

Video game playing and literacy: a survey of young people aged 11 to 16

Irene Picton, Christina Clark and Tim Judge

Video games are a significant cultural and creative force, often involving a number of art forms, including narrative, design and audio composition. They have been the subject of a large-scale exhibition at the Victoria and Albert museums in London and Dundee, while the British Games Institute (BGI) was set up to support video game culture in 2019. The UK has the sixth largest games market globally, with 37.3 million people playing games¹, including 81% of 11 to 14-year-olds and 69% of 6 to 10-year-olds². Given this popularity, it is unsurprising that the video games industry generates considerable revenue; indeed, in the UK, this has been forecast to overtake spend on books by 2020 (£5.5bn vs. £4.9bn)³.

The National Literacy Trust recognises the importance of technology as a tool for teaching literacy skills, and the way that technology can be used to support and enrich the literacy lives of children and young people is an integral part of our research and programme work. We are keen to explore this area in more detail, and in particular, to expand our knowledge of the impact of video games on children and young people's literacy attitudes, behaviours and skills. In addition, while a considerable number of international studies and reviews have explored game-based learning⁴, fewer have focused specifically on video games and children's literacy⁵.

The following report outlines findings from a short survey of young people conducted in late 2019. The survey received 4,626 responses from young people aged 11 to 16 across the UK. This was intended to serve as a preliminary investigation of young people's literacy-related interactions both within, and in relation to, video games. Further qualitative work is planned to complement these early findings, to contribute to the evidence base investigating the potential for video games to engage children and young people with literacy.

¹ <https://newzoo.com/insights/infographics/uk-games-market-2018/>

² GameTrack, 2016, as cited in <https://ukie.org.uk/sites/default/files/UK%20Games%20Industry%20Fact%20Sheet%20October%202018.pdf>

³ <https://www.pwc.co.uk/press-room/press-releases/UK-entertainment-and-media-sector-to-grow-by-8bn-over-the-next-four-years-PwC-forecasts.html>

⁴ See e.g. Gee (2007), Selfe et al., (2016); Huizenga, (2017)

⁵ See Hainey et al., (2016)

Key findings

Video games are a popular activity for this age group, with more than 4 in 5 (83.1%) young people responding to this survey (N=4,626) saying that they play video games. **Almost all** (95.6%) boys responding to the survey said they play video games, while **two-thirds** (65.2%) of girl respondents were video game players.

Findings from the survey provide a number of insights into the interactions between playing games, reading and writing. For example, they indicate that video games can **serve as a route into stories** for some young people:

- **3 in 5 (59.5%)** video game players feel a greater sense of immersion in a story when playing video games compared with book-based texts. This increases to almost **three-quarters (73.1%)** of young people who say that they do not enjoy reading, suggesting that video games play a role as an access point into the world of stories, particularly for young people that don't enjoy reading.

Young people's comments further indicated that playing video games motivated wider reading for enjoyment. For example:

“They help me appreciate stories and other arts which inspire me to read stories.”

Playing video games was also found to motivate some young people to read for information, while others felt it could help boost their reading confidence or support creative writing:

- **2 in 5 (39.5%) video game players are motivated to read to find out more about video games** and more than a third (35.3%) believe playing video games helps them to be a **better reader**.

“It helps me learn new words and gives me more stuff to imagine if I ever needed to write a story.”

“It makes you imagine more things, and you need imagination in writing.”

Many young people who play video games also **read, write and talk about video games regularly**, and include a wide variety of materials in these activities:

- **4 in 5 (79.4%) young people who play video games read materials relating to video games once a month**. Reflecting the importance of the social aspect of gaming, in-game communication was the most popular material (39.9%). However, more than **3 in 10 (30.5%)** read **longer-form text** (such as game reviews and blogs), while **1 in 5** video game players say that they read **books** (21.8%) or **fan fiction**⁶ (19.4%).
- **More than 3 in 5 (62.5%) video game players write something relating to video games once a month**, and 1 in 5 (22.1%) say that they enjoy writing to help other video

⁶ “Stories involving popular fictional characters that are written by fans and often posted on the Internet” (<https://www.merriam-webster.com/dictionary/fan%20fiction>)

game players. While scripting videos is the most popular activity (27.5%), **longer-form material** such as fan fiction is written by 1 in 10 (10.8%) young people and 1 in 12 (8.0%) write blogs or articles about video games.

Young people's comments suggest that a wide range of other writing is also taking place, from journals, code and songs about favourite games to video game ideas and scripts:

"Sometimes I ...plan out a video game idea ...if I ever make my own videogame ...something that I would want to do in the future, I write things such as scripts for the characters and how they would act."

- **More than three-quarters (76.3%) of young people say they talk with their friends about video games.** Young people's comments indicate that video game playing not only builds social connections with peers 'in real life', but that 'online' communication can facilitate self-expression and improve their ability to support friends:

"...helps me make friends with classmates"

"[To] talk with my friends if I feel down without having to meet up with them"

"It helps me listen to my friends more and talk to them."

Indeed, **almost two-thirds (65.0%)** of video game players say that **playing video games helps them imagine being someone else**, suggesting potential benefits for increased empathy:

"Playing games can help you create your own imaginary world and understand other people's view of life."

Many young people agreed that they would like more opportunities to take part in activities linking **video games and literacy**, and felt this could also support their **wider life skills**:

- **3 in 5 (57.9%) video game players would like to write or design video games**, while more than 3 in 10 (31.4%) would like more opportunities to read and write about video games in school.
- 3 in 5 (59.5%) also felt playing video games helps them learn how to **solve problems**, and just under half (46.8%) believe that it helps them develop **team-working skills**:

"They help me to work as a team ...and inspire me to be a good person."

Finally, while more than half (52.7%) of survey respondents enjoy reading overall, slightly fewer of those who play video games say that they enjoy reading (**51.8% vs. 57.0%**) and read daily (**29.2% vs. 34.3%**) than those who don't. Fewer video game players enjoy writing (**43.1% vs. 53.0%**), and slightly fewer write daily (**52.4% vs. 57.7%**). This indicates a greater difference in writing enjoyment than reading enjoyment in video game players, and some degree of displacement, albeit less than may have been expected. It also suggests that interest in video games could potentially be employed to support literacy skills, particularly writing.

Introduction

The effects of video games on learning and wellbeing have been studied extensively in recent decades⁷. This research has found that playing video games can have a variety of positive and negative impacts on individuals, ranging from improving multi-tasking, memory, attentional control, critical thinking and problem-solving techniques⁸ to increasing exposure to violence, addiction and greater cortical thickness⁹. A common concern expressed in relation to video game playing is the displacement of time that might otherwise be spent on physical activity, reading or social and communication activities¹⁰.

At the same time, a considerable number of studies have examined the potential for video games to facilitate learning and academic achievement. For example, an extensive review by Qian and Clark (2016) concluded that video games could support the skills needed for employment in contemporary society, such as collaboration, creativity, communication and critical thinking. Lantz (2018) takes this one stage further, proposing that video games teach “systems literacy (logic and procedures)”, which are needed to develop young people’s knowledge of “how systems work to generate the complex world around us”. Other studies have explored video games and education through the lens of gender. For example, Hosein (2019) found that girls who play video games were three times more likely to study for a physical STEM degree than non-game players.

Focusing on literacy, while fewer studies have explored links between video game playing and literacy, some have evidenced positive outcomes. For example, action video game playing was not only found to improve visual attention span and, by extension, enhance reading performance in both adolescents and adults but also to support improved reading ability in children with dyslexia¹¹. Larger-scale, international research observed a positive relationship between 15-year-olds’ gaming activity and reading attainment in 11 of 23 countries included in the study¹².

Gender differences have also been found in studies exploring video gaming and literacy. For example, the gap between girls’ and boys’ performance in Programme for International Student Assessment (PISA) reading tests was found to narrow significantly when these took place on screen rather than paper. Researchers suggested this may in part relate to greater experience with video gaming, improving boys’ ability to navigate digital texts (OECD, 2015, 2019). Smaller studies indicate that projects promoting video gaming in the classroom may both encourage girls to engage in technology and motivate boys to develop their storytelling skills¹³.

Our interest in the interaction between playing video games, reading and writing was in part a reaction to responses given to one of our surveys of online reading behaviour. When young

⁷⁷ See e.g. Granic et al., (2014); Turel et al., (2016); Paulus et al. (2017)

⁸ See e.g. Chiapper et al., (2013); Anguera et al, (2013); Palaus et al., (2017); Kenwright, (2017)

⁹ See e.g. Liu et al., (2015); Strenziok et al., (2011), Hou et al., (2012); Hahn et al., (2014), Calvert, et al., (2017), Paulus et al., (2019)

¹⁰ See e.g. Deszcz-Tryhubczak & Huysmans (2018), Hygen et al., (2019)

¹¹ Antzaka et al., (2017); Franceshini et al., (2013, 2017)

¹² Biagi and Loi, (2013)

¹³ Robertson (2012)

people were invited to share examples of what they read online, many mentioned texts associated with video games, such as 'blurb', in-game text, dialogue and help files or instructions, or online forums such as Discord and Reddit (see Figure 1).

Figure 1: Other screen-based reading material, young people aged 11 to 16



The number of responses indicated that many young people had considerable enthusiasm for, and interest in, reading relating to video games and video game culture. We've long known that intrinsic motivation to read is often very interest driven, so we were curious to find out what other literacy behaviours might be linked to young people's interest in video games and gaming culture. Furthermore, it seemed timely to explore the potential for better engaging young people in reading and writing by recognising this interest and enthusiasm. In collaboration with publishing and interactive entertainment industry experts, we designed a survey focusing on video game playing and literacy, to allow us to begin to explore any relationships between young people's attitudes, behaviour and confidence across these areas.

