

Adolescents' Attitudes towards the Development of Teamplay Abilities in Fortnite

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Cursus: Bachelor thesis | Digitale Media en Jongeren

Werkgroep: 17

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Opleiding: Premaster YES | Universiteit Utrecht

Datum: 23-06-2019

Aantal referenties: 44

Woorden: 6860

Abstract

With a growing number of adolescents that play video games, a more nuanced perspective from both a societal and scientific point of view is necessary to accurately understand gaming, its influence, and the attitudes held toward it. This paper focuses on a digital learning perspective of adolescents playing Fortnite, specifically their attitude of development of two skills - second language and cooperation. Fortnite facilitates an informal digital environment in which players globally can interact with each other and are encouraged to work together, leading to possible opportunities to develop second language development and cooperation skills. A qualitative design was employed, using thematic analysis to analyze 15 semi-structured interviews with adolescents that play Fortnite. The results showed that language development within Fortnite was experienced by participants when working together and speaking with other players that spoke English. Results for cooperation were limited to implications, as respondents found the concept of 'development of cooperation' to be too vague. In general, it can be concluded that the partaking adolescents felt they developed teamplay abilities in playing Fortnite, although the development of English was understood better than that of cooperation. This could be explained through the concept of respectively hard- and soft-skills. Future research should gather more participants, but could also employ longitudinal, quantitative designs to measure an actual differences in skills to test whether popular games like Fortnite actually have an influence on developing skills.

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Introduction

Over the course of decades, gaming has developed to be a large digital medium. About 1.2 billion people worldwide play video games, of whom 700 million play games online (Liu, 2016; Geekwire, 2014). In the Netherlands specifically, one in four households has a gaming console in their home (CBS, 2018). The arrival of this engaging and interactive medium raised some concerns among experts and parents, resulting in a public debate about the impact of gaming. In this brief literature review, that same public debate will be dissected and explained thoroughly, resulting in a research question that aims to deliver a more nuanced view on the consequences of gaming.

According to the prominent ‘risk-narrative’ within the debate, gaming would induce aggression, isolation, and anti-social behaviour (Chen, Oliffe, & Kelly, 2018; Griffiths, Davies, & Chappell, 2004; Fischer, Kastenmüller & Greitemeyer, 2010; Mehroof & Griffiths, 2010). Many parents therefore perceive gaming to be harmful for their children, since it would expose them to a potentially riskful environment (Jeong & Kim, 2011). However, research also indicates that gaming could lead to increased team performance (Keith, Anderson, Gaskin & Dean, 2018); could help players practise their cooperative skills in a digital environment (Morscheuser, Riar, Hamari, & Maedche, 2017); and could lead to higher cognitive benefits and better attitudes towards learning when compared to traditional education methods (Vogel et al., 2006). These latter arguments could be summarized in a lesser highlighted ‘digital-learning narrative’: a narrative that argues that gaming offers people an informal digital learning environment and opposes the idea of sole risk within that environment. The debate between these opposing narratives is sparked every now and then, for instance when a popular game is picked up by the media.

An example of such a game is Fortnite (NOS, 2018), an online multiplayer ‘battle-royale’ shooter with a cartoony art style developed by EpicGames (2019). A maximum of 100 players enter a shrinking dome while they engage each other in combat: alone, in duos, or in squads of four. Depending on the game mode, the last man, duo, or squad standing wins and achieves a ‘victory royale’ (Gamesradar, 2019). If Fortnite players choose to play in duos or squads, teamplay is encouraged by the game through visual cues (seeing your teammates’ in-game health) and an in-game voice chat. *Cooperation* and *second language* are two skills that directly flow from the way Fortnite requires teamplay. Use of language and the proficiency thereof

provides communication, which helps in working together as a team (Throne et al., 2009). The popularity of the game is especially high among children and young adolescents (Newzoo, 2018), which could be partially explained by the fact that Fortnite is free to download and does not display blood (Van de Weijer, 2018).

Although the primary goals of games are not necessarily educating the player, the Federation of American Scientists (2006) published a report that stated games offer powerful affordances for education, and therefore supported the notion of expanding research into complex gaming environments for learning. Such research has now been conducted: a literature review summarizing that research concludes that digital games enhanced students learning when compared to nongame conditions significantly, and states that increased sophistication and complexity of the game mechanics is a moderator for learning outcomes (Clark, Tanner-Smith, & Killingsworth, 2015). Thus, the abilities or skills an individual learns depend much on the content, complexity and mechanics of the game, as goes for Fortnite.

For instance, one competence that could be fostered through playing video games is second language development. This involves the development of the English language in the following areas: vocabulary, reading skills and speaking skills. Formally, the development of English is warranted and given shape within secondary education, as a mandatory course for pupils. However, school is not the only environment where adolescents could learn English. As for informal ways of learning the English language, several studies have endorsed gaming as a possibility for language development (Kuppens, 2010; Lee, 2008; Peterson, 2010b; Peterson, 2011; Peterson, 2012; Sylvén & Sundqvist, 2012). The use of videogames as a gateway for enhancing English language skills might be a solution for a challenge Dutch - English teachers sometimes face (Plante, 2010): promoting real-time interaction, which is essential in order to achieve apt language proficiency (Peterson, 2010b). Since Fortnite offers a multiplayer mode and is popular worldwide (Van de Weijer, 2018), Dutch adolescents could collaborate with English speaking fellow players and thus have a real-time interaction. Subsequently, this might enable the adolescents to improve their level of English skills.

