Digital game downloads as a way to reduce waste

Daniel Barber
This thesis discusses the popular trend of console gaming, specifically the environmental concerns when purchasing physical copies of games. As physical game copies create waste and are almost unheard of in PC gaming, a greener future for Xbox One gaming could be realised with a full transition to digital game downloads.

This study focuses specifically on the Xbox One console system and the subject of whether physical game copies should be regarded as obsolete. Xbox One gamer’s attitudes, including buying trends, were investigated using a survey which was distributed to popular platforms in which these gamers frequent.

The components of a standard physical game copy and their use of environmental resources were analysed. Their relevance in providing gamers with an adequate medium in which to play games was also compared to the option of digital downloads as an alternative of which the latter does not create physical waste.

Overwhelming favour was shown for digital downloads as the preferred method of purchasing games with answers for convenience, price and preloading as the most common considerations behind this preference. While the survey showed that gamers preferred digital copies, this thesis concluded that there are still a few obstacles preventing a full transition to digital downloads as the sole method of purchasing Xbox One games. The most relevant being collector and nostalgic value, the possibility to trade and share and the security of having physical ownership of one’s games.

In order for gamers to feel more comfortable in transitioning to the greener alternative of digital ownership, further incentives should be given to choose the digital the ownership option over physical ownership. This thesis suggested bundling digital purchases with additional in-game content as one option.

Keywords
plastic, Xbox One, gamers, survey, waste, digital downloads, physical game copies, CDs
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### Terms and Abbreviations

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| XGS | Xbox Games Store  
The digital distribution platform for the Xbox One console and other Xbox consoles where the user can buy products, including games. |
| CD | Compact Disc  
Any digital optical disc for storing data, such as those used for Xbox One games |
| PP | Polypropylene  
A type of plastic, a thermoplastic polymer, also known as polypropylene |
| Jewel case | The sturdy optical disc packaging that protects the CD from damage. |
| Keep case | The type of jewel case that is the most used for protecting and housing Xbox games  
In this thesis the term is used interchangeably with the term 'jewel case'. In this research the two terms refer to the "iconic" green plastic packaging in which the physical copy, the CD, of an Xbox game is packaged. |
1 Introduction

1.1 Project background

As there is a growing number of environmentally conscious consumers, manufacturers and companies, there is also an acute need for proper evaluation of the environmental impact and the sustainability of various products and services. To respond to consumer commands, the availability of environmentally friendly alternatives has become a priority for many companies and manufacturers. However, there may still be various obstacles as to why environmentally friendly alternatives are not fully adopted. The subject of this thesis attempts to address these concerns in the context of videogames.

This thesis focuses exclusively on the Xbox One console system. The Xbox One is a home video game console and entertainment system. It is of the eighth generation of gaming consoles developed by Microsoft and was released in November 2013. It has received positive reviews and gaming community approval for its multimedia features, post-launch updates to the user interface and for the design of the controller. It is one of the best-selling consoles released to date. Microsoft reported that 18 days after releasing it had already sold 2 million Xbox One consoles (Bass 2013). According to market research firm IHS Markit, by the end of March 2018 – four years and a couple of months after its release – 39.1 million Xbox One consoles had been purchased worldwide (BBC News 2018).

Newzoo’s Global Games Market Report gives a picture of the scale of the gaming industry and its revenue. The following picture (see next page) is an estimate of the 2018 game industry revenue.
In 2018, almost 28% of all consumer spend on games will come from China.

Figure 1. Newzoo's estimate of the global games market per region as of 2018 (Source: Wijman, T. 2018)
The Xbox Games Store (XGS), formerly known as the Xbox Live Marketplace, is the digital distribution platform developed by Microsoft to be used on Xbox consoles for buying products. This service allows the consumer to buy and download games, promotional game demos, expansions for already purchased games and other digital products related to games. Downloading content is not the only way to obtain games. Games can also be installed on the console’s hard drive by using a Compact Disc (CD).

It could be argued that CDs, physical game copies, have been obsolete for the last part of the decade. When it comes to PC gaming, installing from discs has almost become unheard of. For console gaming on the other hand, many gamers still buy physical copies of games. Unfortunately, this is a method that produces waste and thus has a negative impact on the environment. Since games can now be downloaded, and many users have access to sufficient internet speed, we can ask why there is a need for physical copies of the game to be sold and why console gamers still choose to buy physical copies.

There seem to be many kinds of advantages to downloading a game rather than buying it on a CD. For example, when downloading it is possible to have your ownership, additional content and even save state data all tied directly to your own Xbox user account. With digital ownership you do not have to worry about your CD getting damaged and therefore losing your ability to play the game. Playing from the disc does not mean that you are able to save storage space on the Xbox One console either, as necessary game files must still be installed directly on the console’s hard drive. Furthermore, you do not even need to be online to play the games you have downloaded digitally. Despite the convenience of this and other aspects not mentioned here, physical game sales are still recorded in the hundreds of millions each year. The real concern here, and what makes this study important, is that with the production of each individual physical game, toxic components get into our environment as (1) harmful substances are used during the creation process, (2) transporting the physical copy causes air pollution and additionally, (3) landfill is created when the item is eventually discarded.

Why do gamers purchase games in physical form when there is so much convenience in downloading games, which links them to an account, where they are digitally available immediately and often from any location?

The hypothesis is that the purchasing of physical game items may be dependent on many factors. The purchase of a physical copy can for example include the attraction to the appearance of the design of the CD jewel case or keep case. This is especially true of custom, limited edition jewel cases which often appear only as ‘collectors editions’ and other
kinds of limited editions, i.e. items only sold during a limited time or from a limited run of production. Separate from the physical appearance of the keep case, limited edition items can also come with additional bonus material that is not available digitally, including figurines (3D physical models of game elements such as in-game heroes or enemies), keychains, printed posters, other artworks, comic booklets, stickers, emblems and even items like custom made USB drives. This kind of physical copy of the game, its case and other items included, are perceived as a collectible, an item considered as having a high collector’s value. This may be important to some consumers but does not constitute a factor for purchasing of physical copies of games for the general consumer.

Figure 2. The Diablo 3 Physical Collector’s Edition Package (Source: Collectorsedition.org)

A further reason may be the *nostalgic value* some gamers may find in having a big physical Xbox game collection. Some gamers grew up with compact discs and may still have their collection. This collection may have ‘sentimental value’ and growing this collection may be perceived as having a value in itself by some gamers.

Another reason may be the ability to resell the game to other people who want a physical copy. In this case both the previous owner of the game and the new owner could save money, whereby the previous owner gets an amount back on their purchase of the new game and the future owner may not have to pay the entire retail price. The gamer may even actually be environmentally conscious here, reselling their games, as following the logic that by trading or reselling games you are reducing the amount of entirely new game items being
manufactured. However, here it could be argued that there would still be an ultimately greater reduction in waste if every person simply downloaded their games instead of buying CDs and their cases and trading or reselling these physical copies.

This thesis will provide a look at the factors which determine the consumer’s buying patterns and the still existing market for physical copies of games whilst identifying the obstacles for making console gaming totally reliant on the environmentally friendly option of downloading games, as is the case already with PC gaming.

1.2 The environmental impact of buying physical copies of Xbox One games

This is a brief overview of previous research done on the materials of which the Xbox One games consist of and why these materials should raise environmental concerns.

A physical copy of an Xbox One game consists of at least: CD, plastic jewel case and cover picture. With the physical copy, additional papers and brochures are often included inside the jewel case. Various other items may also be included, for example items usually occurring in special editions of games, such as collectible figurines and posters.

Figure 3. A promotional picture of a “Collector’s Edition” of the game Assassins Creed Syndicate, showing off deluxe packaging, a collectible figurine, an artbook, and poster of the in-game map and on what consoles and devices the game is available (Source: CollectorsEdition.org)
As already mentioned, there are many concerns regarding these items. The production of each individual physical game involves toxic components that get into the environment during the manufacturing, arising from transport and when the items ultimately get disposed of and become waste and landfill.

Waste contributes to 8% of greenhouse gases (Hamaide, Deterre & Feller 2014, 13). When CDs become waste, we are not only creating greenhouse gases but also wasting valuable natural resources, an environmental factor that also must be considered. Hamaide et al. says that the best kind of waste is the one we do not produce (Hamaide & al. 2014, 13). In other words, avoiding the production of the item that ultimately will become waste is the best way to manage waste. Hamaide et al. can identify only one viable way in which we truly can lessen the production of waste: through a change in lifestyle (Hamaide & al. 2014, 14). In this case of gaming, the change in lifestyle would be to transfer from physical to digital ownership.

1.2.1 The compact disc

The silvery compact disc has for many an environmentally conscious person lost its shine. The amounts of compact discs that are discarded every year is disturbing. The research conducted by Ibrahim, Abdelfattah and Soliman (2016), and their evaluation of previous research done on the subject, gives a valuable overview of the various problems and risks of the situation with our use and waste of CDs. Billions of optical discs were manufactured and distributed worldwide every year and unfortunately when the CDs are no longer needed, they become problematic. Researchers are still working on an efficient method of recycling the complex item. In some countries, CDs are recycled but some steps in the process still need to be refined and made more efficient. As it is, not all the components are considered in the recycling process and harmful chemicals are still in use. The composition of the product is what makes recycling difficult.

According to Ibrahim & al. (2016, 207), the components of CDs are as follows:

- Polycarbonate plastic
- Dye
- Aluminium
- Acrylic coating

All three components lead to great concerns as they are all causes of pollution problems. Polycarbonate is non-biodegradable, i.e. it is not part of the natural process of decomposing
of matter by micro-organisms such as bacteria and fungi. Polycarbonate is one of the most used polymers in electronic products as its features (for example its heat resistance and toughness) make it an obvious choice for electronic product enclosures. 95% of the volume of compact discs is made up of polycarbonate. A CD is 1,2 millimetres thick and weighs around 15-20 grams.

Figure 4. A compact disc, CD. (Source Geeksandbeats.com)

Given the increasing stream of waste from CDs in households it is of the utmost importance, as Ibrahim's discussion shows, to recycle these items without any toxic chemicals and in a closed environment (Ibrahim & al. 2016, 208).

