning and practicing:

"I started practicing more and playing less, so I went back to a lesson and played a special part in a song in Repeater Mode. Everything went better than expected. [...] Today I have continued to practice that lesson and have really made progress, so I can say today, practicing also seems to be productive... although I have just practiced one lesson for a long time. Then I played a little *Return to Castle Chordead*." (Marie, 11th week)

According to this participant, viewing and playing along with the video lessons is understood as targeted practice and learning, as these lessons follow the pattern of conventional textbooks. After that, Marie perceives that playing the *Guitarcade* game, in which she has to shoot zombies by playing the right guitar chords (see Fig. 2), is a reward. The fact that she internalizes the gripping of the chords in the *Guitarcade* game, and thus also develops skills, takes a back seat. Likewise, another participant, Tara, does not understand that, when she plays the arcade game *Ducks ReDux*, she is learning the orientation of the entire fingerboard on all six strings without having to look constantly at the fingerboard:

"A game where I have to hit ducks by grabbing the right string; Although it is relatively entertaining, I do not feel I will improve that way. Maybe I just do not notice it yet, and I am also getting generally safer in playing with the electric guitar because of these playful approaches." (Tara, 3rd week)

The last sentence of Tara's statement proves that she at least suspects she is learning something about the instrument in this part of the game. Nevertheless, her diary entry reveals some dissatisfaction with the process; playing without learning seemed to be superfluous.

In general, this statement and others show the participants' ambivalent relationship with an environment that couples play and learning, which is characterized by various problems. In their role as gamers, the participants wish that learning would fade into the background as much as possible and go unnoticed, while as learners they often feel that the game does not sufficiently inform them about their progress. Both roles are difficult to unite and are rather contrary to each other, according to the participants.

Interestingly, in traditional musical practice and education, there is a similar tension between practicing and playing a musical instrument. Playing without a clear goal, improvising, and "jamming" are often not perceived as learning or practicing, although substantial learning does occur during these musical activities. This is confirmed, for example, by Lucy Green´s study among various pop musicians, who were asked about their individual learning practices (Green 2002: 90). The duality between labourious practice and play in music also shares

some aspects with Christopher Smalls' concept of "musicking" (Small 2011). For Small, music is an active process that is open to any kind of participation, that does not singularly depend on objects like the musical score, and that has always been rated as most essential in the musicology of the past: "To music is to take part, in any capacity, in a musical performance, whether by performing, by listening, by rehearsing or practicing, by providing material for performance (what is called composing), or by dancing." (Small 2011: 9). Musicking with games, like *Rocksmith* or *Guitar Hero*, that require controllers, joysticks, or conventional music instruments is playful. It becomes labourious when it is expected to teach music in the traditional methods of precise sight-reading and performing. The interactive score of *Rocksmith* seems to be more innovative and contemporary than classical music education, but it still relies on these traditions. Even if my study reveals that the video game *Rocksmith*, in the sense of playful work, helps to learn to play the electric guitar, it also clarifies that, in the opinion of the participating students, music has to be labourious play. It has to be hard work in order to help the players believe that they are not just "musicking" with a video game but also learning music in the traditional sense, for example, by practicing the score or completing video lessons.

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