Moreover, since Fortnite is developed by American game developers, the default language setting is English. Apart from English, other languages are available too, but a Dutch language setting does not exist. The possibility of reading the English descriptions and items,

might allow Dutch adolescents to further enlarge their vocabulary, in turn making them more aware of language development.

Another example of a skill that is argued to be reinforced through video games is cooperation, which can be defined as intentionally working together to achieve a common goal (Thorne et al., 2009). How cooperative intentions emerge differs per game and player (Jin & Li, 2016). According to Morschheuser and colleagues (2017), so-called *we-intentions* surface when there is a clear, collective entity of *we* or *us* that intend to perform an activity together. Achieving a common goal therein is the motivator for players to cooperate (Jin & Li, 2016; Mace et al., 2017). Other motivators identified for cooperative play are enjoyment (McGloin, Hall, & Christensen, 2016) and potentially a social intent even before booting up the game (Demetrovics et al., 2011; Griffiths et al., 2004). In the case of Fortnite then, one could argue that *we-intentions* emerge from the moment they enter the arena in duos or squads in an *us-versus-them* fashion, and that a certain social intent might be present even before playing the game. Youngsters might therefore experience their development of cooperative skills to be related to their social intent, specifically to playing with their friends.

In a study on attitudes, feelings and experiences of online gamers, several themes were distinguished based on analyses of interview transcripts, among which were *excessive play and problems*, *psychosocial impact*, and *the alleviation of negative feelings and mood states* (Hussain & Griffiths, 2009). Although excessive play and problems such as aggression cannot be ignored when discussing online gaming, it should be recognized that online gamers in this research experienced a positive psychosocial impact from playing online games. The study found that prominent psychosocial impacts could be found within the facilitation of teamwork, specifically cooperation (Hussain & Griffiths, 2009). Developing cooperative skills could thus provide adolescents with positive psychosocial impacts.

It is important to mention that different levels of commitment to a game - in this case Fortnite - might lead to different outcomes in regard to digital learning, as this has implications for which type of adolescents experience development most intensely. According to Horst, Herr-Stephenson and Robinson (2010) players can be divided into three genres: hanging out, messing around and geeking out. As adolescents have a need for peer relations, they maintain those relations by hanging out. Given that there are institutional and parental restrictions on possibilities to hang out, youth seeks refuge in the world of gaming to simply be together and

‘hang out’. Messing around refers to adolescents who engage more with media (Horst et al., 2010). The geeking out group are intensely committed to and often engaged with one type of technology, thus they are assumed to have attitudes towards developing second language and cooperative skills.

The opposing two narratives that are presented within the aforementioned public debate may result in polarized attitudes regarding gaming. By acknowledging only one of the two, a false dichotomy is created in which gaming is either good or bad, while in reality it is neither. As the literature has shown, gaming may have positive and negative consequences, both supported by research. Regarding research, quantitative studies are abundant on the topic of gaming, while qualitative studies measuring attitudes and experiences are not. Even though this provides a useable dataset regarding the effects of gaming, it lacks the qualitative focus on attitudes from people that game. It is important to include these attitudes though, as it gives us insight in the way digital, informal learning might influence the development of skills traditionally associated with formal learning. Furthermore, the more that is known about the ‘pros’ of gaming, the more these could be used in benefit of parents, pedagogues and adolescents. Thus, these attitudes can be of great value, as they complement current research on gaming, its consequences and could potentially educate caretakers on the way adolescents experience gaming (Fortnite in particular).

Looking at a multiplayer shooter like Fortnite then, it becomes apparent that the addictive and violent side is represented in media, while lacking a more nuanced view that also shows the potential of digital learning. Many of the games that were previously used in studies are similar to each other in genre and relatively old (Ducheneaut, Yee, Nickell, & Moore, 2007). Fortnite takes a new take on cooperation with everyone outside of your team being enemies, making it interesting to research. Considering Fortnite specifically, it would be refreshing for the scientific field to research and explore the attitudes of young players towards a recent, relevant game with cooperative elements. Therefore, it is complementary to research the experiences of affordances of gaming, as it would not solely focus on risks while potentially take away some societal concerns. Taking into account that the game is especially popular among young adolescents, and that highlighting the development of both language and cooperation may lead to a more nuanced view of Fortnite, this research explores the attitudes of some Dutch adolescents in the development of *teampay abilities* in Fortnite. In this study, *teampay ability* is used as an

overarching construct for *second language* and *cooperative skill*. The focus of the study is on attitudes rather than on development itself, as this shows adolescents' take on playing Fortnite.