The dyes used in CDs are also harmful. In the countries where CDs are ‘recycled’, the dye is still neglected. The dye layer, consisting of organic dye such as cyanine and metalazo, in the disc, is used for storing the data.

Metal is used for the surface of the CD to make it an optic surface which the laser beam of the CD reader is able to read and/or write to. This layer consists most often of aluminium, which is non-toxic, but can also be made of gold which is classified as a heavy metal. This is a potential waste of the earth’s resources. If the disc ends up as landfill, there is no way to get hold of these metals again. Not only is it a loss of resources, but this kind of landfill
may also have significant environmental impact as compounds of metals take a long time to decompose and are regarded as a toxic substance. As the need for natural resources is growing, it is highly important to not let resources like these metals go to waste and become landfill. If an efficient recycling method were to be made available through sound research, fewer natural resources are needed as those we use are constantly being reused and not wasted (Merrild & al. 2012, 1009-1018). When recycling discs, the aluminium could for example be used in insulation. If all the materials and compounds are recycled and made the most of, Ibrahim et al. say that the other compounds can be used in covers and enclosures of various products such as burglar alarms (Ibrahim & al. 2016, 208). (Ibrahim & al. suggested a method of recycling that would use wastewater from other industrial processes, such as a tannery, in which the wastewater becomes an environmental problem.)

1.2.2 The jewel case

Xbox One game cases are made from Polypropylene, PP, which is fully recyclable. Polypropylene is the second most widely used plastic and can be used for a wide range of products, such as packaging, household appliances and clothes. It is mostly used for flexible packaging (Polypropylene Market Report 2017).

However, the question is: does this item get recycled or does it become waste? Something being recyclable does not mean that it necessarily gets recycled. Therefore, the recyclability of an item is no guarantee that the product does not end up as a burden for the environment.

Plastic is an important material in many senses. It is possible to give it almost any desirable characteristic: sturdy, flexible, lightweight and so on. In many ways, plastic is the natural choice as it can serve multiple purposes and have various functions which can help us with the various challenges we are facing in our era. Plastic can for example cut Carbon dioxide (CO₂) emissions because it is so lightweight. Plastic can also be turned into a high-performance insulation material which will help us save energy. As a material for packaging, plastic is an integral part of food safety and can keep food fresh for longer which will reduce the amount of food we waste. It can also be used in 3D printing for medical innovation which can save lives (A European Strategy for Plastics in a Circular Economy 2018). It is hard to imagine what a world without plastic would be like.
However, there are many concerns about plastics (see for example Labs should cut plastic waste too by M. A. Urbina & al. 2015). Bleak news about the impact of plastics reach us almost daily. Surveys conducted in Europe have shown how that the perception of plastics grow wary each year (Hamaide & al. 2014, 49). Even if it is recyclable, it cannot be guaranteed that it actually gets recycled. Plastic can still end up as landfill where it does not get enough UV or microbes to degrade. There is a widespread call for bans of single-use plastic products, and especially those used daily and just once such as plastic bags. Plastic has been a subject of concern since the 1960’s when plastic debris were first observed in the ocean (Science History Institute). Ten years ago, the European Commission put together their in-depth report on the effect of plastics on the environment and human health. Their evaluation then can be summarized with the first sentence of the report: “Plastic is a growing concern and the drivers behind it look set to continue” (2011, 1). This report also chimed in on a well-known aspect of plastic waste: that the amount and exact impact of it is notorious for being difficult to measure (2011, 1). The report did in fact state that plastic may not always be such a big concern as it may not always be the cause of threats and actual harm. This insight was followed up by a big ‘but’ though; even if plastic is not always the cause of detectable harm on its own it is still a threat as it poses dangers when it is combined with other factors such as oil spills and non-regulated fishing. This was ten years
ago but the concern for plastic has not stopped growing as of today and bans and regulations of plastic use have been deemed good options by many. For example, as of 22nd October 2018, the UK put their plans to ban plastic straws and cotton-tips into action and launched their program for the ban (Department for Environment, Food & Rural Affairs 2018). Other countries like New Zealand are following suit. Policies responding to the concerns and harms of plastic come in many shapes and forms today: bans, beach clean-ups, waste management and recycling plans. Additionally, plastic waste concerns many areas of policy: marine and coastal management, chemical regulation, landfill regulation and so on.

So, what is the case when it comes to Xbox One jewel cases? Is recycling possible? What happens to the cases? Are they part of the plastic waste that is of such an ecological concern?

Microsoft does not offer its consumers any way to return the plastic packaging to Microsoft, so it can be reused. The best alternative from an environmental standpoint, according to Hamaide & al. (2014, 15) would be a reuse of items as such, rather than the reuse of the constituent parts, something that is possible through the process of valorisation (the transformation that is done through various stages of chemical processes to break down the material). However, consistently recycling the items as such is unfortunately not a feasible solution for Xbox One games due to the fact that you cannot return the case and the CD to Microsoft for recycling. Reuse of the item as such depends as it is for now on consumer habits, i.e. the personal interest in and positive attitudes towards trading and reselling. Even if there is a large interest in trading and selling physical copies among gamers, it only takes one person along the trading and selling process, who discards their physical copy for it to end up as landfill.

1.2.3 Other materials used

Other materials that can occur in physical copies of games.

- Paper (for posters and art)
- More plastic (for figurines and other collectibles)
- Metals (for figurines and other collectibles)
1.2.4 Conclusion

Simply put: yes, physical copies of Xbox One games have a negative impact on the environment. The extent of this is not to be analysed here and is left for further research. Even if this particular type of waste does not pose the greatest threat to the environment, it is not neglectable (Hamaide & al. 2014, 24). The best option would be to prevent waste, i.e. stop the production of CDs and their cases. In these circumstances, waste prevention by digital download and ownership of games may be a satisfactory alternative. However, sometimes waste prevention is not applicable, for example where consumers are not prepared to live without a product and no alternative is yet present. This study will find out if this is the case with Xbox One console gaming.

1.3 Microsoft and sustainability

Microsoft is one of the companies committed to promoting the idea of a sustainable future. They see it as one of their corporate social responsibilities, stating on their website that “Microsoft is committed to leveraging technology to solve some of the world’s most urgent environmental issues—focusing on areas where we can have the most positive impact” (Microsoft). So why does Microsoft still produce physical copies of games and still have discs as an option for installing games? To contemplate a future of only digital ownership of Xbox One games, where physical copies have been made obsolete, or close to it, is in fact not just a far-fetched speculation. Microsoft has contemplated it themselves. However, when Microsoft mentioned in a press release that they had planned to make the disc completely obsolete for Xbox One and make the console entirely reliable on digital downloading of games and digital ownership, the responses from the console gaming community were not unanimously positive, one reporter notes (Tassi 2016). Most noteworthy, they raised concerns for the trading and sharing part of the console gaming experience if the console only relies on digital downloading. This gives us a glimpse of the likely factors why physical copies are still produced when it comes to console gaming. Microsoft and Microsoft’s ideology do not seem to be an obstacle for making gaming more sustainable, as the company is committed to making choices in accordance with environmental sustainability.
1.4 Objectives

The overarching aim of this thesis is to evaluate the possibility of and the alternatives for making console gaming more sustainable. Because of time restrictions, the scope of the research has been limited to only Xbox One games with the intention that the results may still be generalized to all console gaming.

A more specific objective is to analyse the various aspects of digital ownership, the digital downloading of games and purchasing physical copies of games. The goal is to take a thorough look and attain a deep understanding of the various different factors that drive the consumer’s decision and in what extent a change for a more environmentally friendly alternative for gaming would be possible. To do so, a survey will be used to determine the attitudes of Xbox One users and see if there are possible obstacles in consumer attitudes.

A more general objective of this thesis is to highlight the environmental aspects of buying games and what consumers can do to make more environmentally friendly decisions. The results can thus be used by consumers (gamers) to make more sustainable choices when purchasing games and make them more aware of the environmental impacts of gaming.

As the composition of physical copies of games does not vary from console to console, the environmental impacts from buying physical Xbox One game copies are also true about physical copies for other consoles still reliant on CDs, for example PlayStation. Whether the
attitudes of the Xbox One demographics would be significantly similar to attitudes among the PlayStation demographics is still an interesting question. The demographics of gamers in general (see for example Statista’s report from 2018 or Entertainment Software Association’s report from 2014) are significantly similar to the demographics of Xbox One users (as shown below). This means that the average Xbox One user is neither older nor younger and neither more or less likely to be male than the average gamer (as measured across all platforms).

Thus, the results from this research may to some degree be generalised to console users and console gaming in general. In other words, it will be possible to for example hypothesise that the attitudes of other console users are similar to the attitudes of Xbox One users as measured in this survey. There is nothing to suggest that the attitudes, for example environmental consciousness, differ in any significant sense from one console population to the next.

1.5 Theoretical underpinnings

The aim of a quantitative survey research is to investigate the relation between variables, for example environmental consciousness and ownership of physical discs, and evaluate and discuss these. What does the relationship between such variables look like and what can we conclude from what the survey has found? For example: Do people who report that
they are conscious about the environmental impact of their buying habits tend to own more or less physical copies of games? Do environmentally conscious people prefer digital or physical ownership? The variables are the features which the researcher is interested in and which therefore must be made into measurable functions. The primary goal with a survey is to find out how the variables are distributed and how they are related to one another. The researcher can then discuss why this is the case.

The theoretical framework for the survey of this research project is based on An Introduction to Survey Research by Ernest Cowles and Edward Nelson (2015). Cowles and Nelson give guidelines of how to conduct a good survey, i.e. a survey that helps the researcher with answering the research question(s).

The characteristics of good questions that Cowles and Nelson have identified are:

- **Specificity**: the content of the question should be as precise as possible.
- **Clarity**: the concepts and words of questions should be easy to understand for the respondents.
- **Brevity**: questions should be short and straightforward and superfluous words should be avoided. (Cowles & Nelson 2015, 108)

Further guidelines by Cowles and Nelson that this survey research follows, are:

1. Questions should be ordered from easy to difficult.
2. General questions should be placed before specific questions.
3. Sensitive questions should not be placed at the beginning of the questionnaire.
4. Questions concerning demographics should be placed at the end of the questionnaire as to prevent the participant from becoming bored; more interesting questions should be placed in the beginning of the questionnaire as to engage the survey participant early on. (Cowles & Nelson 2015, 121)

These are the aspects that were kept in mind when the survey for this research was put together, as to make a viable survey that the respondents would understand and finish, and that could adequately answer the research question.