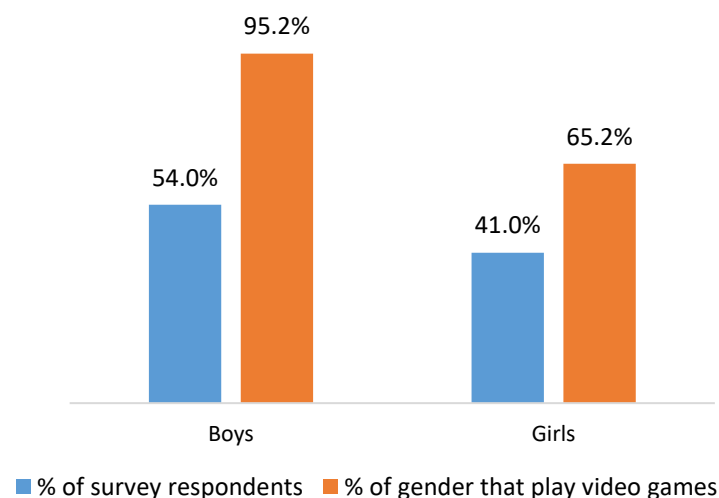
Young people's engagement with literacy

Reading enjoyment is associated with better reading performance (see e.g. Clark, 2019). Just over half (52.7%) of the students responding to our survey said that they enjoy reading. This is a somewhat higher level than may be found in comparable national surveys; for example, in our 2019 Annual Literacy Survey, 44.9% of 11 to 16-year-olds said they enjoy reading (a 7.8 percentage point difference – see Clark and Teravainen-Goff, 2020). However, in common with other studies, fewer of those eligible for free school meals (FSMs) enjoy reading compared with those not eligible (43.6% vs. 53.9%) and, while almost 3 in 5 (57.6%) of girls say that they enjoy reading, less than half (48.1%) of boys say the same.

Video game playing, literacy attitudes and behaviours

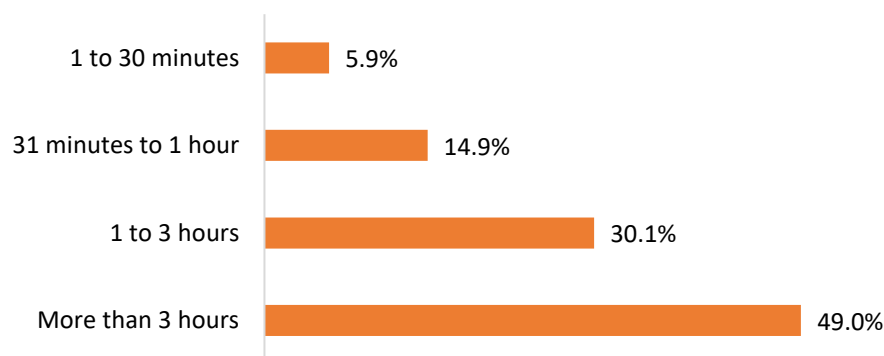
Corroborating findings from similar surveys in this area, video game playing was popular among the 11 to 16-year-olds responding to our survey, with more than 4 in 5 (83.1%, n = 3,561) saying they play video games. Over half (54.0%) of responses were from boys, 2 in 5 (41.0%) from girls, and the remaining 5% were 'other' (1.6%) or 'would rather not say' (3.4%). Boys were significantly more likely to say they played video games, with almost all (95.6%) saying they did so, compared with just under two-thirds (65.2%) of girls (see Figure 2).

Figure 2: Video game playing by gender



Most (52.7%) respondents say that they play video games daily, two in 5 (40.2%) weekly or a few times a week, with the remainder (7.1%) more occasional players, playing monthly or less often. When asked how long they normally played video games for at any one time¹⁴, almost half (49.0%) indicated that they did so for more than three hours at one time (see Figure 3).

Figure 3: Time spent playing video games

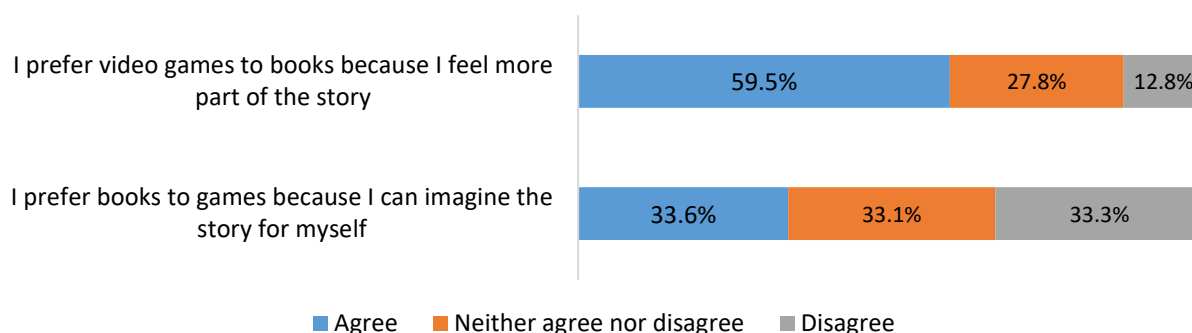


¹⁴ Weekdays and weekends were not specified; rather the question stated "When you play video games, how long do you normally do this for?"

How video games support young people's literacy

In order to explore attitudes to video games, literacy and learning, video game players were invited to agree or disagree with a number of statements. As shown in Figure 4, a high proportion (3 in 5) of video game players agreed that they prefer games to books because they feel 'more part of the story', indicating that for these students, video games provide them with a greater sense of immersion in a story than book-based texts.

Figure 4: Preferences for books or video games in relation to story immersion



Indeed, commentators have argued that when “...students read traditional books, they may only passively engage in a story’s narrative. Conversely, as players work through complex video games, they choose their paths and actively construct their own narratives, resulting in deeper engagement in the story”¹⁵. That being said, among respondents to our survey, a third of video game players said they prefer the way that book-based texts allow them to imagine a story. This suggests that video games and books can also provide complementary (rather than similar) cultural, imaginative and leisure experiences for some young people. At the same time, a number of respondents feel the experience of reading books and playing games to be similar:

“For me video games are very helpful, it is really just like reading a book.”

“Video games help me think of [a] story in my head that I would think of while I go to sleep.”

“Books help grow your imagination and so do games, because of all the things you can do.”

Video game playing motivates young people to read and supports creativity

Playing video games could also be seen to inspire wider reading in some young people responding to our survey, and to support imaginative and creative writing. Indeed, the creative and imaginative aspects of video game playing were mentioned in more than 100 young people’s comments, some examples of which are given below:

“They help me appreciate stories and other arts which inspire me to read stories.”

¹⁵ <https://degree.astate.edu/articles/k-12-education/computer-games-improve-literacy.aspx>

“It makes you imagine more things, and you need imagination in writing in literacy.”

“...get better vocab, have fun, create fun IRL [in real life] storylines and games to play with friends.”

“It gives me a creative mind as I love to draw and write about games.”

“...expand your imagination and help improve by seeing others’ imaginations.”

The volume and variety of such comments suggest that there is a (perhaps somewhat surprising) amount and variety of creativity and writing happening around games that could perhaps be better supported. For example, several students said that they write diaries or journals about their video game playing, while others mentioned writing code, maps or even songs about their favourite games. A number had even been inspired to write their own ideas and scripts for games:

“I take ideas from video games and sometimes make up my own.”

“I write AUs [alternative universes], depending on the game. For example, if the game I decide to write about is a shooter ...then I'd replace a few characters and change the events that happen.”

“Sometimes I ...plan out a video game idea ...if I ever make my own videogame, it is like something that I would want to do in the future, I write things such as scripts for the characters and how they would act.”

In addition, it is worth noting that most of the comments featured are from boys, as more boys report low reading and writing enjoyment and engagement than girls, particularly boys in the 11 to 16-year-old age group featured in this survey.

Reading relating to video games

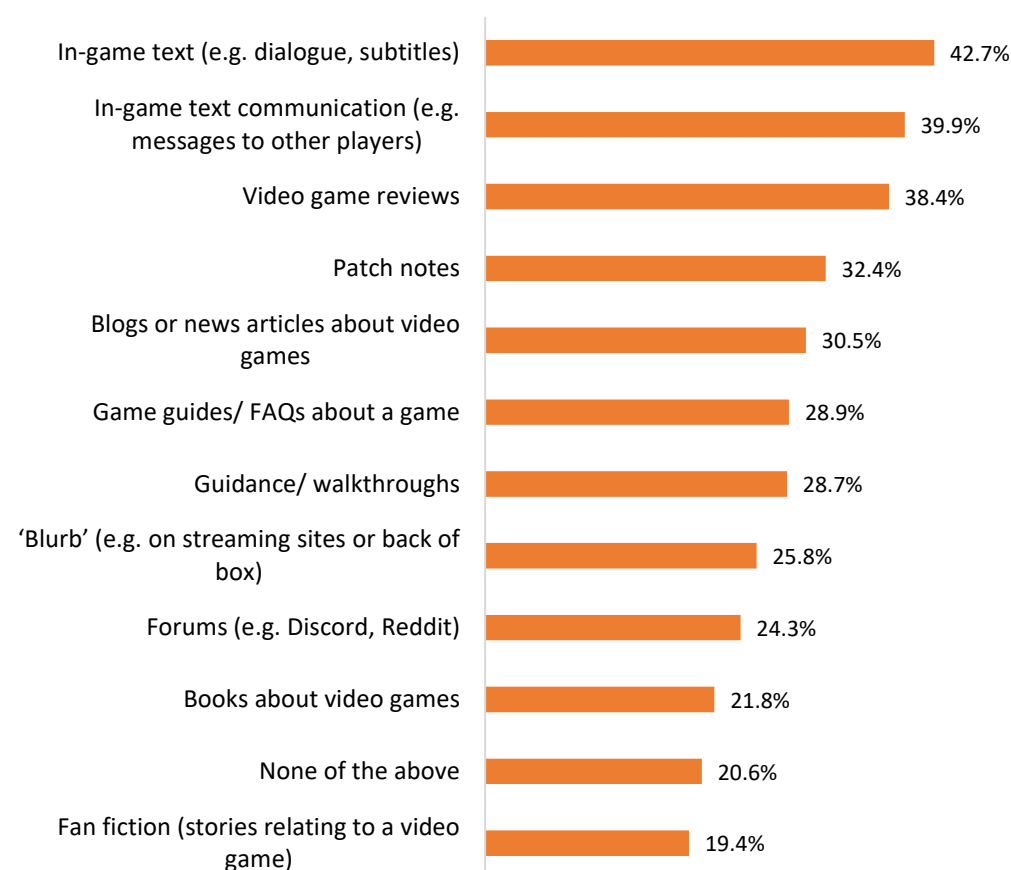
Following findings from our earlier survey relating to young people’s reading related to video games (see p.5), we were also interested to find out what percentage of young people who play video games might also read or write video game-related texts in their free time.