Method

Sample

A total of 15 adolescents partook in the study. These were split over the two subtopics, respectively second language development and development of cooperative skill. The participants were initially recruited through convenience sampling, using the researchers' networks. Participants were approached per subquestion via social media posts and face-to-face contact - these approaches made clear that criteria for participating included a high commitment to the game, and being between the ages of 12 and 18. In *table 1* this information is presented, showing 9 participants for the subquestion regarding second language development and 6 for cooperation, providing info on age and sex. After this, more respondents were found through these participants using a snowball-method, asking participants to find other similar participants within their network. The age of the participants in the eventual sample ranged from 12 to 18 years, in accordance with the definition of adolescence (Clarke-Stewart & Parke, 2014).

Table 1.

Respondent	1	2	3	4	5	6	7	8	9
Construct									
A. <i>Language</i>	13, m	13, m	13, m	14, m	17, f	17, m	18, f	18, m	16, m
B. <i>Cooperation</i>	12, m	18, m	13, m	13, m	13, m	12, m			

It should be noted that most respondents (n=4) found the theme of cooperation, and specifically its development as a result of playing Fortnite, rather vague. This might have hindered the exploration of this dimension.

Design

This study is an exploratory study aimed to document and interpret the attitudes of Dutch adolescents who play Fortnite. It also is a qualitative study, because its main goal is to find meaning and provide qualitative findings regarding the skills developed by adolescents in Fortnite (Boeije, 2010). Because of the interest in the development of language and cooperation through Fortnite, a focus on the 'geeking-out' group made sense, as they are most likely to

develop these skills (Horst et al., 2010). Geeking out was taken rather broadly. For example, high-level commitment to Fortnite cannot merely be expressed in amount of game time. As stated in the literature review, Horst and colleagues (2010) differentiate three levels of commitment. A downside of using those definitions literally is the exclusion of all adolescents who do not have a 'high-level' commitment, due to which an answer on the research question would only be applicable to those that 'geeked out'. Instead, we propose that geeking out is a term that describes a general positive but intense relation to Fortnite, being expressed in e.g. many hours of playtime and game-streaming. This does not exclude other functions of the game, such as hanging out, but adds to it by deepening the definition of commitment to the game.

Procedure

Through semi-structured one-on-one interviews data was gathered from participants. The first part of the interviews was used to collect demographic information (e.g. age, sex) while the second part involved in-depth questions using a topic-list. This is particularly useful for minimizing information-loss during the interview: the topic list provides the interviewer with a list of topics that are related to teamplay and Fortnite, while also leaving room for the respondents to explore their attitudes (Boeije, 2010). Topics were derived from literature and the sensitizing concepts. This method of interviewing suits this research well as it enables us to gather qualitative data. In order to explore the attitudes of adolescents towards their development within Fortnite, qualitative data collection is necessary. The interviews took place in the Netherlands, from April to May 2019.

An issue that should be taken into account when doing interviews is the socially desirable bias. One respondent expressed, on multiple occasions, that he hoped his answer would be of value to the interviewer and double checked whether his answer was useful for the interviewer. All participants were reassured that they were free to answer however they liked and that there were no right or wrong answers. Gaining respondents' trust before doing the interview is recommended. This can be achieved by casually talking, introducing the interview more slowly and giving the participants more time to settle.

Analysis

Since the nature of this study is qualitative, sensitizing concepts will be used rather than an operationalization of concepts. By using sensitizing concepts, we aim to grasp the idea of the development of language and cooperation. This leads to a common understanding of how

participants might think about these concepts without having a priori assumptions concerning their attitudes on the development of teamplay abilities.

Second language development involves the development of the English language by Dutch adolescents. It covers the different ways the respondents feel that playing and collaborating in Fortnite does or does not enable them to improve their English language skills, such as their vocabulary, speaking and writing skills. Adolescents are familiar with measurements and development of this skill because of *English* being part of the Dutch educational curriculum. *Cooperative skill*, as established in the literature review, can be defined as the intentionally working together towards a common goal (Thorne et al., 2009). Participants relate this common goal to Fortnite, as this is the setting in which they cooperate. Literature suggests that this goal could be *enjoyment*, *winning* and *social* (e.g. McGloin et al., 2016).

In this research thematic analysis will be applied through open and axial coding (Boeije, 2010). The coding of the transcripts and themes, and the formation of the code tree, will be done using NVivo. The topics that were derived prior to the interviews are not the same as (neither open or axial) codes. Both constructs utilise this method of data analysis.

Ethical considerations

Active informed consent was gained both verbally and non-verbally - through the form of supplement II and III - to ensure participants were well-informed and voluntarily willing to join the study.

Having respondents of this age join the study has some ethical implications. As the interviews will probably take an hour, an impact on the lives of the respondents will be likely. The respondents are asked to sacrifice an hour of their time which they otherwise could have invested in recreational activities like sports and hanging out with friends. It could also have an academic impact, as they are not able to do homework during this time.

Because of the relatively young age of the respondents, there is a possibility that they reveal more (personal) information than they would prefer in hindsight. It is therefore essential that the researchers beforehand stress that the respondents should only share what they feel comfortable with.

Finally, partaking in this study was voluntary. To give respondents a better understanding of what they contributed to, the decision has been made to share this study in its

entirety with the respondents. Because of the complex scientific use of English, an alternative Dutch abstract is provided especially for them.