### 1.6 Research plan

The survey research will be a small-scale quantitative survey which displays the relationships between the variables this thesis is interested in: the buying of physical copies
of games, and the reasons for doing so, for example the conceived convenience of doing so, concerns with digital ownership and so on.

The sample, i.e. the people who respond to the survey, is meant to represent the ‘gaming community’ on Xbox One, a population consisting of the people who both play and buy Xbox One games.

The mode, also referred to as the method of delivery, is versatile. The survey will be distributed to the demographics through university emailing lists and on Reddit as to reach as many of the gaming community as possible and to get a decent-sized sample with more potential to attain reliability.

The survey instrument chosen for this research is an anonymous online questionnaire. The online questionnaire was created with Google Forms where one can create, distribute and analyse questionnaires for free.

The survey questions were in almost all cases structured, or close-ended, i.e. the responses are limited, and the questions are answered by response categories given by the researcher. This question type was chosen as uniformity in responses was need in most cases.

1.7 Scope of the project

- To evaluate the possibilities of making console gaming more environmentally friendly
- To consider the reasons why Xbox One users still buy physical discs (while discs are obsolete when it comes to PC gaming)
- To learn about the environmental concerns and consumer preferences and patterns of Xbox One users
- To evaluate if there are any consumer attitudes that are in the way of making gaming greener by switching to a “digital ownership-only model”
- To predict what kind of backlash there would be if Microsoft switched to a “digital ownership-only model”
1.8 Out of scope

This thesis will not focus on the possible harmful environmental impact of digital downloading. This is research to be undertaken by a different project in a different field.

The survey that was done for this thesis is limited to Xbox One users and thus PlayStation 4 users or any other console users are out of scope. The research will discuss the XGS and other aspects that are unique to the Xbox One console system, but the research also hopes to give insights about gamer attitudes in general, not exclusive to Xbox One users. However, due to time restrictions, this thesis had to be limited to a research on and discussion of Xbox One console users.
2 Research

2.1 Constructing the questionnaire

Prior to constructing the questionnaire and conducting the survey, some aspects of digital and physical ownership had to be identified as to enable the researcher to conduct the survey and ask relevant questions. Due to the nature of Xbox One games, how they are distributed and common concerns among consumers of any product, certain aspects could be identified as relevant and as possible factors behind consumer patterns and attitudes. The research identified ten (10) possible factors that could be determining the consumer’s pattern of purchase:

1. Price
2. Convenience
3. Availability
4. Internet data limits
5. Storage space limits
6. Appealing game packaging
7. Collectibles part of physical copies
8. Environmental impact concerns
9. Possibility to trade and share
10. Possibility to download before release

The survey is meant to help determine to what extent these actually are factors driving the consumer’s decisions when choosing between digital and physical ownership.

By conducting this survey, this research also attempted to identify other possible factors and thus two open-ended, but not mandatory questions were included: “What do you feel is convenient with digital game downloads?” and “What do you feel is convenient with physical game copies (CDs)?”. As to not lose any possible respondents who did not want to take time and answer open-ended questions, these questions were not mandatory for completing the survey and could be left empty if the respondent so wished. These two questions were included so the respondent was able to state their reasons in their own words and give a different answer from the ones included in these ten categories.
2.2 Trial survey

The first survey constructed and distributed for this research project became a trial survey since issues with the questions of this survey quickly became evident. After the survey opened, it soon became obvious that some questions could be misunderstood or manipulated in a way to give false or misleading results, as reported by some participants. For example, a respondent could answer the survey questions without realising they (or someone in their household) should own an Xbox One console. Additionally, some of the questions where a numerical answer was possible gave were too vague to be interpreted in a meaningful way.

Initially in the first survey, it was possible to choose the amount of games you owned as physical copies from 1-15 as a multiple-choice option. However, many people reported (in the comment section on Reddit where it was distributed) that they owned only 1 (or at least less than 5) physical games. But the first option was 1-15. Naturally this gives a very inaccurate answer. Therefore, in the second and final survey, the researcher changed the possible answer to a numerical value only, between 0-99, and one that the respondent could specify exactly. The upper limit of 99 was to prevent false or highly exaggerated answers.

For other questions minimum proofing was made. For example, with “Age”, only numerical answers were allowed - and impossible answers were not allowed.

The second and final survey asked more closely what environmental concerns the respondent had, without making it too obvious that it was one of the most central parts of the survey. This was to avoid respondents replying in a way they would think could be “favourable” or “expected” of them. Additionally, it was possible to not answer the environmental question at all. If the respondent answered “No” on the questions whether they have any environmental concerns when buying Xbox One games, the respondent would not even see the follow-up question asking them to clarify and better describe their concerns. If the respondent did not have any environmental concerns, their answer in the negative is still recorded, which is an equally significant metric for this study. In the trial survey the question about the respondent’s environmental concerns were mandatory and generated some irrelevant answers from some respondents who did not have any environmental concerns.
2.3 The final survey

What follows is the questions that were included in the final survey.

**Do you or anyone else in your household own an Xbox® One console?**

Yes

No – (I understand that I am unable to do this survey)

**How often do you play Xbox® One games?**

Very often (every day)

Often (multiple days a week)

Sometimes (once or twice a week)

Rarely (one or three times a month)

Very rarely (less than once a month)

**How many Xbox® One games do you own?**

1-10

11-20

21-30

31-40

41-50

More than 50

**How many Xbox® One games do you buy per month on an average?**

1-5

6-10

11-15

More than 15

**How many physical copies (CDs) of Xbox® One games do you own**

___________________________

**What do you prefer: a physical copy of the game or digital download?**

Physical copy (CD & Case)

Digital download

**What are your reasons based on?**

Please pick the FIVE (5) most relevant answers!

Price

Convenience

Availability in my area/country

Internet data limit

Storage space limit

Appealing game packaging

Limited edition collectibles
Environmental impact concern
The possibility to trade and share
I want to be able to download before release (pre-order)

What do you feel is convenient with digital game downloads?
This question is optional!

What do you feel is convenient with physical game copies (CDs)?
This question is optional

Do you have any environmental concerns when buying games?
Yes
No

How would you respond if Microsoft removed the ability to buy physical copies of games (CD & Jewel Case)?
I wouldn’t care
I would buy less games
I would stop buying games

Environmental concerns*
Please explain your environmental concerns when buying Xbox® One games

Age

Gender
Male
Female
Other

*question only for the respondents who answered “Yes” on “Do you have any environmental concerns when buying games?”

All multiple choice questions were listed in a randomised order to try to discourage ‘donkey voting’.
2.4 Distribution of the survey

To reach as many as possible of the desired demographic, the survey was distributed on platforms which were likely to be visited by individuals of the desired demographic. These platforms were:

1. Reddit (including the /r/samplesize, /r/xbox, /r/xboxonex and /r/consoles subreddits)
2. The official Xbox Discord channel
3. Novia University of Applied sciences (all registered students)
4. 1000 randomly selected and actively enrolled students at Haaga-Helia UAS

As to get an estimate of how many the survey could have reached, these are the numbers of subscribers of each of the subreddits:

- /r/samplesize: 88 561
- /r/xbox: 54 787
- /r/xboxonex: 2 811
- /r/consoles: 8 575

In addition to this, the survey also had a chance to reach:

- the 8 877* followers of the official Xbox Discord channel
- the 1 000 randomly selected Haaga-Helia students
- the estimated 4 000 Novia students with an active email address

*the total amount of members reported by a group moderator with access to this information at the time the questionnaire was published

The total of these numbers is 168 611. This is an estimate of how many the survey could have possibly reached, not including non-subscribers of the aforementioned subreddits and anyone else who may have been sent the questionnaire by another person. The preliminary goal was to get at least 150 responses, however as the survey was closed on 31 of January, the survey had gotten 290 responses. Of these 290 respondents, 266 were relevant, as 24 of the respondents answered “No” to question one had to answer “Yes” to continue the survey. To make sure that only relevant responses were recorded and that the sample truly were a representative of Xbox One users, the first question “Do you or anyone else in your household own an Xbox® One console?” was mandatory and if the respondent answered “No”, the survey was terminated, and the participant could not proceed with answering the
rest of the questions. This question was included as to limit the sample to those people most likely to use an Xbox One console and buy games, or in other words, to be an Xbox One user. To own an Xbox One was chosen as a prerequisite as to keep the responses and material for the research relevant and limited. The follow-up questions about usage and buying habits concerning Xbox One games were included as to allow for possible differences in attitude between individuals who buy more games and individuals who buy less games.

The survey was actively run from 12.1.2019 to 31.1.2019. Thus, it ran for 20 days. These dates and the time frame were chosen as to make sure the survey did not run during the holidays, when university students from Haaga-Helia and Novia may not check their emails as regularly as during the academic term. Running the survey for 20 days rather than a shorter period also gave more people a chance to respond to the survey, even though most of the responses came during the first week of running the survey. After the 20 days, the researcher was satisfied with the sample size and concluded that the responses could be generalised and give a clear picture of the attitudes of the demographic in question.
3 Results

This is a presentation of the results of the Xbox One survey conducted between 12.1.2019 and 31.1.2019, thus running for twenty (20) days in total. However, the survey reached the Novia demographic on 14.1.2019 and Haaga-Helia demographic 23.1.2019.

3.1 Time of responses

Most of the responses were collected in the beginning of the survey run; 142 respondents, meaning 49,0 % of the sample, answered on the first day the survey was running. The next day, that is 13.1.2019, the survey was answered by 53 respondents. This means that 67,2% of the respondents answered within two days from that the survey was first distributed.

This distribution of answers per date came as no surprise to the researcher. Surveys, or any material, distributed on platforms like Reddit will most likely accumulate most responses during the first days after distribution due to site design and use culture. Since the researcher's hypothesis concerning this was confirmed, this insight can now be helpful in the distribution of future surveys using platforms like Reddit.