Academics have observed reading to be “an important (albeit often hidden) component of participation in video game culture” (Steinkuehler, 2011). In one US study, researchers found that struggling adolescent readers were able to read an average of six grades above their usual ability when offered texts relating to video games (ibid.). The author noted such texts often consisted of “academic language and complex structure” but “because they are interest-driven ...have an important advantage over assigned (school-related) tasks, especially for struggling readers”. Subsequent researchers have also pointed out similarities between digital game “paratexts” and conventional written texts¹⁶, suggesting that the former could therefore be used effectively in the classroom setting.

¹⁶ See e.g. Apperley and Walsh (2012); Thomson (2014), Mak (2015)

It is clear that a considerable amount of reading relating to video games is taking place. Indeed, 4 in 5 (79.4%) young people read materials relating to video games at least once a month, with video game players reading an average of 4.4 different materials (SD = 2.83). Although many gamers communicate verbally (i.e. over headsets), a significant percentage (39.9%) regularly read in-game communication from other players, indicating that the social aspect of gaming is an important part of the experience (see Figure 5).

Figure 5: Reading related to video games



Practical, informational text (such as patch notes¹⁷, guides and blurb) are also popular reading material for young video game players, but comparatively long-form text (such as reviews and blogs) are also read by more than 3 in 10 of those that play video games. In addition, more than a fifth of video game players say that they read books about video games regularly, and just under a fifth read fan fiction. As mentioned, this is notable given the age group of the respondents to this survey, with 11 to 16-year-olds reporting much lower levels of reading engagement than their younger counterparts¹⁸.

When invited to comment further about any reading they did relating to video games that had not been suggested already, the majority of comments (47) mentioned magazines (e.g. "Magazines based on games that give advice, tutorials and that showcase creations by other

¹⁷ Updates, fixes or improvements

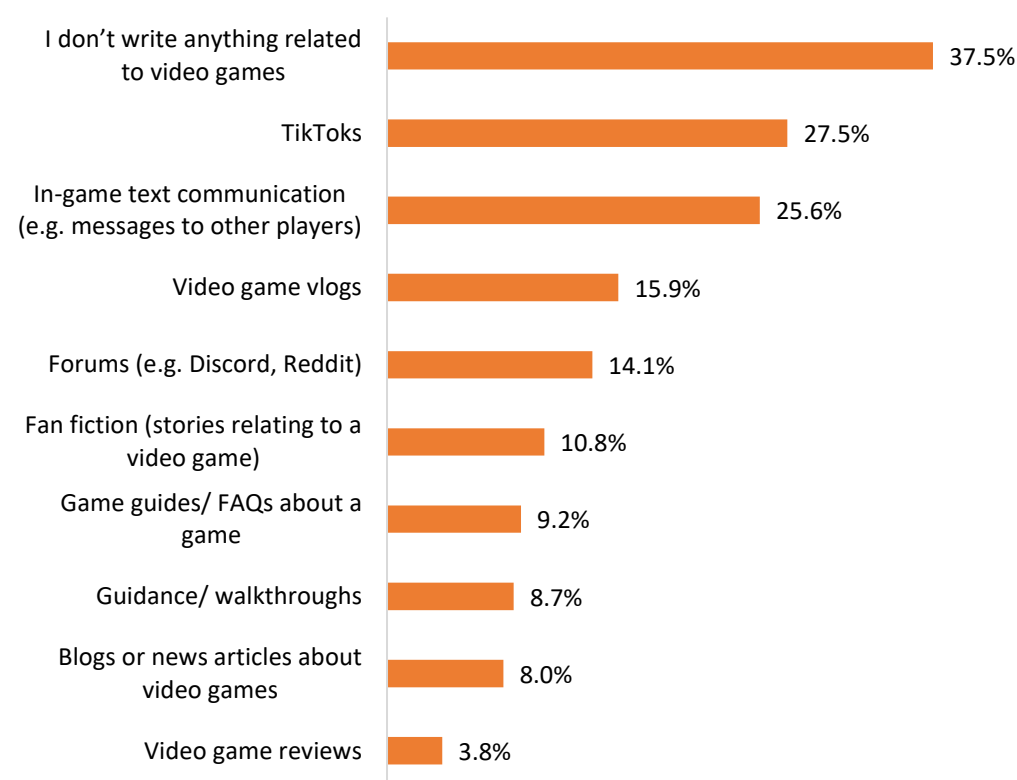
¹⁸ See e.g. Clark and Teravainen-Goff (2020), 71.9% of 9 to 11-year-olds enjoy reading compared with 49.5% of 11 to 14-year-olds and 40.2% of 14 to 16-year-olds

players.”) Clearly, this is an important format and source of information for many young video game players. In addition, some young people mentioned less informational texts, such as “Comics that are based in game universes”, and specific branded series such as *Assassin’s Creed* titles. Some felt the genre of their preferred reading mirrored their favoured video game themes, with one student stating, “I read a lot of science fiction, which in a way I guess could be related to video games, as a lot of the topics covered are just like the games I play.”

Writing relating to video games

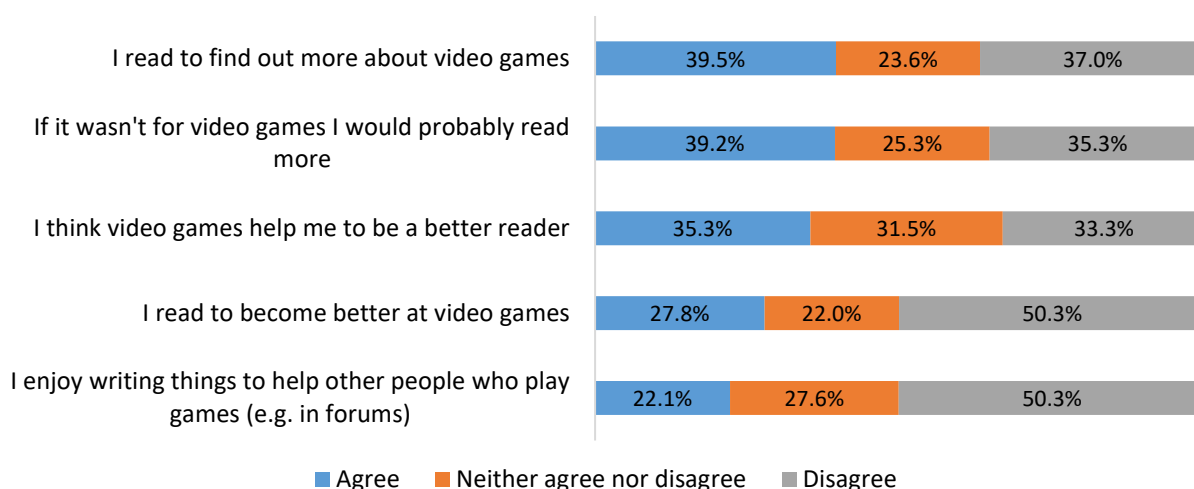
Fewer young people write than read content related to video games, however, more than 3 in 5 (62.5%) do write something relating to video games at least once a month, writing on average 2.2 different materials (SD = 1.68). The most common writing activity relates to TikToks (videos), and a further 1 in 6 (15.9%) say that they regularly write a video game vlog, suggesting that scripting videos is a popular writing activity among young people in this age group (see Figure 6). At the same time, more than 1 in 10 young people say that they write fan fiction (stories relating to video games) and 1 in 12 write blogs or articles about video games, indicating that a high proportion of young people participate in longer-form writing relating to video games on a regular basis.

Figure 6: Writing related to video games



Reflecting research on the importance of interest in reading motivation (see e.g. Clark and Pythian-Sence, 2011), 2 in 5 (39.5%) of video game players say that they are motivated to read to find out more about video games generally, while slightly fewer (27.8%) read specifically to improve their video gaming skills (see Figure 7).

Figure 7: Video games, reading and writing



Nevertheless, 2 in 5 also agree that if it weren't for video games, they would probably read more (39.2% vs. 35.3% who disagree). At the same time, a very marginally higher percentage believe that video games help them be a better reader (35.3% vs. 33.3% who disagree). Some said video game playing had more specific benefits for their vocabulary, spelling and reading practice:

"It helps me learn new words and gives me more stuff to imagine if I ever needed to write a story."

"Video games that include dialogue help me with spelling."

"It helps you read better if it has subtitles."

While one dyslexic student believed playing 'story quest'-type games supported their reading:

"Helps with my dyslexia and to see the story and to read better if it's a story quest"

This reflects findings highlighted by practitioners, which have suggested that the more limited text in digital games can be easier for some students to visually perceive and track, and that vocabulary may be more easily learned through gameplay, particularly in quest-based games.¹⁹

It is also worth noting that more than 1 in 5 (22.1%) say they enjoy writing to help other video game players. Commentators have noted that contributing to games-related sites online provides young people with an authentic and knowledgeable audience²⁰, and the enjoyment of writing things to help others may be hinted at in young people's comments about talking about video games, which, as an 'expert' subject, may boost their confidence when communicating with others:

¹⁹ See e.g. Kaltman (2017)

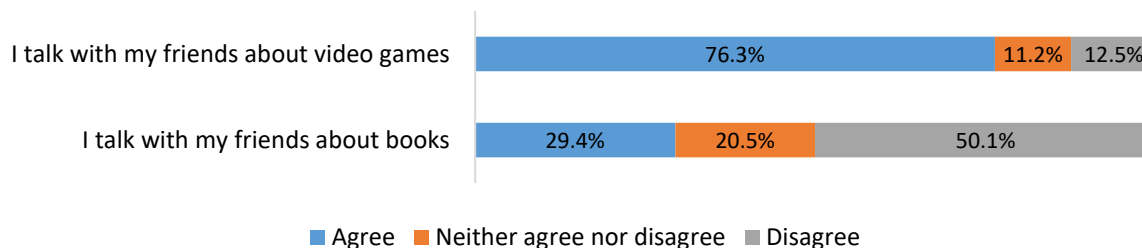
²⁰ See e.g. Steinkuhler, as cited by Thompson (2014)

“It helps with my self-confidence when I’m able to talk to others. The ability to teach others...”