Results

The results of the subquestions are subsequently presented in this section. Because of the differing nature of these questions, the results will be respectively presented in summation. This ensures clarity of the results. A more transcended analysis of both of the research topics will follow in the conclusion and discussion.

Second Language Development

The following section entails the analysis of the answers to the research question: *what are the attitudes of Dutch adolescents regarding second language development through Fortnite*. It soon became clear from the interviews that, for almost all of the respondents (n=8), playing Fortnite is inextricably connected to watching or producing streams and/or videos about Fortnite. As a consequence, a first distinction in the analysis was made between in-game language development and out-game language development, by means of watching and/or producing streams on the live-streaming video platform Twitch and/or watching YouTube videos with highlights of the aforementioned streams. The distinction between these two dimensions is further supported by the fact that in the game, a player can easily have an interaction with fellow players, whereas watching a stream does not facilitate interaction.

The first dimension, *in-game language development*, covers the ways the respondents experienced learning English in the game itself- through contact with fellow players and via the game environment, with the players gaming on their Playstations or computers. This dimension was subsequently divided into two categories: *contact with fellow players* and *game environment*. Contrary to the in-game development, the second dimension *second language development through Twitch and YouTube*, covers all the experiences that took place outside of the actual game, on media like YouTube and Twitch. This dimension contained another two categories: *watching other players' streams* and *creating streams*.

As for the first category of the first dimension, *contact with fellow players*, this involves the contact players have with their fellow players, whilst playing Fortnite in either *duos* (a group of two players) or *squads* (a group of four players). This category consisted of an additional four themes: *having conversations with fellow players (a)*, *listening to fellow players (b)*, *translating unknown words (c)* and *the game chat (d)*. The first theme concerns *having conversations with*

fellow players (a), in which a conversation is defined as a dialogue with at least two persons. The majority (n=7) of the respondents stated that one's English could be enhanced through talking English with their fellow players. This could be either game-related talk or talk about unrelated topics. The second theme, *listening to fellow players (b)* covers the talk Dutch adolescents reported hearing whilst playing with native English-speaking players. For example, some of the respondents (n=3) explained that when they listened to their fellow players talking, this affected their own English pronunciation. As one respondent elaborated: "Sometimes they have an accent. You hear it so often and then you think: wow, now I'm talking just like them (A9)". The third theme, *translating unknown words (c)*, reflects the respondents' experiences upon hearing words unknown to them. Some of the players (n=3) encountered new words and translated them via a website or by asking someone in their vicinity. For instance, one respondent remarked: "Yeah, sometimes you're like, crap, I'm not familiar with that word. [...] Later, I might go to my mother: How do I say this and that? Then I have learned something more (A2)." This respondent stated that, when confronted with an unknown word, he would ask his mother for the translation which would lead to an increase of his English vocabulary. Finally, the last theme involved *the game chat (d)*, which is a live chat box that Fortnite players can communicate in while playing a game. One respondent expressed the notion that reading words in this chat could provide players with a possibility for learning the spelling of words.

Regarding the second category of the first dimension, *the game-environment*, some of the respondents (n=3) remarked that they believed one could develop their English language skills through reading the various buttons (e.g.: 'play', 'settings') and the names of items, such as weapons and supplies. The respondents (n= 2) explained that this made sense because Fortnite is automatically set in English and does not offer a Dutch language setting.

The second dimension, *second language development through Twitch and YouTube* was divided in two categories. The first category is *watching streams and/or videos of others playing Fortnite on either Twitch or YouTube*. The second category is *creating streams*. There were no additional themes distinguished for either of the categories. As for the first category, the vast part of the respondents (n=6) stated that watching and listening to videos about Fortnite taught them new concepts, as they could combine the new words they heard with what they saw displayed on their computer screens. In this way, watching streams and/or videos on Twitch or YouTube provided a gateway for expanding their English vocabulary. Regarding the second category, one

respondent expressed that recording his own Fortnite-sessions prompted him to use his English speaking skills. He explained that there is a larger audience that understands English, as opposed to the audience that understands Dutch. This stimulated him to speak English and thus practice his pronunciation.

Finally, falling outside of the two dimensions, there was one participant who expressed the view Fortnite did not aid him in the development of the English language. This respondent had strictly played Fortnite with his Dutch-speaking friends and thus never encountered players with another mother tongue. Subsequently, he held the view that Fortnite did not improve his English language skills.

In summary, it seems that the respondents hold different views regarding the way they could develop their English language skills through Fortnite. The majority of the respondents (n=7) explained that they think that working together with their English speaking fellow players offered them the opportunity to enhance their English competences. This was either through engaging in conversation with the fellow players or through hearing them talk English. Some respondents (n=3) commented that another way to improve their English language skills, was through translating new words - encountered in the game - via a website or asking someone in their vicinity. Lastly, one respondent mentioned reading English words in the game chat as an option for learning the spelling of those words. Apart from collaborating with fellow players, a few respondents (n=3) stated that Fortnite's game-environment and default English language setting provided them with new concepts. According to multiple respondents (n=6), watching videos gave them the opportunity to comprehend new words in combination with the displayed visuals. Moreover, one respondent explained that, by creating his own stream, he was encouraged to practice his speaking skills. Lastly, one respondent stated that he believed that Fortnite did not foster his English language development.