3.2 Basic demographic information

Average age: 27

Gender

266 responses

Female 5,3%, Other 1,5%
3.3 Basic Xbox One consumer habits

Do you or anyone else in your household own an Xbox® One console?
290 responses

- Yes: 91.7%
- No – (I understand that I am unable to do this survey): 8.3%

How often do you play Xbox® One games?
266 responses

- Very often (every day): 41%
- Often (multiple days a week): 13.2%
- Sometimes (once or twice a week): 31.6%
- Rarely (one to three times a month): 13.2%
- Very rarely (less than once a month): 8.6%

Rarely: 8.6%, Very Rarely: 5.6%

How many Xbox® One games do you own?
266 responses

- 1 - 10: 16.9%
- 11 - 20: 12.4%
- 21 - 30: 37.2%
- 31 - 40: 25.2%
- 41 - 50: 12.4%
- More than 50: 8.6%

41-50: 4.1%, More than 50: 4.1%
How many Xbox® One games do you buy per month on an average?

266 responses

6-10: 1.5%, 11-15: 0.8%, More than 15: 0.4%

3.4 Preference: physical versus digital ownership

What do you prefer: a physical copy of the game or digital download?

266 responses

What are your reasons based on?

266 responses

- Price: 123 (46.2%)
- Convenience: 210 (78.9%)
- Availability in my area/country: 50 (18.8%)
- Internet data limit: -50 (9.4%)
- Storage space limit: -55 (20.7%)
- Appealing game packaging: -65 (24.4%)
- Limited edition collectibles: -52 (19.9%)
- Environmental impact concern: -59 (22.2%)
- I want to be able to download before release: -88 (33.1%)

*The possibility to trade and share
3.5 Open-ended questions

The answers to the open-ended questions are included in the Appendix.

3.6 Environmental concerns

Do you have any environmental concerns when buying games?
266 responses

- Yes: 81.2%
- No: 18.8%

How would you respond if Microsoft removed the ability to buy physical copies of games (CD & Jewel Case)?
266 responses

- I wouldn’t care: 68.8%
- I would buy less games: 26.3%
- I would stop buying games: 4.9%

3.7 Physical copies owned

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Average of physical copies owned</th>
</tr>
</thead>
<tbody>
<tr>
<td>who prefer physical ownership</td>
<td>16</td>
</tr>
<tr>
<td>who prefer digital ownership</td>
<td>6</td>
</tr>
<tr>
<td>with environmental concerns</td>
<td>7</td>
</tr>
</tbody>
</table>
4 Discussion: Physical versus digital ownership

Environmental concerns are not the only aspect that consumers consider when it comes to whether to buy a game on CD or to download it, as highlighted in the results within this survey, especially the open-ended answers included in the appendix. This chapter discusses the factors that were identified prior to the survey and included in the survey and the factors which were identified by the survey as the most important ones for the consumer.

The discussion then moves on to evaluate how viable it would be for Xbox One to only offer digital ownership. What kind of backlash could be expected from the consumer and from the gaming community? If there are obstacles for Xbox to become a “digital ownership only console”, are there any solutions to these possible issues?

This chapter is an analytical overview based on the empirical research and the survey, conducted for this thesis. The aim is to evaluate the advantages and drawbacks of (1) digital ownership and (2) physical ownership and to look at the attitudes of the sample of Xbox One consumers who responded to the questionnaire. This is also where the reliability and validity of the research will be evaluated. Certain environmental questions and concerns with digital game downloading will also be raised and considered.

4.1 Preference and the number of owned physical copies

72.6% of the sample said that they prefer digital ownership and 27.4 said that they prefer physical ownership. 68.8% indicated that they wouldn’t care if Microsoft stopped producing physical copies of their games.

In general, respondents who prefer physical ownership over digital owned 10 games more than those who said they prefer digital copies. On average, those who prefer physical copies owned 16 physical game copies, while those who prefer digital ownership owned 6 physical game copies. This data indicates that even if one prefers digital copies, one is still likely to own physical copies.

Respondents with environmental concerns own on average 7 physical game copies. This result indicates that people who have environmental concerns, still own a moderate amount of physical game copies. This may be taken as an indicator that they still prefer physical copies and that to be environmentally friendly is not a high priority or that some other factor is of higher priority, for example buying a game as cheaply as possible. One may also consider that some of the physical copies were gifts given to the respondents; even if one
person prefers digital ownership and is environmentally conscious, it is possible that one owns some physical copies of games that have been given as gifts. Another possibility is that one has become conscious of the environmental impact regarding their purchase habits only recently and that the physical copies were purchased earlier. To further tackle these questions, the survey could have been made longer and asked more specific questions about the participant’s buying habits, for example with questions such as:

- Do you plan to buy physical copies in the future?
- Did you buy the physical copies yourself?

4.2 Price

The price of Xbox One games can vary depending on whether you buy a physical or digital copy of the game. For example, as of 9.2.2019, the price of a digital copy of the standard-edition version of the game Assassin’s Creed Odyssey was €69,99 on XGS while you could find a new physical copy of it for €32,90 with a quick search online. This is the case with many games; it is possible to find physical copies of a game title for cheaper compared to the digital copy that can be purchased on the XGS.

Some of the answers to the question “What do you feel is convenient with physical game copies (CDs)?” also showed that some Xbox One users find the physical copy cheaper than their digital counterpart, as indicated by the open responses recorded below:

“Cheaper depending where you buy”

“Sometimes super cheap prices when stores need to clear space. Much rarer now than it used to be unfortunately.”

“Generally cheaper prices.”

“Cheaper, for whatever reason.”

“They’re often much cheaper”

“Sometimes super cheap prices when stores need to clear space”

“The price is pretty much the same if you buy the physical copy or buy the digital copy of the game, and in some cases its even more expensive to buy the digital version which is weird.”

Price was also mentioned in one response to the question “Please explain your environmental concerns when buying Xbox® One games”: 28
“Games cases have trash and packaging as well as using ink and materials to make the case and design the disc. Currently I try to buy everything on disc unless it’s an older game which is cheaper to buy on disc because sometimes 5 year old games like GTAV are still $60 online”

Some responses to the question “What do you feel is convenient with digital game downloads?” also had to do with a perceived lower price of digital copies.

“Lower price”
“Discounts”
“Price”
“Cheaper”

This means that the price was something that people could see as a good thing both about physical and digital copies.

Price is something that this survey showed that is important to the Xbox One user. 133 of the respondents gave price as one of the reasons for their preferred ownership. Yet, many of these respondents answered that they preferred digital ownership. This can suggest that these consumers are uninformed about the lower price of physical copies or that perhaps digital copies go on sale more often. However, this may also suggest that they take other costs into account: they prefer digital ownership as it ends up cheaper, for example it does not require any posting fees, import tax or any cost of transport (which may be the case if one visits a physical store).

4.3 Convenience

“Convenience” can be understood in many ways. For some consumer it can mean that they can buy, download and play the game and not even step away from the Xbox. For some, “convenience” may mean that they had a pleasant consumer experience buying a physical copy online. Both options were considered when the survey question was created.

The results of the survey suggest that convenience is the most important aspect when deciding between physical or digital copy. 78,9% of respondents picked this as one among their five reasons. No other alternative was close to being picked this many times. The next important aspect for the sample was the price, picked by 48,2% of the respondents.

According to this survey, convenience is the most important aspect out of the ten options.
Some of the answers to the question “What do you feel is convenient with digital game downloads?” also had to do with convenience. These answers elaborated on what “convenience” means to different individuals.

“Don’t have to leave my house”

“No talking to people”

“Being able to change games faster/easier and not having to get up”

“Not going to a store”

“Not having to leave house and pre-installing games is pretty neat”

“Being a neckbeard not leaving the basement”

“I don’t have to get off the couch to switch games.”

“Don’t have to leave the house or wait for shipping”

These kinds of answers were overwhelmingly common. The four most common kinds of convenience among the answers were identified as:

1. Not having to go outside
2. Not having to get up to switch disc
3. Not having to wait
4. Having access to one’s game anywhere

4.4 Availability

Are all games available in digital form? Or in other words, if you are an environmentally conscious gamer and want to avoid plastic waste and buy digital copies of Xbox One games, is it possible to purchase all desired titles in digital form?

As of now, spring 2019, some games are in fact only available on the XGS and are not available as physical copies. Further, it can also be concluded that the XGS will at any time have all the titles available for the console while it is not guaranteed that a visit to a game store will result in a successful purchase of the desired game as stores have a limited supply, often consisting of the most popular games and not carrying less known titles.

How does the Xbox One user feel about the availability of game titles? For 18.8% of the survey participants, availability was of concern. 41 of the individuals who picked availability
preferred digital download; that means that 82.0% for whom availability was a factor, digital ownership was the preference. This could suggest that when it comes to available titles, digital ownership has an advantage, i.e. there are more titles available in digital form than in physical form.

4.5 Internet data limits

Internet data limits could be a concern for some Xbox One console users. If data limits are the case, one may prefer to acquire one’s desired titles in physical copies rather than digital as to avoid having to download and use one’s data.

Only 9.4% of the sample gave internet data limits as one of the reasons which their preference is based on. It was the alternative that was picked the least. As this survey was distributed through two channels which reached mainly people in Finland, what has to be considered is the fact that data limits are not present in Finland. A significant amount of people did not pick internet data limits as one of the five reasons. One has to be aware that the result of such a survey may look differently if it had been distributed in a country where data limits are enforced.

However, internet data limits remain a possible factor that Microsoft has to take into account. This survey hints at the possibility of Microsoft losing some customers. 13 respondents of the 9.4% who picked internet data limits as a reason, also said that they would buy less games and 2 respondents of the 9.4% said that they would stop buying games altogether, if Microsoft stopped producing physical game copies. This could mean that some gamers still think that buying a physical copy of a game means less data needs to be downloaded to play the game, although this is often not true.

Not only are internet data limits a problem but having access to the internet in the first place, was shown to be a problem too. The survey results show that to a few Xbox One users it is important to be able to install and play games without having to depend on being connected to the internet or on having a stable, fast connection.

“does not take as long to download”

“They often don't require me to use internet to install them in the first place.”