Video games, connectedness and empathy

Video games appear to be a very popular topic of conversation for young people, with more than three-quarters (76.3%) saying they talk with their friends about video games (see Figure 8). By comparison, fewer than 3 in 10 (29.4%) say that they discuss books with their friends.

Figure 8: Video games, books and talk



Comments from young people on this topic also suggested that, for some, video game playing supports communication and social connections with their peers ‘in real life’:

“[To] have something to talk about with friends.”

“[So] friends will talk to me in the playground.”

Comments relating to ‘online’ communication indicate that both talking about, and talking within, video games (i.e. in-game communication) helped some young people to deepen their connections with peers, facilitate self-expression and increase their ability to support friends:

“[To] talk with my friends if I feel down without having to meet up with them.”

“It helps me listen to my friends more and talk to them.”

Indeed, more than 100 comments related to a sense of connectedness, emphasising communication, friends and socialising, for example:

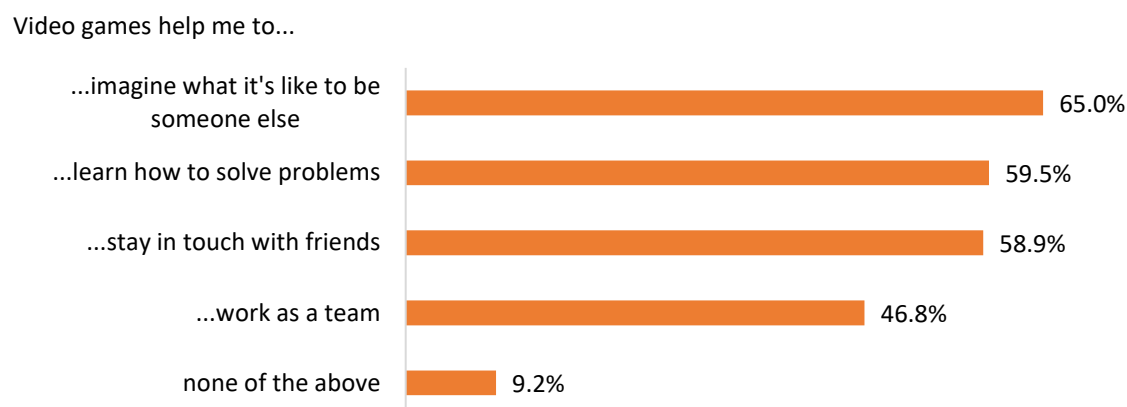
“Helps [me] to communicate with others and make new friends.”

“Feel more a part of a community.”

“I learn new words from video games and I can meet friends of friends.
I’m not social, but it helps.”

When asked about other aspects of video game playing, almost two-thirds (65.0%) of young people agreed that it helped them imagine being someone else, echoing findings relating to feeling ‘immersed in a story’ and suggesting potential benefits for increasing empathy (see Figure 9).

Figure 9: Other potential benefits of video games



Young people's comments provided more context for some of these findings, for example, with regard to empathy:

“[Playing games] shows me different perspectives from different people.”

“Playing games can help you create your own imaginary world and understand other people's view of life.”

Given the many concerns around video game playing and more negative outcomes, it is perhaps somewhat surprising to learn that video games can support emotional literacy and wellbeing. It would, again, perhaps be instructive to explore more deeply the mechanisms behind this, for example, what elements of games might most positively affect empathy (e.g. first person viewpoints, immediacy, etc.)

In common with findings from a number of studies, 3 in 5 (59.5%) felt playing video games helped them learn how to solve problems, considered to be an essential skill for the future workplace. Indeed, commentators have suggested that, as “games force you to decide, to choose...all the intellectual benefits of gaming derive from this fundamental virtue, because learning how to think is ultimately about...weighing evidence, analysing situations”²¹. Supporting social relationships, such as staying in touch with friends, was also a benefit identified by almost 3 in 5 (58.9%) young people, while just under half (46.8%) believe that playing video games helps them develop team-working skills. Problem solving and teamwork were often mentioned together, with some comments also referring to related skills such as focus, resilience and trust:

“Playing video games helps me solve problems as a team.”

“They help me to work as a team, help me to concentrate and inspire me to be a good person.”

²¹ Johnson (2016).

“Navigation and teamwork – ways to improve and how to learn from mistakes.”

“It helps me build trust in my teammates if I'm playing squads and I put my trust in them to help.”

When invited to share anything else they felt video games might help them to do, comments could be seen to fall into 16 broad categories: agency, communication, concentration, creativity, empathy, entertainment, escapism, family, friends, hand-eye coordination, imagination, interests, learning, literacy, relaxation and teamwork (see Figure 10).

Figure 10: Young people's perceptions of wider benefits of video games



Unsurprisingly, many young people see playing video games simply as a source of fun, while others focused more on the learning aspects of video game playing, for example:

“It’s entertainment in my free time.”

“Sometimes while playing games it involves using my brain and I think it makes me more intelligent.”

However, a high number of comments shared how video games help some young people to either deal with, or escape from, stress or difficult emotions:

“Helps to relax. If I'm stressed or nervous, I play a relaxing game and it helps to calm me down.”

“Helps me release my anger”

“It’s a way for me to escape all my sadness ...I think it helps my mental health”

“Be happy and laugh. Be a different person to who you are in real life. A new world...”

“...take a break from everything else and get lost in Hyrule (*The Legend of Zelda*) or the Ruins or Hotland (*Undertale*)”

For other respondents, playing video games was seen as an opportunity to strengthen family relationships:

“...to talk to my dad as he likes video games so then he can bond”

“...spend more time playing with siblings rather than sitting in a corner and reading a book”

“Video games help me stay in touch with my cousin as he lives hundreds of miles away.”

Other young people mentioned that video game playing had stimulated other hobbies and interests, as much as helping them with interests they already had:

“Once I started playing World of Tanks, I developed an obsession with tanks from WW2 and built my own.”

“Videogames have got me into many hobbies like electronics and design and my love for superheroes.”

Finally, more than 30 comments indicated that many young people felt that video games helped their hand-eye coordination, and that these skills helped them in other areas of life:

“Coordination, communication, imagination”

“It helps my concentration and hand-eye coordination, both of which I use in art, which I love”

Video game playing and wider life skills

An important part of this pilot survey was to ask young people questions designed to help inform potential programmatic work linking literacy and video gaming. While we aim to supplement this with more in-depth, qualitative work, it was interesting to note that 3 in 5 (57.9%) students said they would be keen to write or design video games, and 3 in 10 (31.4%) would like more opportunities to read and write about video games in school. In addition, almost half (48.9%) of students believed they learned important facts from video games.

Figure 10: Attitudes to video games, reading and writing

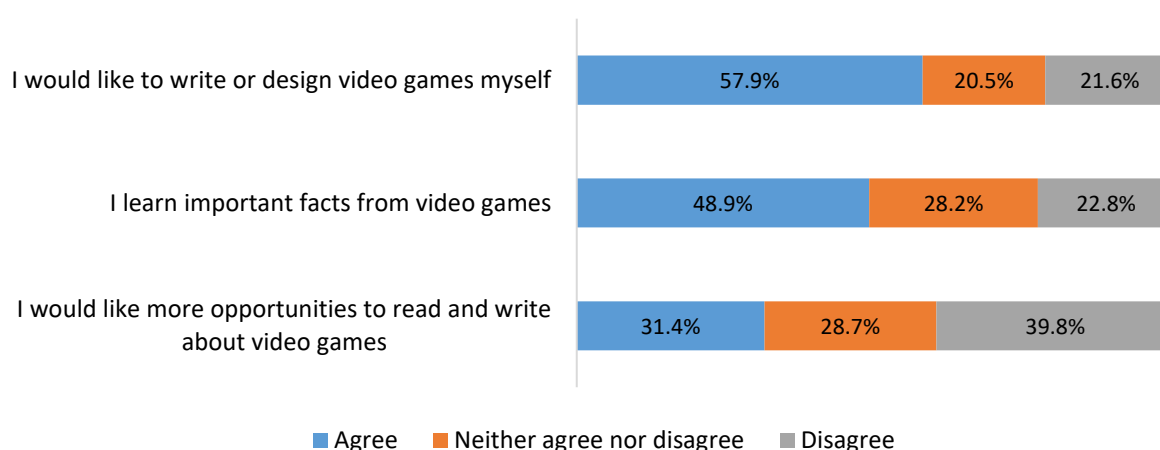


Figure 12: What three words would you use to describe playing video games?



In this case, the top three words were 'fun', 'exciting' and 'bored', perhaps not as dissimilar to reading books as might have been expected. Indeed, comparing the top 10 words that young people used to describe each activity, 'fun', 'bored', 'interesting', 'exciting', 'enjoyful' and 'good' appear in both top 10 lists. However, 'imagine', 'relax', 'calm' and 'creative' appear only in the top 10 for reading books, while 'amazing', 'interesting', 'entertain', 'addicted' (also used to describe reading, but by fewer children), and 'cool' appear only in the top 10 for video game playing. This suggests that while both activities are either 'fun' or 'boring' for young people, reading is more likely to be associated with 'imagination' and 'relaxation', and playing video games with 'amazement' and 'interest'.