Development of Cooperative Skill

In this section the results are presented in light of adolescents' attitudes towards attainment or development of cooperative skills in Fortnite. Through thematic analysis of the interviews different themes were distinguished and a codetree (see Appendix III) was formed. Two main dimensions were found – both having their own categories, both being a part of the overarching theme of *playing Fortnite*. Cooperation in particular was found to be a code branching from the dimension 'goal of playing Fortnite' and could be further divided into four

subcategories. In the following paragraphs the two main dimensions are shortly addressed, after which the focus shifts towards *cooperation* and its subcategories specifically.

The first distinguished dimension is *motivation to play Fortnite*. This dimension contains all of the factors that, according to the respondents, motivated them to play Fortnite. Four out of the six interviewees mentioned they started to play because of friends. All respondents showed signs implicitly, but one very explicitly stated that he would quit if his friends quit (respondent 4), suggesting friends are a major component in motivation to play Fortnite. Another motivator mentioned by respondents (n=3) is the social function of the game, suggesting that connection was possible because they ‘could play with friends they would otherwise not see in school’ and ‘were hanging in Fortnite as if they were playing soccer together’. Respondent B2 explicitly told that ‘he plays it with friends, so they can connect’. Respondent B1 even had a Fortnite WhatsApp group. A final motivator included the continuous addition of in-game content (n=3). The results thus suggest that respondents have a social and connecting attitude towards playing the game.

The second dimension was *the goal of playing Fortnite*. It describes what players aim to accomplish by playing Fortnite. Several main categories could be distinguished, of which the primary one is *to have fun*. All respondents (n=6) in some way stated that fun was an important goal of playing Fortnite, and in this context referred to playing with friends as a source of this fun (n=6). While no exact definition of fun was given, fun always related to playing with friends. A secondary goal that was described is *winning*. Four out of the six respondents stated that winning, or ‘achieving a win’, was an important goal of playing Fortnite. Respondent B1 explicitly mentioned cooperation as an important factor ‘because otherwise it would be harder to achieve a win’. Other mentioned goals were *grinding tiers* (n=2), or in other words gaining levels, and *getting kills* (n=2). Having fun with friends and winning were thus the most recognized goals of playing Fortnite amongst respondents, while more aggressive goals such as getting kills got less explicit mentions.

The last main category of *goal of playing Fortnite* is *cooperation*, which was not a goal in itself but rather a tool to achieve goals. This category could be divided into four subcategories: (a) *definition*, (b) *motivation and attitude to cooperate*, (c) *development of cooperation* and (d) *teammates*. In order to sufficiently explain the mechanism of cooperation as a tool for achieving

the mentioned goals, and adequately explaining the development of cooperation, all of the four subcategories will be thoroughly elucidated in the following paragraphs.

The subcategory *definition* describes what respondents see as *cooperation*. Only one respondent (respondent B3) was able to give a clear definition of cooperation: “*working together for one goal – that is the definition of teamwork...*”. All respondents did however describe scenarios in which they attributed components to their understanding of *cooperation*. The component that was mentioned among the most respondents (n=6) was *communication*, which can be directly done through party-chat or in-game chat, typing or in-game e-motes. All respondents preferred speaking as a means to communication, as they could coordinate (n=5) better this way. One could immediately ‘call for a revive when low on Health Points’ (respondent B4) or ‘say when enemies are approaching’ (respondent B1). A second distinction made in the *definition* of cooperation was *sharing*, explicitly mentioned as a component of *cooperation* by three respondents. There was no consensus on what was most important to be shared, but sharing ammunition, healing items and loot were all mentioned as important items to share. One respondent (B6) in particular said sharing of healing items was important, as it would then ‘take more hits for the opponent to kill my teammate’. The respondents thus defined cooperation within Fortnite as working together for one goal by communicating well and sharing items.

The *motivation and attitude* encapsulate why respondents cooperate within Fortnite, and how they feel about that. Five out of six respondents explicitly stated that they felt cooperation was important. When asked why this was the case, respondents (n=5) said it helped them to *win*. Respondent B2 described it as follows: “*I think it [cooperation] is very important because I am a bit dependent on a form of cooperation. If I approach it strategically for example, we might be able to win.*”, illustrating that cooperation could in this case be described as a strategy to win. Interestingly, this motivation is in accordance with the goal of *winning* that was mentioned earlier, a goal that thus motivates players to use cooperative strategies. Other respondents (n=3) explained that ‘fighting together gives more firepower’ and ‘damage’, increasing their collective chances of survival. The aforementioned thus shows there is a general motivation for cooperating related to winning and surviving among participants in playing Fortnite.