“Being able to install without internet connection, which is very slow in my area.”

Three individuals used the word “fast” in the context of installing a game from its physical copy. It is understandable that one wants to be able to install the game fast and play it within
a reasonable time after deciding to install it. As there are areas where no stable and fast internet connection option is available, physical copies of Xbox One games are still relevant and the faster, maybe less frustrating option.

4.6 Storage space limits

Only a few of the respondents felt that storage limits as an important factor. Storage limits were also an aspect some mentioned in the open-ended questions, for example “No dependancy on storage caacity on the console” (sic). In regard to storage, a further concern that this survey was able to identify was a concern with reliability of access among some Xbox One users. The following are responses to “What do you feel is convenient with physical game copies (CDs)?”.

“Don’t have to worry about losing access to purchases”

“Not having to worry about availability in the future”

“Not having to worry about if the system is supported in the future. Can play games in console 30 years from now.”

“If something happens to your account you don’t have to worry about losing your games.”

“License can't be revoked such as X-Men arcade game or Teenage Mutant Ninja Turtles arcade were.”

“I own the game - it won’t disappear from some nebulous online storage locker at some point in the future (Telltale Games anyone?)”

“Games can be installed well into the future after online support ends.”

“Provide security as you don't normally own digital games, just a license to download and play them.”

“I'm able to own the game for life and do what I want with it and I don't need an internet connection to install the game.”

“You can play it on any console, you have it in physical form, no risk of being deleted.”

“Feels better to have a physical item I have paid for.”

“Your game is safe regardless of your Microsoft account”

One respondent gave voice to the concern that support for digital copies may come to an end in the future. One respondent was worried some Xbox One users showed an attitude that you do not actually own the game if you just download it, or you do not own it in the
same sense as if you have a physical copy. “I actually own the game”, one respondent said when commenting on what is convenient with a physical copy.

However, due to the nature of CDs, an Xbox One disc s can get scratches and hence become unplayable, digital ownership could seem more secure. There is however the risk of losing access to your account and digital copies of games, for example: if your account is banned due to inappropriate behaviour. Since digital copies of games are tied to your account, you will lose access to them if your account gets banned.

4.7 Appealing game packaging, physical collection and collectibles

As physical game collections may be perceived as valuable and desirable to some gamers, the researcher wanted to analyse if this really is a crucial aspect for Xbox One users and gamers.

This survey shows that appealing game packaging is important to many gamers and that a physical collection of a games and game-related collectibles can be perceived as invaluable and that no digital counterpart could be a good substitute for this. This survey concludes that there are consumers and gamers who perceive value in having a physical collection of games. Moreover, there is also a perceived value to collectibles which one can obtain by buying physical copies. This, as the survey shows, is a marginal attitude among Xbox One consumers. 53 out of the 266 picked collectibles as a reason behind their preference. These are some of the relevant open-ended responses:

“I like collectible statues”

“They look good especially steel game and collector's editions”

“Its easier to visualize which games you own”

“Physical appeal of games library.”

“I like also having a shelf of games to browse (not that I even own enough to fill a shelf), I also appreciate nice box and disc art and am likely somewhat nostalgic about picking up a physical copy”

“Being able to have a collection I can look at. I like to see the games because it brings back memories of when I played through them. I like to have a hard copy so my friends can see what games I have and we can talk about them and share memories. I like physical copies cause you can see them”

“It's cool to have a big stack of games”

“Looks cool on a shelf”
“Cool aluminum cases”
“Having something tangible and cool artwork”
“Feels like The good old days”
“I think it's nice to see the games you have so you don't forget about some”
“You get the nostalgia feeling when find a game in a shop.”
“To have a big collection of physical copies is cool.”

This selection of responses was chosen as they illustrate three kinds of value that the rest of the responses, which had to do with value of a physical collection and/or limited edition collectibles, also showed:

1. The value of having something “cool” on the shelf
2. Nostalgic value
3. Being able to see the size of one’s collection

These perceived types of value are hard to make up for if Microsoft decided to make digital copies the only alternative in the future. However, limited edition collectibles also come in digital format. With the game Warhammer: Vermintide 2, the digital copy on the XGS came with certain limited-edition items only available for those who preordered the game as a digital copy. The tangible collectibles could easily be substituted with digital collectibles, for example in-game portrait frames or exclusive character or weapon skins. It is easy to imagine that this kind of game content would be perceived as valuable, maybe even more valuable for some than physical limited-edition content. Physical merchandise can also be obtained through other means than buying it with a physical copy of the game. Nowadays, it is easy to find game-related products online, such as t-shirts and other memorabilia.

To conclude, the question “What do you feel is convenient with physical game copies (CDs)?” got 31 responses that had to do with value of a physical collection and/or limited edition collectibles (See Appendix).

4.8 Environmental concerns

As for the multiple-choice question “What are your reasons based on?”, 59 of the respondents picked “Environmental impact concern”. In other words, 22,2% of this sample of Xbox One users held environmental concerns as one of the five most important aspects which determine their preference between physical and digital ownership. When asked
specifically if one has any environmental concerns when it comes to buying games, 18.8% answered that yes, they do have environmental concerns when buying games. This indicates that the majority of Xbox One users do not have environmental concerns when purchasing games and do not contemplate the environmental impact of purchasing games.

The question that followed for those who answered “Yes” on the aforementioned question asked the respondent to “Please explain your environmental concerns when buying Xbox® One games”. This optional and open-ended question got 50 responses.

Out of the 50, 25 responses, i.e. 50.0%, mentioned “plastic”.

“Plastics, plastics, plastics. Also the energy required to produce hard copies and any eventual disposal.”

“It's smart to reduce use of plastic”

“Less plastic in our oceans”

“Käytetään niin paljon muovia, en näe pointtia ostaa fyysistä kopiota jos vaihtoehtona on online” (I don’t see the point in buying physical copies if there is a digital option, because so much plastic is used [researcher’s own translation])

One response mentioned the word pollution:

“The plastic cases are petroleum products. Getting petroleum out of the ground causes pollution. Shipping raw materials and finished product causes CO2 emissions at a minimum. Refining petroleum generates pollution. The console itself is more prone to breakage if you are running a disc in it leading to having to recycle it which in turn generates pollution. Not to mention you’ve then bought another console which took resources to manufacture.”

Another response could be considered as hinting at pollution:

“PostNord”

This individual is referring to the shipping company PostNord and possibly also to the carbon dioxide emissions, i.e. pollution, that this shipping comes with.

11 responses brought up waste. 6 responses mentioned “landfill”.

The use of such words among the respondents indicate informed environmental concerns. The responses using such vocabulary show that the respondents have read about the issues and/or engaged in discussions on the topic of plastic, waste, landfill, pollution and as such are at least familiar with the terminology.
Some answers indicated that they do have environmental concerns, but these are not big ones:

- It really isn’t a huge concern since statistically video game boxes are less likely to be thrown out.
- It’s not an overwhelming concern, but any unnecessary / unused waste should be avoided whenever possible.

4.9 Trading and sharing

The prospect of being able to trade and share was assumed prior to the survey to be a big part of why physical copies of games still exist. 33.1% of the sample picked trading and sharing as one of the things on which they base their preference.

Trading and sharing are aspects talked about by many in the gaming community as an important part of the gaming experience. That is why game stores like Gamestop exist. One can easily visit such a store and purchase used games for a small price and trade in one’s old games which one no longer desires to play and receive cash or credit to put towards new purchases. This sounds like the perfect setup for someone who wants to play as many games as possible for as little cost as possible and does not mind not parting with the games when they are done playing. Among the respondents who picked “The possibility to trade and share”, 56.8% preferred physical ownership, meaning that those who considered the ability to trade and share tended to pick physical ownership more often than digital. 38 people who picked digital over physical ownership, still saw the ability to trade and share as important. It is possible to share access to your digital games with other gamers, even with those who are residing in another country, as long as the owner nominates the other person. Trading digital games is however not possible and the idea of trading digital games does not make sense as long as you can share them. Digital ownership could possibly make the physical trading and sharing tradition obsolete. It is possible to imagine that there could be some nostalgic value for some in the habit of trading and sharing physical copies, as some responses made references to nostalgic value in the open-ended question about the convenience of physical games.

4.10 Download prior to release (preloading)

Many games allow you to order (pre-order) and download (preload) prior to release. Preloading means that one is able to play the game the minute it is released. If one prefers physical ownership, one must go in to the store on the day of release if one wishes to have it on the day of release (assuming there are no supply issues). The other option if one
prefers physical ownership is to wait for it to be shipped and delivered by post. Here it is easy to see the appeal of digital ownership; the gamer gets to experience the game as soon as the game launches and they may be among the first to get to play and/or stream their gameplay online and get in-game achievements or items before others.

42.5% of the sample in this survey research picked downloading or preloading as a reason for their preference of ownership. In general, these respondents tended to prefer digital ownership, with more than half of them picking it as a preference. Three respondents also answered “preloading” on the question about the convenience of digital ownership and another respondent answered the same question with “Ready to play on release time”.

4.11 What if physical copies were discontinued?

183 respondents said that they would not care if Microsoft transferred to only selling digital ownership. 70 respondents said that they would buy less Xbox One games. 13 said that they would stop buying games. Thus, the results of the survey indicate that Microsoft would completely lose 4.9% of their customers if they ceased to provide physical copies of games. It could be expected that these customers and others would feel misled as they bought their Xbox One thinking that physical ownership would always be a possibility.
5 Summary

It is concerning how many components of plastic and other materials that are potentially harmful for the environment that a physical copy of a video game, like Xbox One games, may contain: jewel case, CD, glossy paper and other possible materials for figurines and collectibles.

This survey identified some aspects of physical ownership and some attitudes among Xbox One consumers which support the continued distribution of CDs of games. One of the main things which stops physical copies of Xbox One games to become obsolete is the perceived value of a physical library of CDs and jewel cases and of physical collectibles. Many Xbox One users reported that they find physical copies appealing and a big collection “cool”. If gaming is to become greener and more sustainable, digital copies need to offer more: something that has a similar value as the collectibles that come with limited-edition physical copies. Some people like the tangibility and visual aspect of a physical CD and a few reported that it is important for them to be able to see their collection on the shelf, so they can visualize their collection and not forget about a game or their experience playing it. One survey participant reported that having games on the shelf generates discussions with his friends and hence shared nostalgia.