Notably, however, when asked about the benefits of playing video games, many of the words used reflected those used to describe reading books, such as ‘calm’ and ‘relaxation’, ‘creativity’ and ‘imagination’, indicating that some young people feel they get several of the benefits of reading from video game playing. Indeed, it is striking to note the degree to which much of a recent description of what children get from book reading²² corresponds to the reasons given for young people for video game playing in this survey:

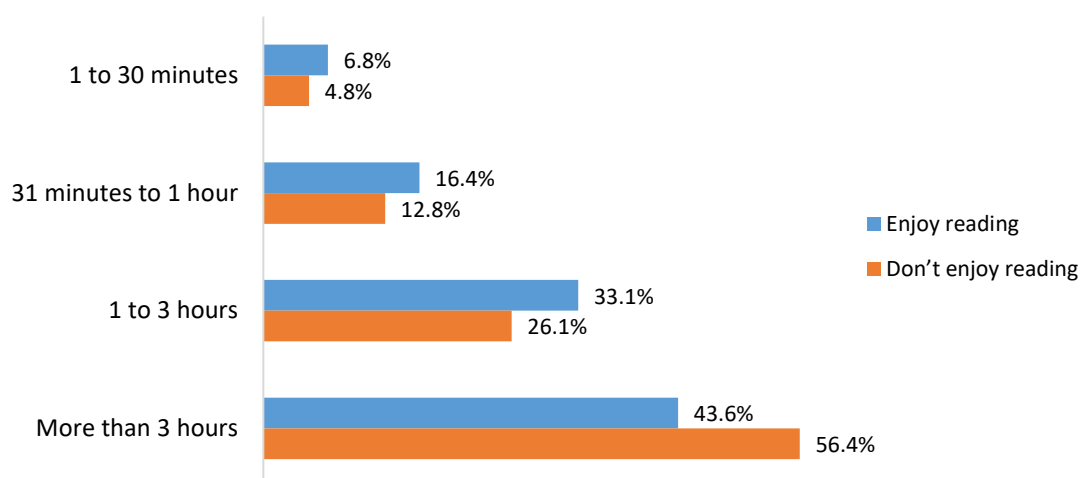
“For many, book reading offers an immersive experience; an opportunity to explore fictional worlds or spend time with new or familiar fictional friends. For these children and young people, reading offers an opportunity for absorption and escapism. Others read because books bring happiness, laughter or an opportunity to connect with friends. Some choose books that will give them a thrill, while others see reading as a time to relax. Reading also offers opportunities to develop empathy, see things from others’ perspectives, learn about new topics or pursue favourite interests.”

²² See Sarah McGeown's foreword to Topping (2020), *What Kids Are Reading*, London: Renaissance Learning

Playing video games and reading and writing enjoyment and frequency

Looking now at whether young people who play video games have different levels of reading engagement than those who don't, it can be seen that slightly fewer of those who play video games say that they enjoy reading (51.8% vs. 57.0%) and read daily (29.2% vs. 34.3%) compared with those who do not. However, a larger percentage point gap between these groups might have been expected, suggesting that the issue of video game players not enjoying reading may be less of a concern than might have been predicted. Nevertheless, more of those who play video games for three hours or longer say they do not enjoy reading compared with those who play for shorter periods (see Figure 13).

Figure 13: Time spent playing video games and reading enjoyment

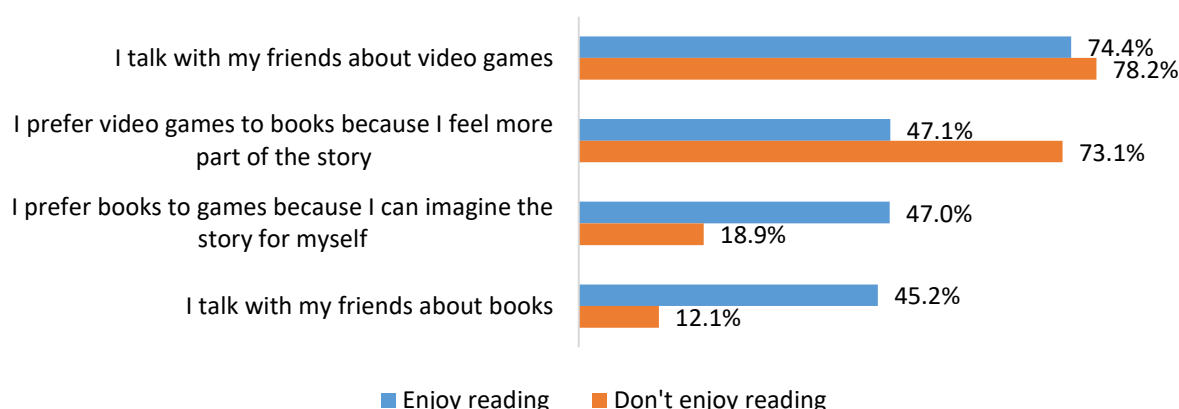


No significant differences were found between young people who play video games and those who do not in terms of how long they read for. For example, both groups are equally likely to say that they read for more than 30 minutes at a time (35.0% of video game players say they do this, compared with 33.9% of non-video game players). However, fewer video game players say that they choose to read daily in their free time daily (29.2% vs. 34.3%), and in addition, fewer enjoy writing (43.1% vs. 53.0%) or write daily (52.4% vs. 57.7%). This indicates a greater difference in writing enjoyment than reading enjoyment in video game players, and some degree of displacement, albeit less than may have been expected.

Young people who do and do not enjoy reading

Acknowledging that reading enjoyment is associated with reading attainment, responses from young people who do and do not enjoy reading were compared. Our survey found that more young people who do not enjoy reading play video games daily than those that do enjoy reading (59.1%, vs. 46.8%), and that more of this group play video games for over 3 hours at any one time (59.1% vs. 46.8%). In addition, almost three-quarters (73.1%) of young people who do not enjoy reading feel 'more part of the story' when playing video games, compared with under half (47.1%) of those who do enjoy reading (see Figure 14).

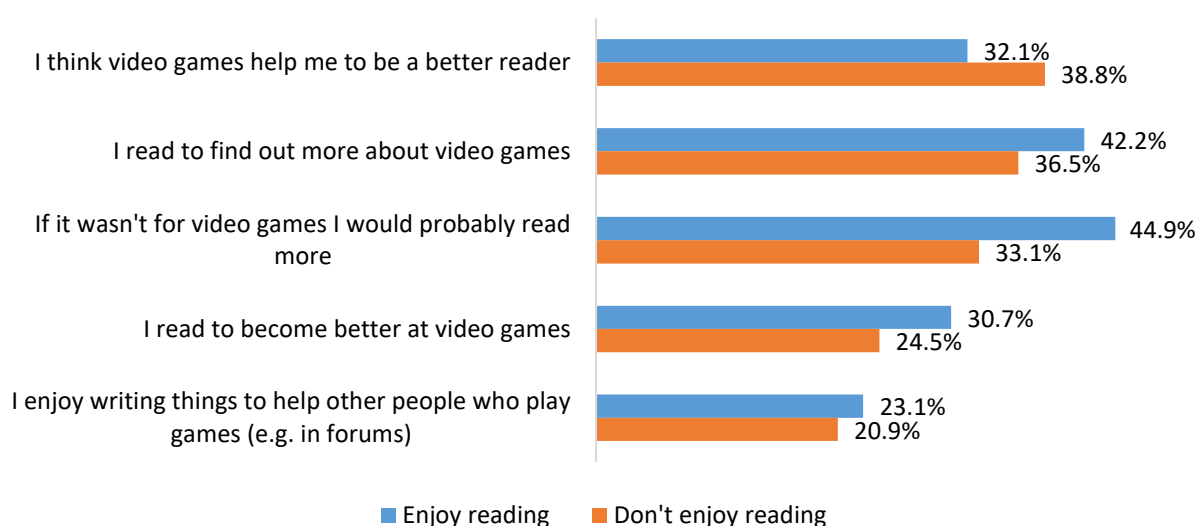
Figure 14: Video games, books and talk by reading enjoyment levels



As can be seen above, young people who say that they enjoy reading are just as likely to say that they prefer video games (47.1%) as to say they prefer books (47.0%) with regard to their sense of story immersion. This emphasises the role of video games as an access point into the world of stories for young people that don't enjoy reading.

Furthermore, more young people who do not enjoy reading believe video games help them to be a better reader (see Figure 15); over a third (36.5%) of less keen readers are motivated to read to find out more about video games, and a quarter (24.5%) to become better at video games. This suggests that interest in video games can provide powerful motivation for young people who are otherwise disengaged readers.

Figure 15: Video games, reading and writing by reading enjoyment levels



Nevertheless, while more than 2 in 5 young people who enjoy reading agree that if it wasn't for video games they would probably read more, a third of those who don't enjoy reading agree with this statement.

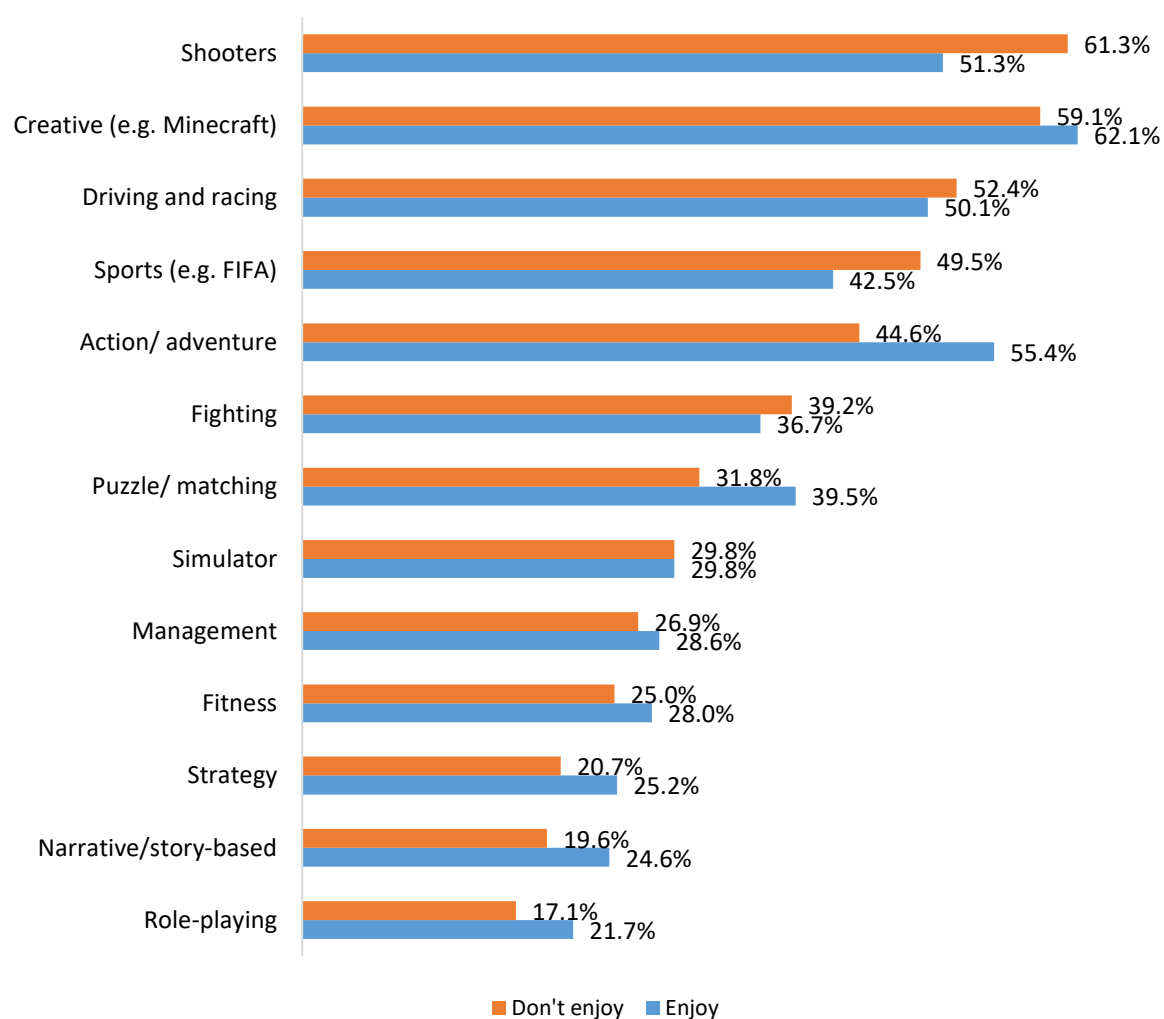
At the same time, as shown in Figure 16, a somewhat similar percentage of those who do not enjoy reading as those who enjoy reading choose to read longer-form text such as video game reviews and fan fiction.