As described before, *development* of cooperation is rather difficult for respondents to explain, three even specifically stating this during the interview. There was consensus however

among most respondents (n=4) that ‘back in the day players were bad’. As respondent B6 said: “*if I look at how people played in season 1 and you would have put me there, I think I’d already have 3000 wins*”. Reasons for this phenomenon revolved about knowledge of the game, as respondent B2 for example said: “*Back then nobody knew the game and I think you were just really dependent on each other. Nobody really knew, so you might as well clump together with the four of you.*” The development of this specific aspect was highlighted by two respondents, with them suggesting that a growth in knowledge about the game and its mechanics results in a growth in cooperation. Respondent B5 for example described that ‘knowing the mechanics and key-binds results in a better cooperation’, while respondent B2 says that “*with the growth of knowledge, cooperation or the cooperation skill grows as well*”. It is interesting to note that communication was recognized by most respondents as a main element of cooperation, but was only seen as a developing element by respondent B2. This may be a reason for respondents not being able to point out their growth, as they strongly associate cooperation with communication. Respondents all individually described ways in which their playstyle changed, but nothing that was relevant to the topic of cooperation. Within the positive development of cooperation, knowledge could be seen as the main developing component, influencing game skill and possibly communication. Overall though, respondents thought this subject to be vague.

Lastly, the data showed that cooperation was also dependent on the *teammates* of the respondents. Four respondents explicitly told that they would only come online (to play Fortnite) if their friends were online. When asked for reasons why, respondents would link back to the goals given for playing Fortnite. Respondents suggested that playing with friends was nice because they were fun (n=1); they would share loot and ammo (n=2); and they would revive you (n=1), all as opposed to strangers. While not reporting it as a benefit of playing with friends, respondent B3 did mention that cooperation with strangers was harder because of a language barrier. Talking about strangers in general elicited irritation during the interview, as strangers would “*steal all of the good weapons right in front of you*” (respondent B3), and sometimes were (verbally) aggressive by name calling teammates. In light of the aforementioned it can be said that most respondents would rather cooperate with friends than strangers, because friends would help in achieving their goals more often and strangers were generally seen as aggressive.

In summary, the dimensions *motivation to play Fortnite* and *goal of playing Fortnite* together describe the overarching theme of *playing Fortnite*. The motivation dimension showed

that main reasons to play Fortnite were related to a social component, either hanging out with friends or connecting with them. Primary goals of playing Fortnite were having fun and winning, which was reported to be achieved through cooperation. This winning could be seen as the main motivation for use of cooperation. Respondents felt that communication and sharing were important factors within that cooperation and held a positive attitude towards it. Their development of cooperation was unclear for most respondents, but some explained that a growth in knowledge and 'getting better' were cause for a better cooperation. Preferably, cooperation took place with friends rather than strangers to achieve goals and avoid aggression. The implications of these results on the respondent's experience of the development of cooperation and the connection between categories will be discussed hereafter.

Conclusion and discussion

Looking back at what adolescents' attitudes are regarding developing specific abilities through Fortnite, this section focuses on answering the main research question and explaining its results. The two sub-questions regarding language and cooperation will be taken into account when looking at the overarching question of development. After conclusions have been drawn a short discussion will follow, including implications and a critical review on the methodology of the research.

Taking into account the results for second language development, the views of the respondents show some similarity with existing research. The respondents stated that interaction with their fellow players led to improvement of their English language skills, which corresponds with the idea of fostering language development through real-time interaction (Peterson, 2010b). Furthermore, the majority of the participants stated that they believed playing Fortnite helped develop their English language skills. This might be an interesting first cue for further research regarding the integration of videogames in formal education, which is essential since teachers have experienced difficulties in getting pupils to speak English (Plante, 2010).

Besides in-game development, the majority of the respondents expressed that they watched videos of others playing Fortnite or even created videos of themselves playing Fortnite. The respondents explained that through hearing the English language spoken and by combining the words with the displayed visuals, they enlarged their comprehension and vocabulary skills. This notion corresponds with a study that endorses that, as a Dutch speaker, being able to listen

to and understand another Germanic language, in this case English, is an important predictor of increasing the pace at which people further develop their English (Swarte, 2016). Finally, the fact that one respondent believed playing Fortnite did not foster his English language skills could be explained through the fact that this person only played Fortnite as a way to spend time with his (fellow Dutch speaking) friends and subsequently only spoke Dutch.

When looking at the results for experiences towards the development of cooperative skills within Fortnite, it becomes apparent that the perceived ‘vagueness’ of this skill limits respondents’ ability to reflect on it. The respondents found second language development a more tangible skill to reflect on, possibly because of the inclusion of subjects like *English* in the regular educational curriculum. Cooperation on the other hand could be described as a skill that is not qualitatively measurable and therefore more abstract. Even though respondents found the development of their cooperation within Fortnite to be rather vague, several implicit conclusions can be drawn.