This research identified this perceived attractiveness and nostalgic value of physical games as one of the main obstacles for making the Xbox One console entirely reliable on the “greener” option of digital ownership. Another obstacle that this research was able to identify is that price is a factor why some Xbox One users choose to purchase a physical copy of a game as it can often be found for cheaper than the digital copy.

The discussion of the survey results could conclude that one of the most important aspects of digital ownership is the convenience of having the game and being able to install it the second you purchase it; many were appreciative of the fact that when buying a digital copy, you do not have to wait, go outside or get up to switch discs. Many gave voice to the ease and comfort of having access to your games anywhere and not having to rely on always having the disc around to be able to play the game. However, some Xbox One users may have concern with the reliability of digital ownership. They feel that the product they have bought is safer if it is on a tangible CD and that their ownership of the game is assured. This is a viewpoint that users could reconsider as CDs can get damaged and thus make the game permanently unplayable.
This survey also predicts that a few Xbox One users would be frustrated if Microsoft started to rely solely on digital ownership since they do not have access to fast enough internet to download and install the game within a tolerable time. Internet data limits are also the reality for some Xbox One users and thus a model of digital ownership only would likely be perceived as inconvenient. For some, it may even be unreasonable or impossible to download something as big as an Xbox One game on their data plan.

The survey also detected environmental consciousness and informed perspectives on the impact of physical game copies on the environment. Among the open-ended answers, some respondents mentioned the excess amount of plastic and the desire to limit their contribution to waste. Some mentioned landfill and referred to pollution. In general, these open-ended answers specifying their environmental concerns showed a great concern with plastic waste and awareness of their own ability to lessen the burden on the planet with buying less plastic, including physical game copies. However, a few respondents still mentioned that they did not perceive this specific issue with physical game ownership to be as great as other threats to the environment. This is made more apparent by the overall trend among survey applicants showing a lack of environmental concern regarding their buying habits.

The statistics of this research showed that if Microsoft removed the ability to buy and play physical copies of their game titles, most Xbox One users would not affected. A fourth of the sample for this research reported that they would buy less games but not stop buying games. Less than 5% reported that they would stop buying Xbox One games. This latter number is still significant and may still be of concern for Microsoft. The number of individuals who feel they would stop buying and playing games if Microsoft ceased to support physical ownership could be decreased if digital ownership titles had a higher perceived value, for example via bundling them with exclusive in-game content or offering trials of other services.

5.1 Further research

There is still room for further research on this issue. More studies must be done to secure a future for sustainable, “green” gaming. The process of assessing the environmental impacts of a product is not an easy task; many aspects and factors are involved and how they are connected is also a complex matter. Therefore, much still needs to be done when it comes to gaming and purchasing games. Possible environmentally harmful factors involved in console gaming other than waste from CDs still have to be evaluated.
References


APPENDIX

Responses to open-ended questions

The following table includes ALL of the responses to the open-ended questions “What do you feel is convenient with digital game downloads?” and “What do you feel is convenient with physical game copies (CDs)?

<table>
<thead>
<tr>
<th>What do you feel is convenient with digital game downloads?</th>
</tr>
</thead>
<tbody>
<tr>
<td>I can play a game almost immediately after the moment I decide to purchase it from my living room.</td>
</tr>
<tr>
<td>Don't have to leave my house</td>
</tr>
<tr>
<td>Very. If we could game share like shating accounts it would be alot better</td>
</tr>
<tr>
<td>Don't have to get off my ass and change a disc, also takes up less space.</td>
</tr>
<tr>
<td>Everything on an easy to access library</td>
</tr>
<tr>
<td>No talking to people</td>
</tr>
<tr>
<td>Your reasons above are very lopsided in favor of physical. Reasons for digital: I don't have to go to the store. It's quicker to download for me (fast internet) than to install then patch a physical disk. I don't have to change disks, I can quickly change to any game. My entire library is available from any Xbox without having to carry disks. No storage space required. I can browse my entire library from my couch. I can easily share my library between my 2 Xboxes. Play Anywhere. Game Pass. EA Access. Being able to change games faster/easier and not having to get up</td>
</tr>
<tr>
<td>Ease of access</td>
</tr>
<tr>
<td>Don't need to actually change the disc.</td>
</tr>
<tr>
<td>You don't have to leave</td>
</tr>
<tr>
<td>I can download and play immediately</td>
</tr>
<tr>
<td>No need to swap discs</td>
</tr>
<tr>
<td>Less stress on the hardware as it's not spinning a disc. Easy to switch between games. No risk of discs getting scratched.</td>
</tr>
<tr>
<td>It doesn't take up space. Don't have to switch discs.</td>
</tr>
<tr>
<td>Not switching disks</td>
</tr>
<tr>
<td>I don't have to worry about keeping up with the disc and when I travel I can just take one hard drive instead of 10 discs That have the ability to get scratched or damaged</td>
</tr>
<tr>
<td>You don't have to go anywhere to pick up the game. You want it you got it</td>
</tr>
<tr>
<td>Buy from home</td>
</tr>
<tr>
<td>Game sharing with other player in my household. Buy one, use on both. Can't do that with physical discs.</td>
</tr>
<tr>
<td>Don't have to swap out discs</td>
</tr>
<tr>
<td>Not going to a store</td>
</tr>
<tr>
<td>Lower price, you can play asap</td>
</tr>
<tr>
<td>not having to get up to switch a disc out every time i change games</td>
</tr>
<tr>
<td>Being able to switch games without changing the disc or having to worry about games getting scratched.</td>
</tr>
<tr>
<td>Don't have to go to the store, No need to store CDs</td>
</tr>
<tr>
<td>Switching games without removing a disc</td>
</tr>
<tr>
<td>Don't have to swap the disc, which is a fucking retarded way to do it, knowing that every shit box of a game is installed on the buttfucking hard drive.</td>
</tr>
<tr>
<td>Nothing</td>
</tr>
<tr>
<td>Not having to leave house and pre-installing games is pretty neat</td>
</tr>
<tr>
<td>Not having to switch discs</td>
</tr>
</tbody>
</table>
Downloadable
Click and Play
I should have it forever

In a home with two consoles the digital version allows you to purchase one copy and be able to play it on both. Also, being able to take your games with you wherever you go.
Redownload, kids cannot destroy digital copy like they can my physical copy.
No disc start up. Availability to buy any time.
Being a neckbeard not leaving the basement
Not having to insert the disc every time I want to play a different game

Game Sharing with a friend splits the cost!
No need to change discs to change/play games
Games don't need physical space to be stored
Xbox Play Anywhere program
No need to go to a store to buy a game
Preloading
Don’t have to leave the house.
I can game share with my wife
I can just play the game without inserting the disk. Less space used for discs
No need to switch discs
Gamesharing with another family member saves on costs for both of us
I don't have to get off the couch to switch games.
When I want a game I can have it instantly.
Game sharing with my Son
Game sharing
its instant
Not having to change discs all the time
one click, no need to put in the disk. Very frustrating to lose disks, which is avoidable with digital downloads.
No need to change discs
Not easy to misplace, no risk of physical damage to disk
Permanent ownership without the need for physical space
Easy to pre-download, no need to swap discs.
Not having to switch discs
You can download anytime
Don't have to leave the house or wait for shipping
Not being limited to how many copies are available in store, not having to leave your home if you don't want to and the ability to pre-install
The ability to not lose a disc - something I'm not very good at
Being about to home share the game with someone else
I don't have to pop out the disc and insert another when I want to play a game. I also don't have to carry a bunch of physical copies with me when I go somewhere.
Easier to switch between games
No concern of disk drive breaking. Able to install on multiple consoles in house and just play where I want to when I want to without bringing the disk around.
Can download whenever you want

So I prefer both a digital download and a hard copy. I view video games like book. I like to try all kids of the games and I like to have a physical collection to look at them and be proud of. But I love the digital download because when I take my xbox to a friends house I don't need to worry about caring the game it's already downloaded.
Not having to deal with changing discs when I wanna switch games. Also, I game share with my little brother so he doesn’t have to spend money on games too. The option of gamesharing with someone using license transfer.

Everything is in one place

You don’t have to stand up to put the cd in in, and you don’t have to change cd’s all the time if you change games much

Takes up less physical space.

The ability to share certain titles with my PC.

The ability to play it instantly without having to change disc

Being able to buy a game naked and not having to talk to anyone

Lack of switching discs. Easier to see and remember what games you own if your not at home. Less space taken up

Not having to switch discs

I like looking at the entire library in a digital format and be able to quickly switch between games without having to get up and insert the disc.

Availability in Brazil, easy to buy, easy to change the games that I currently play and consume zero space I'm my desk.

I don’t have to worry about losing or scratching a disc.

Can’t lose it, can’t damage it and much easier to travel with.

I don’t have to track down discs go to a store or wait for anything except my download bandwidth.

I can start a download at any point and wait instead of going to a store. I also like not having time change my disc if I want to change games and traveling with my xBox is easier.

I don’t need to change my disk every time I switch games

Ease of switching.

That all I gotta do is download it to a external harddrive and take it to a friends house to play it

Game sharing with family

Don’t need to change discs.

You don’t have to leave your house to buy the game.

Game sharing to my GF and convenience

Preloading

Yes digital is convenient

No discs to break

I don’t have to leave the house

I can be at school or away but a game from the Xbox live store on my phone and set t to download on my XBox one at home. I can get home and bam it is ready.

I don’t need to change my disc every time I switch games

Easy to prestage

i don’t have to leave the house

I can be at school or away but a game from the XBox live store on my phone and set t to download on my XBox one at home. I can get home and bam it is ready.

I don’t need to change my disk every time I switch games

Can purchase whenever I want

no worries about loosing cdd

Cheaper

No PostNord involved

Not worrying about my kids breaking the disk

I don’t need to swap disc and there’s no risk of scratches stopping me from playing

Don’t have to switch disc’s, I’m lazy.