Figure 16: Video game-related reading material by reading enjoyment level



Some differences were found with regard to video game types preferred by those who enjoy reading and those who do not (see Figure 17).

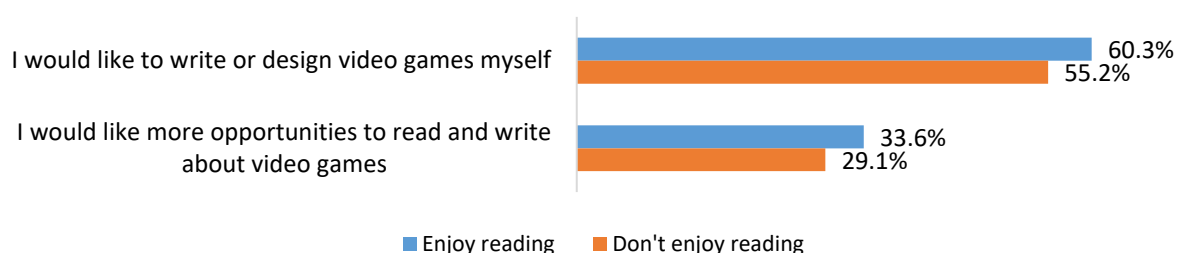
Figure 17: Video game types played by reading enjoyment level



For example, more young people who do not enjoy reading say that they play shooters and sports-based games, while more of those who enjoy reading play creative, action/ adventure, puzzle, fitness, strategy, narrative and role-playing games. There were no significant differences in relation to driving, simulation, fighting and management-based games.

Finally, relatively similar levels of consensus are found between those who do and do not enjoy reading with regard to the appeal of writing or designing video games themselves, and opportunities to read and write about video games (see Figure 18). This suggests some promise for those seeking to engage all young people, including less keen readers and writers, with literacy by linking it to writing or designing, or reading and writing about, video games.

Figure 18: Attitudes to video games, reading and writing by reading enjoyment level

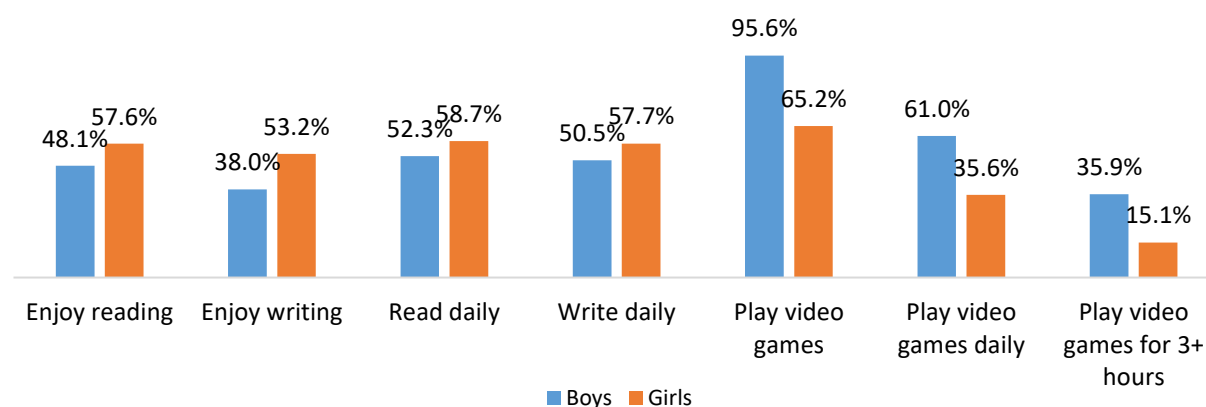


The influence of age, gender and socioeconomic background

Reading enjoyment and frequency are associated with better reading performance, however research shows that both decline with age and that boys spend less time reading for enjoyment, less time on homework and more time playing video games than girls (OECD, 2015; Sizmur et al., 2019). Studies (e.g. Clark, 2019) have also found that socioeconomic background can influence reading enjoyment and frequency. As this survey focused on secondary-aged students we might expect to see low reading enjoyment overall, and for boys and those eligible for free school meals to be less keen and frequent readers than girls and those not eligible for free school meals.

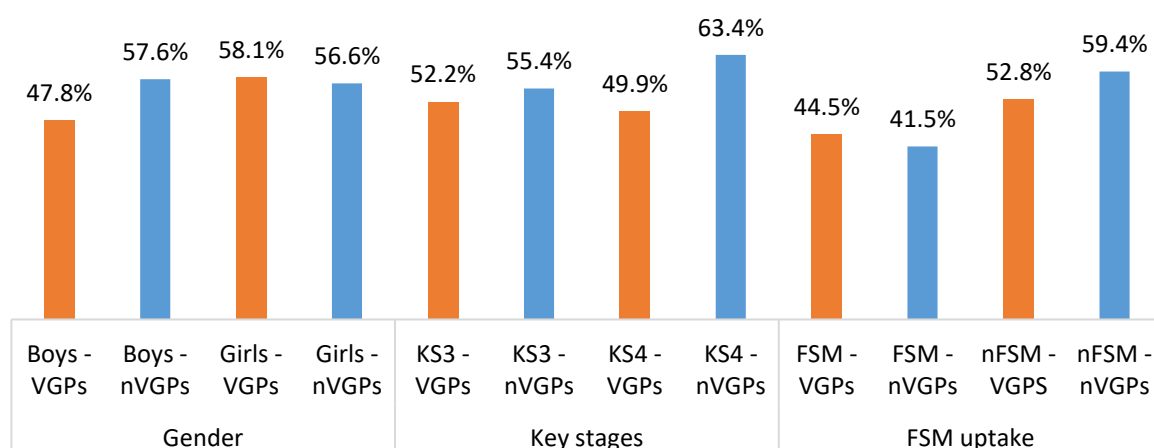
The greatest number of differences between groups in this survey were found in relation to gender. Fewer boys than girls said they enjoy reading (48.1% vs. 57.6%) and writing (38.0% vs. 53.2%), and fewer read (52.3% vs. 58.7%) and write daily (50.5% vs. 57.7%) and play video games (95.6% vs. 65.2%) and play video games daily (61.0% vs. 35.6%) and play video games for 3+ hours (35.9% vs. 15.1% - see Figure 19).

Figure 19: Reading and writing enjoyment, frequency and video game playing by gender



With regard to video game players only, fewer boys who play video games enjoy reading compared with boys who do not; however, the difference between girls who play video games and those who do not is less pronounced. Indeed, a marginally higher percentage of girls who play video games enjoy reading compared with those who do not (see Figure 20).

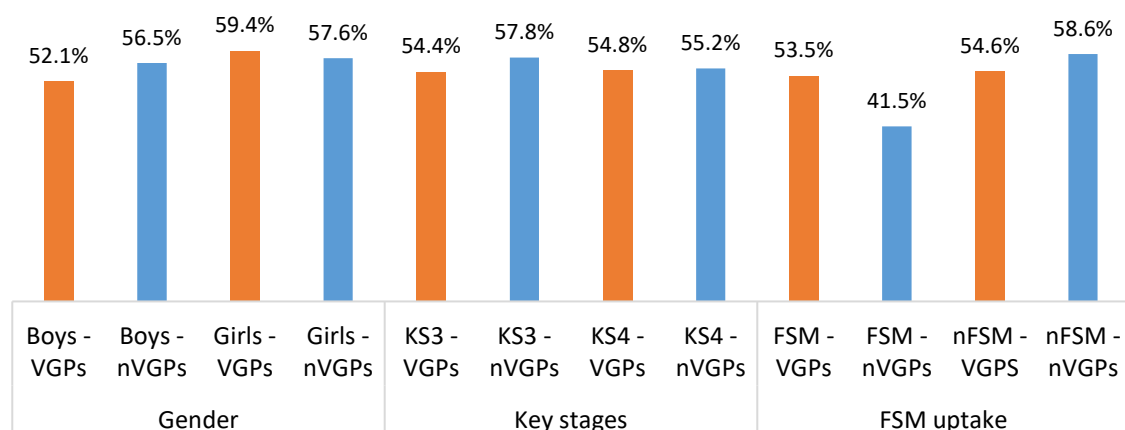
Figure 20: Percentage of video game players (VGPs) and non-video game players (nVGPs) who enjoy reading in 2019 by gender, key stage and FSM uptake



Similarly, with regard to students eligible for free school meals, those who play video games are marginally more likely to say that they enjoy reading compared with those eligible for FSMs who don't play video games, while in those not eligible for FSMs this pattern is reversed.