Firstly, the expectation that respondents had a social motivation prior to booting up the game was met, in accordance with the literature (Demetrovics et al., 2011; Griffiths et al., 2004; McGloin et al., 2016). While this holds no relation to the development of cooperation directly, this motivation was a recurring theme throughout the results. Goals of playing Fortnite for example were primarily said to be having fun, which respondents thought to relate closely to playing with friends. This playing with friends was seen to be a vital part of cooperation within Fortnite too, as friends would help them achieve their goals. On the contrary, strangers invoked anger and irritation because they were aggressive, did not share loot and supplies and would not help achieve goals of participants. Secondly, winning was also found to be an important goal. Just as literature suggested, the element of wanting to win was said to be a major motivator in working together - the common goal of winning facilitates necessary conditions for intentions to surface (e.g. Morschheuser et al., 2017). In this regard, cooperation is used as a tool or strategy to achieve a win. According to the adolescents, communication is a key-element of cooperation but was not recognized in their development. The association of communication with cooperation might be too strong among participants to see them as separate concepts, explaining why they most of them did not see their cooperation develop. However, they did feel like their cooperation changed when their knowledge and skill of Fortnite grew. This focus on game knowledge and skill could be explained by the ‘geeking out’ selection of participants, them

being very connected to the game itself and thus focusing on game-mechanics rather than other things, such as communication. All in all, this gives indications of a feeling of development, although this is not shared among all participants, possibly limited by their understanding of ‘cooperation’.

Considering the risk-narrative, the way respondents experienced their development of cooperation implicates a contradictory image. On the one hand, science has shown that there are risks to playing videogames in general, causing isolation and anti-social behaviour (e.g. Chen, Oliffe, & Kelly, 2018; Griffiths, Davies, & Chappell, 2004). On the other hand, this research has found that the experiences regarding the development of cooperative skills in Fortnite are social in nature, helping adolescents stay in touch and develop strategies. Because of this, respondents preferred to play with friends, but also to avoid certain anti-social behaviours online (e.g. swearing, name-calling). This contradiction indicates that youth see Fortnite as a whole in a more complex manner than the sum of its pros and cons – for them, it facilitates an environment in which they encounter said negative behaviours but also see and explore possibilities of learning. This calls for a more holistic take on the matter, combining the risk-narrative and the digital learning-narrative into a more nuanced story.

Discussion

There are some issues that should be addressed regarding the interviews. The fact that many respondents were not literal or explicit about the development of cooperation, might indicate that the conscious thinking thereof was too abstract. All of the respondents that were not able to answer how the development of cooperation took form were 12-14 years old, suggesting the lack of insight in regard to this might be age related. The implications of awareness of development remain strong though, as respondents were clearly able to highlight the importance of cooperation and were able to distinguish key elements of it. It is possible that respondents did not have these same insights and attitudes towards cooperation before they were playing Fortnite. To potentially combat this issue, one could reduce the age range to 16-18, as adolescents in this age have a more abstract understanding of language and cooperation (Clarke-Stewart, & Parke, 2014).

It is interesting to see that there is a difference in how adolescents experienced their development of English versus cooperation. English seemed to be a more tangible construct and thus easier to reflect on, while cooperation remained vague and abstract. This could be explained

by the fact that English language skills are an example of hard-skills, and cooperation of a soft-skill (Johnson & Johnson, 1997). This means that soft-skills are more difficult to for lack of clarity, whereas hard-skills are easy to define and easier to measure. A distinction in soft and hard skills might explain why the participants had more difficulty with reflecting on themselves when asked about the development of their cooperation within Fortnite.

This study has not found general explicit attitudes on the respective skills within Fortnite. However, the results implicate that adolescents believe that development regarding their teamplay abilities occurs in Fortnite. In doing so, small steps have been taken in a direction that leads to a more nuanced view of playing games like Fortnite. To tackle societal issues, expand on scientific knowledge, and take advantage of the potential that gaming brings, both the risk and affordances of gaming should be discussed. Both the violence and the skill development of Fortnite. Thus, this research has added to the latter, creating a nuanced and holistic image as compared to previous presentations of the game and its influence on youth.

It is clear that the insights of this qualitative study consisting of a sample of 15 adolescents do not suffice with regards to experiences and learning efficiency, so further research is needed. To expand on scientific knowledge there should be more research to pinpoint the mechanisms that foster a learning environment within games such as Fortnite. In doing more explorative studies lies the possibility of doing that, and eventually to harness this knowledge for goals like education. Also, a longitudinal quantitative study regarding the English language development could be undertaken to research whether the vocabulary expands after playing Fortnite which would further deepen the understanding of how language skills are acquired through gaming (e.g. Kuppens, 2010). When general mechanisms for specific skills have been uncovered, longitudinal studies with an experimental design could verify whether these mechanics are significant in effect or not. After that, finding out how to implement this knowledge in the field is vital.

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Appendix I: Topic list

Demographics

Age

Gender

Playtime (per week)

Duo or Squads

How long have you been playing for?

Intent and motivation

Why do you play Fortnite?

What motivates you to play Fortnite?

Cooperation (Sub RQ 1)

According to you, what is cooperation?

What role does cooperation play in Fortnite?

How do you experience cooperation when playing Fortnite?

How do you cooperate in Fortnite? (What tools do you use to cooperate?)

How has the way you cooperate changed since playing Fortnite?

Second language (Sub RQ 2)

Do you ever play Fortnite with people you don't know?

If so, what country are they from and what language do you use when talking?

How does that make you feel?

Do you think talking in and listening to English has influence on your English language skills?