I don’t have to put in or keep up with a disk
No need to store and switch CDs
Getting the game whenever you wish
You can’t lose them
I have two XBOXs due to my living situation and when I have a digital copy I can play on both.
I can bring all my games with me
Game sharing with son/easier to just have them on a hard drive
Not having to get up to switch games
Not having to take the disc in and out of the system
Can share with the family share plan
Easily switch between games without needing a disc
Ready to play on release time.
You don’t have to switch discs every time you want to play a different game. Additionally, you don’t have to go anywhere or wait for shipping to get the game.
Pre download
Downloading takes less effort, builds excitement for when it’s finished. Don’t have to wait after you buy it to install and update like with physical. Gives flexibility to buying, i.e. can start download overnight and have it finished by the morning
No need to swap game discs in and out of console. Also prevents possibility of game disc being broken.
Discounts
Easy access
Buy it with points or gift cards
Access
I can delete it and re-install it later, I know if I have an internet connection, I can always get it again. I also split the cost with a friend where we do home Xbox sharing. I’m also a father with kids that break things. Digital is king in my life. Never losing or damaging a game.
No need to insert s disc to swap games
Easy to search library online
Being able to play on any Xbox without having disk on me
Play anywhere
I like digital games, but until I can share games and the availability of sales (like was originally planned) I am sticking primarily with physical
Don’t have to switch discs
Don’t have to go to store.
Play Anywhere
Don’t have to leave the store, don’t have to take discs in and out when switching to another game
Game sharing ability
They are inherently easier to start playing because I don’t have to use a disc.
No need to get up to switch the game
Price, no disc swapping
Easy access
You have your games where ever you go. Easy to install.
I don’t have to go anywhere to get the game
Being able to download early and launch the game at midnight.
easy. I can sit on my ass all day
Idkidk
It’s East, no need to keep track of the CD
You can fix everything from your couch, and get the game immediately.
<table>
<thead>
<tr>
<th>Easy to get any time of day</th>
</tr>
</thead>
<tbody>
<tr>
<td>no need to find game in store, you can buy it from home</td>
</tr>
<tr>
<td>The occasional sales they run</td>
</tr>
<tr>
<td>Can get it fast and whenever I want</td>
</tr>
<tr>
<td>You can play the game on any Xbox one with your account and you don’t need a cd-disk inside your xbox one in order to play</td>
</tr>
<tr>
<td>It's quick and cheap, no need to leave the house.</td>
</tr>
<tr>
<td>Not needing to switch disks when switching games</td>
</tr>
<tr>
<td>you can play the game whenever you want and dont have to search for the cd</td>
</tr>
<tr>
<td>Accessibility</td>
</tr>
<tr>
<td>You can buy something that you cant find in shops.</td>
</tr>
<tr>
<td>Don't have to keep track of the games.</td>
</tr>
<tr>
<td>YES</td>
</tr>
<tr>
<td>You don't have to go to a shop to buy a game.</td>
</tr>
<tr>
<td>You can play the same game on other consoles with other profiles, and you dont need to bring a disc to play with it, only your profile.</td>
</tr>
<tr>
<td>you don’t have to go to a physical store to purchase, and it’s much more quick to buy a digital copy. You also get the benefit of not having hard cases lying around everywhere.</td>
</tr>
<tr>
<td>Minimal risk for damaging the game the same way a physical copy can. (scratches, breaking the cd etc.)</td>
</tr>
<tr>
<td>No clutter and always having you game license.</td>
</tr>
<tr>
<td>Being able to buy The game you want with little to no effort</td>
</tr>
<tr>
<td>Fast, simple and easily accessible.</td>
</tr>
<tr>
<td>Pre loading games for midnight releases, as well as not having to worry about physical damage on a disc.</td>
</tr>
<tr>
<td>You don't have to get up and change discs when you feel like playing a different game</td>
</tr>
<tr>
<td>Price</td>
</tr>
<tr>
<td>You can’t sell it or trade it in so, it's always there to play.</td>
</tr>
<tr>
<td>Easy to purchase the game</td>
</tr>
<tr>
<td>Game library is easy to manage and takes no physical space to store.</td>
</tr>
<tr>
<td>No need to change disc after every game</td>
</tr>
<tr>
<td>You can just download the game to the Xbox and don't need to worried about disc. Its much easier to buy a game in the Microsoft Store than go to at retail shop buy games.</td>
</tr>
<tr>
<td>Cheaper (when using region bypass methods to access the US store), no need to go outside your home or trust that the mail gets delivered on time, no need to fiddle with discs</td>
</tr>
<tr>
<td>Less storage space needed at home</td>
</tr>
<tr>
<td>Nothing</td>
</tr>
<tr>
<td>Not going to store, no clutter of physical disc</td>
</tr>
<tr>
<td>Not having to swap discs to change games</td>
</tr>
<tr>
<td>Don’t need to get up and change games</td>
</tr>
<tr>
<td>Don’t need to switch discs</td>
</tr>
<tr>
<td>I don't have to hunt for a disc.</td>
</tr>
</tbody>
</table>

**What do you feel is convenient with physical game copies (CDs)?**

<p>| I like collectible statues |
| Cheaper depending where you buy |
| Can sell when done with the game |
| Being able to resell/trade |
| Sometimes super cheap prices when stores need to clear space. Much rarer now than it used to be unfortunately. Can sell when done. |
| They’re really good if you want to fill up some empty space |</p>
<table>
<thead>
<tr>
<th>Ability to trade and resell</th>
<th>I own my games and don’t need an Internet connection to play them.</th>
</tr>
</thead>
<tbody>
<tr>
<td>You can resell</td>
<td>Something to hold and keep forever</td>
</tr>
<tr>
<td></td>
<td>Easy to let friends borrow/use games.</td>
</tr>
<tr>
<td>Saving hard drive space</td>
<td>Being able to share a with your friends is nice. Trading in games is sometimes a good thing but you get ripped off so might as well give it to a friend and trade with friends instead of the store. That I’d it turns out to be a bad game you can return it</td>
</tr>
<tr>
<td></td>
<td>You can make huge collection of games</td>
</tr>
<tr>
<td></td>
<td>Looks good on the shelf. Everything else, to me, is inconvenient.</td>
</tr>
<tr>
<td></td>
<td>They look good especially steel game and collector’s editions</td>
</tr>
<tr>
<td></td>
<td>Don’t have to worry about losing access to purchases</td>
</tr>
<tr>
<td></td>
<td>Can use without an account</td>
</tr>
<tr>
<td></td>
<td>trade value</td>
</tr>
<tr>
<td></td>
<td>Nothing.</td>
</tr>
<tr>
<td></td>
<td>Not having to worry about availability in the future</td>
</tr>
<tr>
<td></td>
<td>Nothing</td>
</tr>
<tr>
<td></td>
<td>Just feels better</td>
</tr>
<tr>
<td></td>
<td>Nice to look at, great to display and I actually own the game</td>
</tr>
<tr>
<td></td>
<td>Not having to worry about if the system is supported in the future. Can play games in console 30 years from now.</td>
</tr>
<tr>
<td></td>
<td>Good looking</td>
</tr>
<tr>
<td></td>
<td>I own the product, can share with friends, can trade</td>
</tr>
<tr>
<td></td>
<td>Nothing, I switched soon after getting xbox</td>
</tr>
<tr>
<td></td>
<td>Physical copy to sell or lend. Collecting games that you can physically have and display.</td>
</tr>
<tr>
<td></td>
<td>Nothing</td>
</tr>
<tr>
<td></td>
<td>Sell old games</td>
</tr>
<tr>
<td></td>
<td>Buy used games for a discounted price</td>
</tr>
<tr>
<td></td>
<td>Its easier to visualize which games you own</td>
</tr>
<tr>
<td></td>
<td>You can share/trade games with friends</td>
</tr>
<tr>
<td></td>
<td>Buying used</td>
</tr>
<tr>
<td></td>
<td>Nothing.</td>
</tr>
<tr>
<td></td>
<td>Trade in value</td>
</tr>
<tr>
<td></td>
<td>Not much besides offline play</td>
</tr>
<tr>
<td></td>
<td>Can trade or resell</td>
</tr>
<tr>
<td></td>
<td>The ability to trade or resell the game after completion</td>
</tr>
<tr>
<td></td>
<td>Installation time is greatly decreased.</td>
</tr>
<tr>
<td></td>
<td>Ownership</td>
</tr>
<tr>
<td></td>
<td>nothing</td>
</tr>
<tr>
<td></td>
<td>The ability to trade and sell a game once it’s completed</td>
</tr>
<tr>
<td></td>
<td>Able to use the copy on multiple consoles, backwards compatability, etc.</td>
</tr>
<tr>
<td></td>
<td>Nothing, I own zero</td>
</tr>
<tr>
<td></td>
<td>Ability to trade them in after use</td>
</tr>
<tr>
<td></td>
<td>Physical appeal of games library.</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Nothing</th>
<th>The physical collection;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can play offline</td>
<td></td>
</tr>
<tr>
<td>The ability to lend people games. The ability to return/trade in/donate a game if it will not be played again. I like also having a shelf of games to browse (not that I even own enough to fill a shelf), I also appreciate nice box and disc art and am likely somewhat nostalgic about picking up a physical copy. I love those fuckers &amp; especially the booklets that used to come with games that showcase art and give you tips. Being able to trade it in</td>
<td></td>
</tr>
<tr>
<td>If something happens to your account you don't have to worry about losing your games. Playing your games on another Xbox</td>
<td></td>
</tr>
<tr>
<td>Nothing</td>
<td></td>
</tr>
<tr>
<td>Easy to share with friends</td>
<td></td>
</tr>
<tr>
<td>Being able to have a collection I can look at. I like to see the games because it brings back memories of when I played through them. I like to have a hard copy so my friends can see what games I have and we can talk about them and share memories. I like physical copies cause you can see them</td>
<td></td>
</tr>
<tr>
<td>You can lend/borrow them, sell them when you're done playing and it's cool to have a big stack of games License can't be revoked such as X-Men arcade game or Teenage Mutant Ninja Turtles arcade were. Special editions are nice to have for certain games. I own the game - it won’t disappear from some nebulous online storage locker at some point in the future (Telltale Games anyone?) Physical games do not take up a ton of space on the xbox</td>
<td></td>
</tr>
<tr>
<td>Looks cool on a shelf Generally cheaper prices. Owning what I purchase The option to trade / sell. ability to lend out Not a thing. Nothing</td>
<td></td>
</tr>
<tr>
<td>Trading or loaning to a friend when you finish it</td>
<td></td>
</tr>
<tr>
<td>Nothing about physical copies is convenient unless you purposefully collect physical copies for later use after a system is no longer supported. Always there Games can be shared and traded. Games can be installed well into the future after online support ends. Nothing</td>
<td></td>
</tr>
<tr>
<td>Being able to sell them or let friends use them</td>
<td></td>
</tr>
<tr>
<td>Nothing</td>
<td></td>
</tr>
<tr>
<td>When whole game was on them, portable, admit it, all digital now. You can easily take it to someone’s house or somewhere else. They're not That I'll always have them</td>
<td></td>
</tr>
<tr>
<td>No not at all special editions I can play offline on any console without it being my home xbox can buy used There is just something about having a game disc Can trade in</td>
<td></td>
</tr>
</tbody>
</table>
actually having something physical
Borrowing between friends
Nothing
They're often much cheaper
Cheaper, for whatever reason.
Short download times
Price if buying used ones
You actually own the game
Ability to trade
Easier to lend out and trade
If you don't like the game anymore, you can sell it. Also you can bring the disc to other peoples places if they have the console.
Sharing
Nothing lol
Cool aluminum cases
You can sell it when you're finished with it
Collectibles
Buy used and sell again. Going to a store and taking the game home looking at the box/case/packaging
Having something tangible and cool artwork
Trade back
Nothing really, there’s situations where I’d get a physical game, but convenience would never be a part of the equation.
Box art
Being able to move game around, take them to other places. Provide security as you don't normally own digital games, just a license to download and play them.
Buying on day one release for a cheaper cost
Nothing
Quick install time
Owning the physical media, display.
Better resale. Can let friends (more easily) borrow it. Faster downloads (unless the disk just points to a download) direct from disk for the release version.
Being able to trade or sell
Buying used
Almost always cheaper than downloading
Can play without internet when not at home Xbox
Being able to install without internet connection, which is very slow in my area.
Trading
Sales
Resale
You actually have something physical to show for the money.
Physical organization
They often don't require me to use internet to install them in the first place.
Collectors items
Feels like The good old days
They look Good, nostalgic
Faster to get the game going
Don't have to download the entire game off the internet.
nothing

does not take as long to download

i have a game store under my apartment

The price is pretty much the same if you buy the physical copy or buy the digital copy of the game, and in some cases its even more expensive to buy the digital version which is weird. I feel they should atleast make the games somewhat cheaper if you get the digital downloads.

I think it's nice to see the games you have so you don't forget about some

If something goes wrong inside your xbox and you have to buy a new one, then you have the games ready to go

You can play it on any console, you have it in physical form, no risk of being deleted.

To sell them when i dont want them anymore

I'm able to own the game for life and do what I want with it and I don't need an internet connection to install the game.

Trading

You get the nostalgia feeling when find a game in a shop.

Feels better to have a physical item I have paid for.

DISK

To have a big collection of physical copies is cool.

Then you can resell it once you get tired on the game.

Impressive collection, borrowing to and from friends.

Being able to trade or sell your games.

Your game is safe regardless of your Microsoft account

Game corruption is less of an issue than when in digital form+ I like to showcase my games

Trading and they look nice and clean on a shelf. Can also be found very cheap in stores.

Stop fucking putting "other" in your gender selection you sjw. Biologically speaking there are only 2 genders so get the fuck over it.

Trade-in value

Looks better on the shelf

You can always sell or trade them plus there fast download

you can resell them.

You can take the game with you and play somewhere else or even sell the game

More chance to get games at discounted prices

You can sometimes get good discounts on them and trade games with friends.

Ability switch games between xbox

Selling them forward.

No dependancy on storage caoacity on the console

I actually own the game

Selling game when finished

Ability to play offline, control over long-term digital ownership, able to trade/sell

Can resell

Can play the game within 48 hours of starting to install

Can be resold, license will never expire. I am concerned that my digital purchase is a rental that will eventually lose it's ability to download the game I purchased.
The following are specific answers to the question “What do you feel is convenient with physical game copies (CDs)?” which are directly related to the value of a physical collection of games and/or limited-edition collectibles.

I like collectible statues
You can make huge collection of games
Looks good on the shelf. Everything else, to me, is inconvenient.
They look good especially steel game and collector's editions
Nice to look at, great to display and I actually own the game
Physical appeal of games library.
Its easier to visualize which games you own
The physical collection;
Good looking
Looks cool on a shelf
Special editions are nice to have for certain games.
The ability to lend people games. The ability to return/trade in/donate a game if it will not be played again. I like also having a shelf of games to browse (not that I even own enough to fill a shelf), I also appreciate nice box and disc art and am likely somewhat nostalgic about picking up a physical copy
the metallic covers. I love those fuckers & especially the booklets that used to come with games that showcase art and give you tips.
Being able to have a collection I can look at. I like to see the games because it brings back memories of when I played through them. I like to have a hard copy so my friends can see what games I have and we can talk about them and share memories. I like physical copies cause you can see them
You can lend/borrow them, sell them when you're done playing and it's cool to have a big stack of games
Nothing about physical copies is convenient unless you purposefully collect physical copies for later use after a system is no longer supported.
special editions
actually having something physical
Cool aluminum cases
Box art
They look Good, nostalgic
Feels like The good old days
Physical organization
Buy used and sell again. Going to a store and taking the game home looking at the box/case/packaging
Having something tangible and cool artwork
I think it's nice to see the games you have so you don't forget about some
You get the nostalgia feeling when find a game in a shop.
Looks better on the shelf
To have a big collection of physical copies is cool.
Impressive collection, borrowing to and from friends.
Trading and they look nice and clean on a shelf. Can also be found very cheap in stores.
The following is a table including ALL of the answers to the open-ended question “Please explain your environmental concerns when buying Xbox One® games”.

<table>
<thead>
<tr>
<th>Please explain your environmental concerns when buying Xbox® One games</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic is harmful to the environment. Less plastic, less mess. Simple. One less thing.</td>
</tr>
<tr>
<td>Less plastic used is a win in my book.</td>
</tr>
<tr>
<td>Prefer to minimize packaging</td>
</tr>
<tr>
<td>Plastics, plastics, plastics. Also the energy required to produce hard copies and any eventual disposal.</td>
</tr>
<tr>
<td>Fair trade</td>
</tr>
<tr>
<td>I generally don’t buy physical copies because of plastics.</td>
</tr>
<tr>
<td>Games cases have trash and packaging as well as using ink and materials to make the case and design the disc. Currently I try to buy everything on disc unless it’s an older game which is cheaper to buy on disc because sometimes 5 year old games like GTA V are still $60 online. It’s just more plastic stuff that is eventually going to end up in a landfill.</td>
</tr>
<tr>
<td>They’re vague and poorly informed</td>
</tr>
<tr>
<td>The use of unnecessary packing in shipping</td>
</tr>
<tr>
<td>It’s smart to reduce use of plastic</td>
</tr>
<tr>
<td>It’s not an overwhelming concern, but any unnecessary / unused waste should be avoided whenever possible.</td>
</tr>
<tr>
<td>Unnecessary plastic that ends up in landfills and oceans. Take the failed launch of ET on the Atari for example. Thousands of copies went straight to landfill. This is only one example. If you research it, you will see that it has been a regular occurrence in the past with failed launches. Plastic is bad. Xbox is plastic. Xbox breaks. Plastic put in landfill. Games plastic. Games don't work. Games go in landfill. Huge waste if plastic</td>
</tr>
<tr>
<td>I understand that I am creating plastic waste</td>
</tr>
<tr>
<td>I take AP Environmental Science, and we learn about how small stuff like no more physical games could help the environment, and it doesn’t really affect me, so why not? I do mind if there is an obvious excess amount of games being made if they Devs know they can't sell them all. The plastic cases are petroleum products. Getting petroleum out of the ground causes pollution. Shipping raw materials and finished product causes CO2 emissions at a minimum. Refining petroleum generates pollution. The console itself is more prone to breakage if you are running a disc in it leading to having to recycle it which in turn generates pollution. Not to mention you've then bought another console which took resources to manufacture. The plastic and other shipping items used for physical games isn’t good for the environment and I worry about it’s pollutant impact A lot of plastic is used in the casing, it feels unnecessary when there's no reason to have a big case as there are no more booklets in them. Perhaps using cd cases would be more efficient and cheaper. All the plastic that gets produced to make these game cases must to deliver the content. I feel that there must be a, admittedly small, but still significant amount of them that end up in landfills. Their whole purpose is just to deliver content from retail to the consumer. CD’s and their packaging are made from plastic. Need I say more? I’m worried about what happens to all the cases and games that either are broken or are no longer played and where they end up It really isn’t a huge concern since statistically video game boxes are less likely to be thrown out Less plastic in our oceans</td>
</tr>
<tr>
<td>PostNord Plastic waste Packaging Go green Country of origin/plastic I’m worried about landfill and the waste of chemicals to make redundant CDs. Plastic packaging Its all plastic. Fuck that, it only destroys the planet and has almost no advantage over digital copies. Good luck</td>
</tr>
</tbody>
</table>
It's wasteful
I don't want the packaging to end up as waste

The case is useless

Plastic

It is a waste of plastic compared to a digital copy. On the other hand I very rarely buy games and when I do, I am really careful with them so I don't waste more than once in that way I feel.

Creating game packaging has a carbon footprint.

Käytetään niin paljon muovia, en näe pointtia ostaa fyysistä kopioita jos vaihtoehtona on online

Popularity for a game

The package produces useless waste

The waste from packaging, which are not made from recycled materials as far as I am aware. If there was chance to buy games at discounted prices online I think this would solve a big problem. Or making the packaging from recycled or ecological material.

Use of plastic and global shipping of physical products.

All plastic garbage I accumulate will eventually wilt the earth supposing there’s an earth to wilt by the time it would happen

Plastic

The packaging is a waste of plastic and will probably end up in a landfill instead of being recycled.

Plastic is harmful for environment