As can be seen in Figure 21, similar patterns are found in relation to daily reading, with slightly fewer boys who play video games reading daily compared with their peers who do not play video games and the difference between girls being once again less pronounced. Differences between video game players and non-video game players' daily reading by age are also slight. However, as with reading enjoyment, students eligible for FSMs who play video games are more likely to say that they read daily compared with those eligible for FSMs who don't play video games, while again, among students not eligible for FSMs, the pattern is reversed.

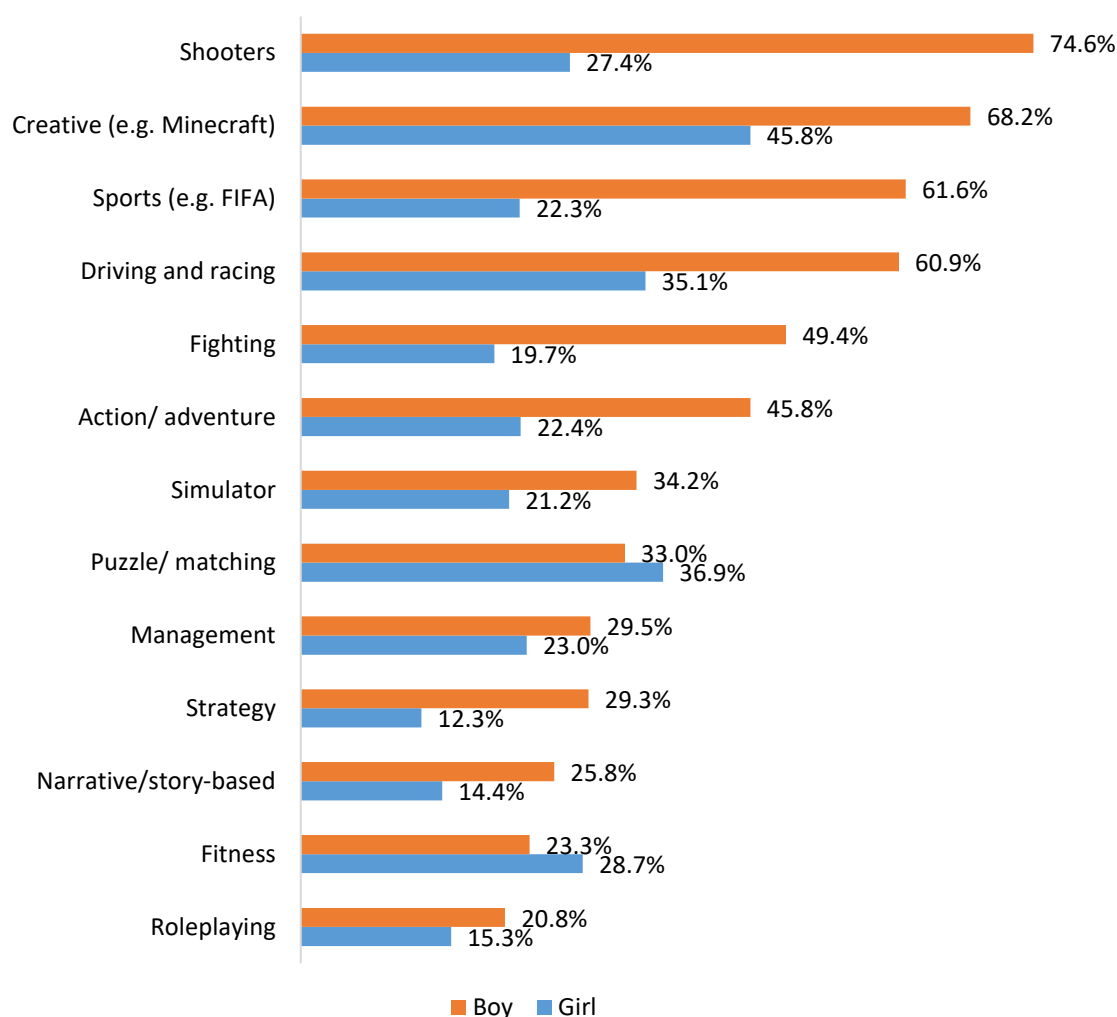
Figure 21: Percentage of VGPs and nVGPs who read daily in their free time in 2019 by gender, key stage and FSM uptake



Taken together, these findings suggest that while fewer young people who play video games say that they enjoy reading overall, this is less the case for girls and those eligible for free school meals.

In terms of type of video game favoured, more boys than girls played all types of games with the exception of puzzle and fitness games, which were played by more girls than boys (see Figure 22).

Figure 22: Game types played by gender

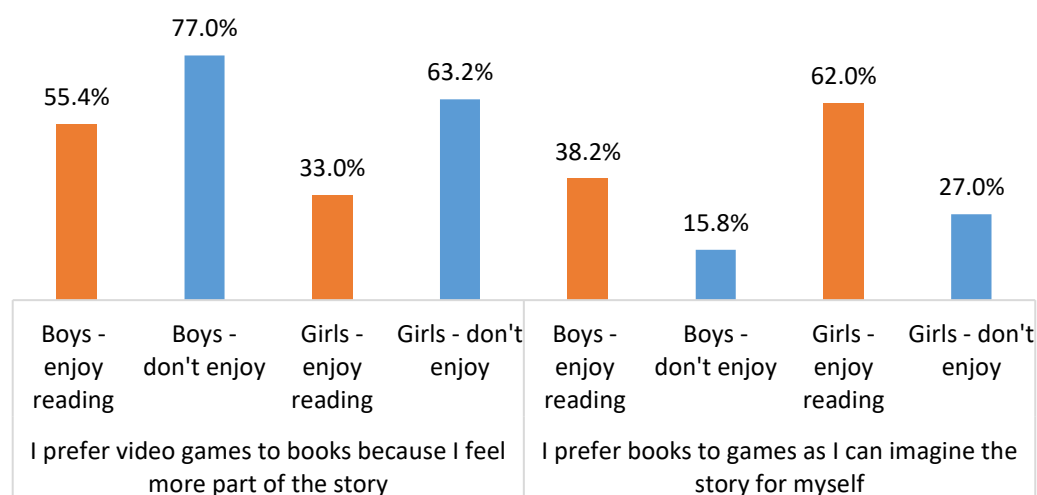


Boys who do and do not enjoy reading and attitudes to video games and literacy

Turning to boys who do and do not enjoy reading, more than half (55.4%) of those who enjoy reading agree with the statement: “I prefer video games to books because I feel more part of the story.” While this may seem a relatively high percentage among boys that enjoy reading, this increases to more than three-quarters (77.0%) of boys who do not enjoy reading. Conversely, this group are only half as likely to agree that “I prefer books to games as I can imagine the story for myself” (15.8% vs. 38.2%).

Fewer differences were found between girls who enjoy reading and those who do not. Both groups were equally likely to play video games (66.0% of girls who enjoy reading play video games vs. 64.6% of girls who don't enjoy reading). However, echoing the findings for boys, girls who don't enjoy reading were almost twice as likely to agree that "I prefer video games to books because I feel more part of the story" (63.2% vs. 33.0% - see Figure 23). Again, this reversed in relation to the statement: "I prefer books to games as I can imagine the story for myself" (27.0% vs. 62.0%).

Figure 23: Attitudes to video games and literacy by gender and reading enjoyment



Discussion and next steps

An ever-growing body of research focuses on the potential negative impacts of technology use on children and young people. In addition, much existing research focuses on non-specific 'screen time', considered in terms of quantity rather than quality, or relates to information-based content rather than exploring the extent to which technology may support creativity, access to fiction or storytelling. While it is essential that the potential disadvantages of technology use are thoroughly explored, a recent report by the Royal College of Psychiatrists²³ asserts that there is also an urgent need for:

“...good-quality longitudinal studies which explore ...how technology can be harnessed for its positive benefits in children and young people to improve or maintain wellbeing”

As may be seen from this brief, introductory survey, video game playing is not only extremely popular among 11 to 16-year-olds, but many of these young people perceive that video games hold benefits for their imagination and creativity. Findings also indicate that video game playing can increase young people's sense of immersion in stories, help them imagine being someone else, help them deal with stress and difficult emotions, and improve communication and connectedness with peers through shared cultural references. This suggests that video game playing has the potential to contribute to, as well as detract from, positive mental wellbeing for many young people.

²³ Dubicka & Theodosiou, 2020

Regarding literacy in particular, findings from this survey indicate that video games may serve as a route into stories for some young people, encouraging and supporting a wide range of reading, including longer-form texts such as fan fiction. More than a third even felt that playing video games helped them become better readers, for example by inspiring them to read stories and exposing them to new vocabulary. As noted, this is perhaps more remarkable when the age group of survey respondents, and their average levels of reading engagement, are taken into account.

Furthermore, it would seem that playing video games encourages a variety of creative writing, from scripting videos and character dialogue to writing songs about favourite games. Many young people also enjoyed writing to help other video game players, suggesting forums provide an authentic purpose and audience for this group, and the potential for interest in video game playing to be leveraged for creation as well as consumption. Several respondents also made links between video games and ‘in real life’ hobbies, interests and reading preferences, indicating that game playing is often one of many complementary activities enjoyed by young people in their leisure time. This recalls Professor Jackie Marsh’s work exploring links between traditional and digital play cultures, and the connections between physical and digital game playing in children’s imagination and practice²⁴.

In addition, many young people felt that playing video games improved the skills they might expect to need for future employability, such as problem solving and teamwork. Interestingly, a significant percentage of respondents to our survey say that they would be keen to write or design video games, while some would like more opportunities to read and write about video games in school. The UK games industry is considered to be a leading player in the use of gaming in education²⁵, with a fifth of developers producing serious or educational games. At the same time, academics have called for more research into the successful implementation of games in classroom practice²⁶ and how curricular design can better accommodate the affordances of games. Exploring opportunities for partnership work between industry, publishing, academic and literacy experts could therefore be a fruitful next step²⁷.

It is hoped that the findings from this survey may be used to support the development of new programmatic responses and the evaluation of these responses to better evidence the potentially positive effects of video game playing on literacy skills. The increasing popularity of video gaming in the UK suggests it may be a helpful tool in future-proofing a response to low literacy levels, while supporting 21st century skills such as creativity, collaboration, communication and critical thinking. Further qualitative work is planned to complement these early findings to enable us to develop approaches rooted in consultation with teachers and young people, and thus provide an authentic route into literacy for young people currently most disengaged with reading and writing.

²⁴ See, e.g. <https://darecollaborative.net/2018/11/14/playing-the-archive/>

²⁵ <https://ukie.org.uk>

²⁶ E.g. Kuhn (2018)

²⁷ See e.g. Van Eck (2006), Clark et al., (2016) and Kuhn (2018)

Respondent characteristics

Our survey was directed at students aged 11 to 16. Almost 4 in 5 (79.1%) responses were from young people in KS3, while the remaining fifth (20.9%) were from KS4. More than half (54.0%) of responses were from boys, 2 in 5 (41.0%) from girls, and the remaining 5% were 'other' (1.6%) or 'would rather not say' (3.4%). Almost 1 in 10 (9.7%) respondents were eligible for free school meals (FSMs), while 84.1% were not eligible (5.2% didn't know and 1.1% would rather not say).

Acknowledgments

Our sincere thanks to **Bounce Together** (<https://www.bouncetogether.co.uk/>) for their invaluable support in hosting the pupil survey and for providing each participating school with a report on their own pupils' responses.

References

- Antzaka, A., Lallier, M., Meyer, S., Diard, J., Carreiras, M., & Valdois, S. (2017). Enhancing reading performance through action video games: The role of visual attention span. *Scientific Reports*, 7(1), 14563. <https://doi.org/10.1038/s41598-017-15119-9>
- Apperley, T., & Walsh, C. (2012). What digital games and literacy have in common: A heuristic for understanding pupils' gaming literacy. *Literacy*, 46(3), 115–122. <https://doi.org/10.1111/j.1741-4369.2012.00668.x>
- Biagi, F., & Loi, M. (2013). Measuring ICT Use and Learning Outcomes: Evidence from recent econometric studies: European Journal of Education. *European Journal of Education*, 48(1), 28–42. <https://doi.org/10.1111/ejed.12016>
- Calvert, S. L., Appelbaum, M., Dodge, K. A., Graham, S., Nagayama Hall, G. C., Hamby, S. & Hedges, L. V. (2017). The American Psychological Association Task Force assessment of violent video games: Science in the service of public interest. *American Psychologist*, 72(2), 126.
- Chiappe, D., Conger, M., Liao, J., Caldwell, J. L., & Vu, K.-P. L. (2013). Improving multi-tasking ability through action videogames. *Applied Ergonomics*, 44(2), 278–284. <https://doi.org/10.1016/j.apergo.2012.08.002>
- Clark, D. B., Tanner-Smith, E. E., & Killingsworth, S. S. (2016). Digital games, design, and learning: A systematic review and meta-analysis. *Review of Educational Research*, 86(1), 79–122.
- Clark, C. (2019). Children and young people's reading in 2017/18: Findings from our Annual Literacy Survey. London: National Literacy Trust.
- Clark, C. and Teravainen-Goff, A. (2020). Children and young people's reading in 2019: Findings from our Annual Literacy Survey. London: National Literacy Trust.
- Deszcz-Tryhubczak, J., & Huysmans, F. (2018). Chapter 1. Reading and digital media: European perspectives. In M. Barzillai, J. Thomson, S. Schroeder, & P. van den Broek (Eds.), *Studies in Written Language and Literacy* (Vol. 17, pp. 1–30). John Benjamins Publishing Company. <https://doi.org/10.1075/swll.17.01des>
- Dubicka, B., & Theodosiou, L. (2020). *Technology use and the mental health of children and young people* (No. CR225). Royal College of Psychiatrists.

- Gee, J. P. (2007). *What video games have to teach us about learning and literacy* (Rev. and updated ed). New York: Palgrave Macmillan.
- Granic, I., Lobel, A., & Engels, R. C. (2014). The benefits of playing video games. *American psychologist*, 69(1), 66.
- Hahn, T., Notebaert, K. H., Dresler, T., Kowarsch, L., Reif, A., and Fallgatter, A. J. (2014). Linking online gaming and addictive behavior: converging evidence for a general reward deficiency in frequent online gamers. *Front. Behav. Neurosci.* 8:385. doi: 10.3389/fnbeh.2014.00385
- Hosein, A. (2019). Girls' video gaming behaviour and undergraduate degree selection: A secondary data analysis approach. *Computers In Human Behavior*, 91, 226-235. doi: [10.1016/j.chb.2018.10.001](https://doi.org/10.1016/j.chb.2018.10.001)
- Hou, H., Jia, S., Hu, S., Fan, R., Sun, W., Sun, T., et al. (2012). Reduced striatal dopamine transporters in people with internet addiction disorder. *J. Biomed. Biotechnol.* 2012:854524. doi: 10.1155/2012/854524
- Huizenga, J. C., ten Dam, G. T. M., Voogt, J. M., & Admiraal, W. F. (2017). Teacher perceptions of the value of game-based learning in secondary education. *Computers & Education*, 110, 105–115. <https://doi.org/10.1016/j.compedu.2017.03.008>
- Hygen, Beate W., Jay Belsky, Frode Stenseng, Vera Skalicka, Marianne N. Kvande, Tonje Zahl-Thanem, and Lars Wichstrøm. 'Time Spent Gaming and Social Competence in Children: Reciprocal Effects Across Childhood'. *Child Development*, 23 April 2019, cdev.13243. <https://doi.org/10.1111/cdev.13243>.
- Johnson, S. (2016). Books are Great, But Video Games Can Be Just As Good. Here's Why. Retrieved from: <https://heleo.com/steven-johnson-books-great-video-games-better-heres/7930/>
- Kaltman, I. (2017). How games help students become successful readers. Classcraft [Blog post]. Retrieved from <https://www.classcraft.com/blog/features/games-literacy/>
- Kenwright, B. (2017). Brief review of video games in learning & education how far we have come. *SIGGRAPH Asia 2017 Symposium on Education on - SA '17*, 1–10. <https://doi.org/10.1145/3134368.3139220>
- Kuhn, J. (2018). Review of Serious play: Literacy, learning, and digital games [Review of book Serious play: Literacy, learning, and digital games]. *Language Learning & Technology*, 22(2), 42-45.
- Lantz, F. (2018). Video games teach us systems literacy—The literacy of the future. Retrieved 7 October 2019, from Quartz website: <https://qz.com/1433044/video-games-teach-us-systems-literacy-the-literacy-of-the-future/>
- Liu, J., Li, W., Zhou, S., Zhang, L., Wang, Z., Zhang, Y., et al. (2015). Functional characteristics of the brain in college students with internet gaming disorder. *Brain Imaging Behav.* 10, 60–67. doi: 10.1007/s11682-015-9364-x
- Mak, H. W. (2015, October 29). Developing Literacy Skills with Video Games in Education. Retrieved 7 October 2019, from Gamification Co website: <https://www.gamification.co/2015/10/29/developing-literacy-skills-with-video-games-in-education/>
- OECD. (2015). Education at a Glance 2015: OECD Indicators. OECD. <https://doi.org/10.1787/eag-2015-en>

Paulus, M. P., Squeglia, L. M., Bagot, K., Jacobus, J., Kuplicki, R., Breslin, F. J., Tapert, S. F. (2019). Screen media activity and brain structure in youth: Evidence for diverse structural correlation networks from the ABCD study. *NeuroImage*, 185, 140–153.

<https://doi.org/10.1016/j.neuroimage.2018.10.040>

Paulus, M., Marron, E. M., Viejo-Sobera, R., & Redolar-Ripoll, D. (2017). Neural Basis of Video Gaming: A Systematic Review. *Frontiers in Human Neuroscience*, 11, 248.

<https://doi.org/10.3389/fnhum.2017.00248>

Qian, M., & Clark, K. R. (2016). Game-based Learning and 21st century skills: A review of recent research. *Computers in Human Behavior*, 63, 50–58. <https://doi.org/10.1016/j.chb.2016.05.023>

Selfe, C. L., Hawisher, G. E., & Van Ittersum, D. & Gee, J. (Eds.). (2016). *Gaming Lives in the Twenty First Century*. <https://doi.org/10.1057/9780230601765>

Sizmur, J., Ager, R., Bradshaw, J., Classick, R., Galvis, M., Packer, J., Thomas, D. and Wheeler, R. (2019). Achievement of 15-yearolds in England/Wales/Northern Ireland: PISA 2018 Results. Slough: NFER

Steinkuehler, C. (2011). The Mismeasure of Boys: Reading and Online Videogames. Retrieved 8 September 2019, from [/paper/The-Mismeasure-of-Boys%3A-Reading-and-Online-Steinkuehler/f7d57ac396e196db980bd81e441b033ab98cfb5a](http://paper/The-Mismeasure-of-Boys%3A-Reading-and-Online-Steinkuehler/f7d57ac396e196db980bd81e441b033ab98cfb5a)

Strenziok, M., Krueger, F., Deshpande, G., Lenroot, R. K., Van der meer, E., and Grafman, J. (2011). Fronto-parietal regulation of media violence exposure in adolescents: a multi-method study. *Soc. Cogn. Affect. Neurosci.* 6, 537–547. doi: 10.1093/scan/nsq079

Thompson, C. (2014). How videogames like Minecraft actually help kids learn to read. *Wired* [Blog Post]. Retrieved from <https://www.wired.com/2014/10/video-game-literacy>

Turel, O., Romashkin, A., & Morrison, K. M. (2016). Health outcomes of information system use lifestyles among adolescents: videogame addiction, sleep curtailment and cardio-metabolic deficiencies. *PloS one*, 11(5), e0154764.

Van Eck, R. (2006). Digital game-based learning: It's not just the digital natives who are restless. *EDUCAUSE Review*, 41(2), 17–30.