If you compare your English language skills to before ever playing the game and to now, do you think they have changed? How?

Do you believe you could develop the English language throughout playing Fortnite?

Do you watch streams on YouTube or Twitch?

If so, where are the streamers from?

Do you think you can learn something from watching streams/videos?

If you look back at your English language skills before ever watching a Fortnite stream/video and compare them with your skills now, has there been a change?

Network

Who do you play Fortnite with? (Why them?)

Is there a difference in playing with friends as compared to strangers?

Others' attitudes

What do you think of media coverage regarding Fortnite?

What do your parents think of Fortnite? (How does that make you feel?)

What do your friends think of Fortnite? (How does that make you feel?)

Appendix II: Code tree second language development

Second language development according to the participants	Yes	How	In-game experiences	Contact with fellow players	Listening
					Reading
				New words	
				Talking	
		Game environment			
No	Battle Royale	In-game experiences	Out-game experiences	Twitch and/or Youtube	Watching streams
					Producing streams

Appendix III: Code tree cooperation development

Name	Description
Demographics	General data that was gathered from the respondents
Gender	Described gender of the respondents
Age	Described age of the respondents
Hours per week Fortnite	How many reported hours played per week. Respondents also noted whether they played cooperatively or not
Vague topic	Amount of respondents stating that the topic of cooperation was vague
Playing Fortnite	The summation of motivation and goal of playing Fortnite.
Goal of playing Fortnite	What did the respondents aim to get from playing Fortnite and how was this achieved? Respondents mentioned multiple goals.
Cooperation	Tool to achieve goals of playing Fortnite. Describes everything related to the definition of cooperation as given in the literature review, but also as given by respondents.
Definition	How do respondents define cooperation (within Fortnite), and what components does this consist of?

Communication	How do respondents communicate with each other? Respondents found this to be the main component for cooperation.
Sharing	Another component for cooperation. If a teammate shares his supplies or loot, he or she is considered a good teammate.
Development of cooperation	Entailed everything that was related to a change in cooperation from starting the game till now. Was unclear for most respondents.
Back in the day everyone was bad	When the game just came out, players were all bad in a sense that no one really knew anything about the core mechanics of the game.
Communication	One respondent states that communication has improved in light of teamwork, while another argues against this.
Increase in knowledge	An increase in knowledge about Fortnite and its mechanics would lead to mechanical mastery and reportedly better cooperation.
Motivation and attitude	The <i>motivation and attitude</i> encapsulate why respondents cooperate within Fortnite, and how they feel about that.
Cooperation important to win	Includes any fragment that stated cooperation was important to win.

Fighting together increases chances of survival	Includes any fragment that stated cooperation or teamwork was necessary to specifically survive in combat.
Teammates	Category about how teammates have an influence on the way and quality of cooperation.
Friends	Friends were often mentioned as preferable teammates. They helped respondents achieve their goals.
Strangers	Were not preferable in cooperation.
Getting kills	Goal of playing Fortnite
Grinding tiers	Goal of playing Fortnite
To have fun	Main goal of playing Fortnite
Winning	Important goal of playing Fortnite
Motivation to play Fortnite	What motivated respondents to play Fortnite in the first place, and what motivates them to play it still?
Continuous addition of content	The constant addition of new maps, new gamemodes and skins within the game keep respondents hooked.
Friends play it	The fact that friends play the game have showed to be a major motivator for most respondents.
Social function of Fortnite	Some use Fortnite as a means to hang out and chill with their friends. Fortnite is simply the environment for them to come together.

Appendix IV: Consent form parents

Toestemmingsformulier onderzoek ervaringen Fortnite-spelers

Voor een onderzoek naar de ervaringen omtrent het spelen van Fortnite, worden er interviews gehouden.

De deelname van uw kind is geheel vrijwillig. Als u of uw kind aangeeft dat hij of zij wilt stoppen, gebeurt dat zonder dat u of uw kind daar een reden voor hoeft te geven.

Hierbij geef ik toestemming voor deelname van mijn kind aan een interview met (onderzoeker), welke wordt vastgelegd met de audiorecorderfunctie, en de verwerking hiervan in (onderzoeker)s thesis.

De verwerking van de informatie zal geheel anoniem zijn. Na verwijdering van de audio-opname krijgt uw kind hierover bericht.

Naam kind:

Datum:

Handtekening ouder(s)/verzorger(s):

Appendix V: Consent form participants

Toestemmingsformulier onderzoek ervaringen Fortnite-spelers

Voor een onderzoek naar de ervaringen omtrent het spelen van Fortnite, worden er interviews gehouden.

Jouw deelname is geheel vrijwillig. Als je aangeeft dat je wilt stoppen, gebeurt dat zonder dat je daar een reden voor hoeft te geven.

Hierbij geef ik toestemming voor mijn deelname aan een interview met (onderzoeker), welke wordt vastgelegd met de audiorecorderfunctie, en de verwerking hiervan in (onderzoeker)s zijn thesis.

De verwerking van de informatie zal geheel anoniem zijn. Na verwijdering van de audio-opname krijg je hierover bericht.

Naam:

Datum:

Handtekening: