Annotated Bibliography

Li, W., Mills, D. and Nower, L. (2019) 'The Relationship of Loot Box Purchases to Problem Video Gaming and Problem Gambling'. *Addictive Behaviors,* Vol. 97 27-34.

The aim of this study was to see if there was a link between loot boxes and gambling. Loot boxes give rewards that you can access with real world money and you have a chance to receive a valuable item in the game. Players are introduced to a system where they are encouraged to spend their money to receive rewards and a bigger pay-out. They reference a lot of sources from games with items you can sell and countries who have taken action against loot boxes. They give an in-depth analysis into their study and their findings.

The study consisted of an online survey which was posted on forums for people who play games or gamble. They asked questions such as if the participants bought loot boxes in the last year, which video game did they buy the loot boxes for and did they think that loot boxes enhanced their experience of the game they played. 618 Participants took part in the study and each person was anonymous and over 18 years old. The questions were asked in order to find a relationship between loot boxes and video gaming/online gambling engagement, problem gambling and mental distress.

From the results, they found 44% of participants engaged with loot boxes while 48.3% thought that loot boxes "enhance their experience." 89 games were listed by participants and most common answers were League of Legends, Overwatch, Fortnite, CS: GO. They also found out that people who regularly buy loot boxes are more likely to form similar habits such as playing casino and card games. People who bought loot boxes spent more time playing video games and for longer periods. Through these long-playing hours, people were more engaged with video games and this has been indirectly associated with mental distress. They were more likely to meet the criteria for IGD (Internet Gaming Disorder).

The positives of this study are that it provides a relationship between loot boxes and gambling. The survey is well conducted and is easy to follow. It also explained its research through diagrams and provides ways that we can overcome this issue. The sample was found in online forums with people who play games or gamble online. This sample doesn't reflect all the gamers or gamblers and can't be generalized

The negatives are that they can't determine if the process of loot box purchasing and developing problems have an order or are different for each person. They are also not sure what the type of person is more vulnerable to develop loot box side effects.

Annotated Bibliography

King, D.L. and Delfabbro, P.H. (2018) 'Predatory Monetization Schemes in Video Games (E.G. 'Loot Boxes') and Internet Gaming Disorder'. *Addiction,* Vol. 113 (11) 1967-1969.

These researchers created the study to find what percentage of the top selling games have loot boxes and which games allowed children to play them. Loot boxes are a grey area for regulations and there are no restrictions on them at the moment. These game companies are taking full advantage of this so the research was done to show how many games are using loot boxes.

The researchers provided their own research that shows the link between loot boxes and gambling. Games that allow the selling of loot box items make them even more appealing and addictive. Also, if there's more time being spent playing the game, this can give more exposure to loot boxes which in turn, increases the probability of gambling.

They conducted the research through four variables which were the presence/absence of loot boxes, the number of installs, the age rating and if the game allowed the player to sell their loot box items.

Through their results, it was shown that out of 124 unique titles on the Apple Store and Google Play Store, the majority of games had loot boxes (56%). On steam, 18 out of the 50 top-selling games had loot boxes as well. Majority of these games on mobile were suitable for children while out of 18 games, 3 that had loot boxes were suitable for children on steam (desktop).

The positives of this study was that it shows how the majority of the top selling games allow loot boxes in their games. It is clear to understand and we can see how many games are taking advantage of this mechanic. They state their research and how they conducted the research which is straight-forward.

The negative is that this is a small sample and doesn't reflect all games created. However, it is still great study as the popular games are the ones most people are playing.

Annotated Bibliography

Zendle, D., Cairns, P., Barnett, H. and McCall, C. (2020) 'Paying for Loot Boxes is Linked to Problem Gambling, Regardless of Specific Features Like Cash-Out and Pay-to-Win'. *Computers in Human Behavior,* Vol. 102 181-191.

This study was created to figure out if there was a link between problem gambling and loot boxes. They also wanted to figure if any type of loot box increased this link or not. In their research, they found out what types of loot boxes exist. One type of loot box system is one where players can sell or trade their rewards. Games like CS: GO have this option and are integrated in Steam's marketplace. Another loot box system is a pay to win kind. Games like Hearthstone allow players to buy packs in order to improve their card decks. Some are the opposite where the loot box only allows cosmetic items to be received.

Competitiveness could act as a reason to open loot boxes in games that allow the pay to win system. Some games only allow the player to buy the currency in the game in order to open loot boxes. This is similar to how casino chips are used to play their games. CS: GO also has a similar feature to gambling games. Players can use a roulette wheel for various items in the game. What often happens is that players receive a common item but next to it is a rare item which can encourage players to keep spending (Near-miss tactic). CS: GO rewards players with loot boxes however they need to purchase a key with money to unlock it. This could be a physiological tactic as players might want to spend money in order to feel rewarded for their time and skills put into the game.

The researchers conducted a survey with 1200 participants and was posted on Amazon Mechanical Turk. They asked questions based on the PGSI which is the Problem Gambling Severity Index. From this survey, they found that the ability of purchasing in-game currency, near-misses strengthen the link. The crate and key mechanic and the presence of rare items didn't strengthen the link that much. Players who made money selling loot box items weakened the link between problem gambling and loot box spending.

From the survey, we know that there is a constant link between loot boxes and problem gambling. One main highlight is that the more a player spent on loot boxes, the issue of problem gambling occurred more. The type of loot box didn't affect the link but there is still no particular loot box that is harmless. One important note is that there is no clear indication as to what the link is. Further research will need to be taken.

The positives of this study are that it is well researched and has an aim. They also have results and show their work. They also give recommendations which are to add content descriptors to allow consumers to know the consciences of their decisions and to restrict access to games with loot boxes to legal players.

The negatives are that they used Amazon Mechanical Turk only. People may just be doing this for money and giving detailed fake answers. Also, there is still no clear evidence through their research but allows for others to follow up.

Annotated Bibliography

McCaffrey, M. (2019) 'The Macro Problem of Microtransactions: The Self-Regulatory Challenges of Video Game Loot Boxes'. *Business Horizons,* Vol. 62 (4) 483-495.

This study was created to figure out what the current regulatory is like for loot boxes and what business practices are being used to improve the situation. People have started to realize what these companies are doing with loot boxes, e.g. they see this activity as illegal or exploitative. Star Wars ignited this anger when they released their game full of loot boxes which made the game pay to win. People also expressed their frustrations online with others which lead to people speaking up about this issue.

Loot boxes provide the option to save time for the player in exchange for real world money. Many players think this is unfair as it encourages them to spend more money on the game rather than spending time to achieve the reward. Players even upload videos of them opening loot boxes for entertainment which entices the viewer to try their luck as well. EA is one of these companies that try to exploit this loot box system. Legislators have been trying to crack down on this as they are encouraging gambling through addictive spending.

I should note that it is difficult to regulate loot boxes. For example, The U.S. states have their own gambling definitions and at the moment, compulsive behaviour found in gambling has not been validated for the case of loot boxes. The ESRB are also saying that loot boxes aren't gambling as you can still win a reward unlike a casino where you don't always win. At the moment, it seems most countries are not declaring loot boxes as gambling and will not ban them in the meantime.

However, at the moment of this study, a lot of countries have started to take action, most notably Netherlands where loot boxes have been banned and Belgium where loot boxes have been removed from current games. PEGI have also introduced a label that states in-game purchases are available on the physical game cover. However, it doesn't say specifically what are the in-game purchases so it still could be misleading. The ESRB are also trying to help parents learn about and monitor their children's spending.

Some game companies such as Turn 10 have been self-regulating. They took a major leap and removed their loot boxes from Forza Motorsport 7 but replaced them with an in-game shop that sells the items from the loot boxes. Every 6 minutes, the rewards change giving the player a sense of urgency and trill like look boxes but with no real currency risk. All items are also cosmetic meaning they don't affect the gameplay.

The main highlight and suggestion for this study is for these game companies to be more transparent with their audience. Consumers have become less trustworthy due to loot boxes and these Companies need to explain how they use loot boxes to build transparency. They should reveal the odds of the loot boxes to improve their relationship with their audience.

The positives of this study is that it is well documented and has an aim that it achieved. It was able to give information on what is happening at this current moment with loot boxes and give a perspective from a game companies side. It was able to offer solutions to this problem as well.

The negatives are that it appears to be biased in certain views as it mostly talks about the negatives of loot boxes.

Annotated bibliography

Azin, K. (2020) 'How Pay-to-Win Makes Us Lose: Introducing Minors to Gambling through Loot Boxes'. *Boston College Law Review,* Vol. 61 (4) 1577-1612.

In this study, the aim was to examine the current criteria for gambling and how it can be used for loot boxes and to find a support between gambling and loot boxes. The first part of the study went into the history of loot boxes. The first time the western world was introduced to loot boxes was in a game called Team Fortress 2 in 2010. The controversy with loot boxes started in 2017 with the outrage of Star Wars battlefront 2. Studies cited by the researcher stated that playing video games in moderation may have benefits for children. This includes problem solving, multitasking etc.

The researcher talks about the Skinner Box reward model. it's a form of conditioning where a certain behaviour is encouraged through rewards. These tests show that participants respond less and less to the reward. However, participants respond higher when the reward is sporadic like the loot box rewards.

The study then went into what is considered gambling. To be considered gambling, it needs to have a prize, a payment option and an element of chance. However, something that fits this description doesn't make it gambling such as with trading cards. Gambling definitions also change from different countries so it's difficult to try legislating loot boxes.

Children are also at risk with these practices. The same psychological tactics from gambling are seen in loot boxes. The researcher states that the word "gambling" might be the wrong term but regardless, there should be some regulations. Other countries should look into how Belgium dealt with loot boxes as they have banned them. The research states that children that play these with loot boxes in them are told about the risks and are able to use them in a safe manner, there shouldn't be no reason why they can't play the games.

The positives of this study are that it divides its studies into sections. We can follow along easily with it. It also cites a lot of good research, so it is well documented.

However, I feel the main negative to this is the citing. Every other sentence has a reference so it's difficult for me to try and cite this study. If the researcher had more of their own words in this, I would be able to use this study more.

Annotated Bibliography

DeCamp, W. (2021) 'Loot Boxes and Gambling: Similarities and Dissimilarities in Risk and Protective Factors'. *Journal of Gambling Studies,* Vol. 37 (1) 189.

The aim of the study is to use collective data from the Delaware School Survey to determine whether loot boxes and gambling have a link. Firstly, the researcher found studies that support the link between loot boxes and gambling. For example, (Brooks and Clark 2019) stated that 49.3% and 60.3% of their participants had bought loot boxes in the past. However, the researcher claims that it's unclear if "one behaviour increases the likelihood or severity of the other."

The total participants from the surveys totalled to 13,042 from 8th and 11th grade students. They were asked gambling questions and digital gaming purchases 2018 and 2019 surveys. The survey only included people who played games, so the sample of the 8th graders decreased to 1531 and the 11th graders to 1340.

The main result was that 24.9% of the 8th graders and 17% of the 11th graders stated that they purchased a loot box in the past year. The results show that gambling and loot boxes have different risk and protective factors. More males engaged in this activity. This study doesn't provide a result on whether loot boxes are gambling or not.

The positives are that it wasn't biased and argued against claims in support of loot boxes. It also chose a good demographic to study. It was smart that the researcher used data that was already available.

The negatives of this are that it is using cross-sectional data. This doesn't allow the researchers to continuously test on the participants. The study also used different samples as the survey for gambling and digital purchases was separate. Furthermore, the gambling sample was bigger than the other sample which could affect the overall result. Lastly, it also doesn't measure the difference between casual loot box spending and problem spending.

Annotated Bibliography

Xiao, L.Y. and Henderson, L.L. (2021) 'Towards an Ethical Game Design Solution to Loot Boxes: A Commentary on King and Delfabbro'. *International Journal of Mental Health and Addiction,* Vol. 19 (1) 177.

The aims of this study were to review the mistaken example of Hearthstone used by King and Delfabbro and question their solutions they provide. They also want to defend the banning of loot boxes and provide a more viable solution to this problem. They started off correcting the mistake which King and Delfabbro stated that arcane dust can be bought with real money which isn't true.

They also bring some good points as to what Hearthstone is doing to improve the loot box problem. Hearthstone has allowed users to obtain gold from daily quests which can be used instead of real money to purchase loot boxes. Also, if a player wishes to, he can exchange his duplicate loot box reward for another lower valued reward. However, Hearthstone also has a mechanic which increases the odds for a player to receive a rare item after a number of failed tries at obtaining one. On the surface, this seems great as a mechanic, however, this could fuel the player to purchase more loot boxes.

They bring up some good points abouts in-game currency. In-game currency can be bought with real money which can be considered a deceptive practice. The reason is because the in-game currency is often very limited to things such as buying loot boxes or store items. When using in-game currencies, players make less rational choices when it comes to spending money on loot boxes. They are designed in a way to confuse the player with different currency exchanges with can make it hard for a player to make quick decisions. The researchers make the claim that in-game currencies, if done right, can keep the player immersed in their experience as real money may take away from it.

A suggestion they made to improve on King and Delabbro's study is to set a limit on spending which can be useful for people with gambling tendencies. They propose that the player should be given the freedom to set whatever limit they choose. This is great for parents who would want to supervise their children's gaming activities. However, King and Delabbro suggest a mandatory limit. A combined approach could work best overall.

The researcher talks about his research into South Korea and their ban on gaming for people under 16 during the night. It has been argued that this breaks the human rights laws and restricts freedom. Recently, South Korea lifted a restriction on PC spending as this was unfair. Comparing this to loot boxes, banning loot boxes wouldn't solve the problem.

A reason why game companies aren't taking much action is that they would be admitting that their loot boxes are potentially harmful in use. If companies are forced to regulate, they could adopt different forms of methods that could exploit the player even more. The researchers suggest for governments to reward game companies for compiling with benefits such as funding and tax reliefs. This would motivate companies to adopt a more ethical approach to their games. Potentially, this could cause companies to try to develop more ethical mechanics as they are being rewarded for this behaviour.

The positives of this study is that it defends the banning of loot boxes and gives a very reasonable solution. It also argues against points from a different study which is good for a different perspective.

The negatives are that it is defending a destructive practice. However, I do agree with the researchers as banning loot boxes is not reasonable and would result in more problems.

Annotated Bibliography

Zendle, D. and Cairns, P. (2019) 'Loot Boxes are again Linked to Problem Gambling: Results of a Replication Study'. *PLoS ONE,* Vol. 14 (3) 1-13.

Their aim for this study was to find a link between problem gambling and loot boxes. They would do this by creating an online survey and looking through the results. The study first went into an explanation into loot boxes. They said that loot boxes all have one common feature which is the players spend money to receive an item in return. For example, CS: GO allows players to buy weapon cases which have random skins.

Controversy around loot boxes has caused people to question their similarities to gambling. Gambling experts state that a link between loot boxes and gambling can be seen by their similar features they offer. Concerns of gambling made people fear that these players will end up having a problem with overspending on loot boxes.

The French gambling authorities have cited that because the rewards from loot boxes don't have a real-world value, it means that it can't be gambling. (cited from research). The IGEA are a gaming industry body which compared look boxes to Kinder Surprise chocolates showing that they don't take loot boxes very seriously. (cited from research).

The survey they conducted revolved around measuring problem gambling on players and the amount they spent on loot boxes. The participants didn't know what the survey was about and if they showed any suspicion, they were removed from the sample. The survey was conducted on Amazon Mechanical Turk and was issued to people over the age of 18. The loot box spending was measured by the results of asking how much they spent in the last month prior to the survey. Problem gambling was measured by the results of 9 questions related to problem gambling. They were then measured using the Problem Gambling Severity Index. The total amount in the survey was 1,174 participants after the screening.

The participants were split into categories which were non problem gamers, low risk gamblers, moderate risk gamblers and problem gamblers. The results from the survey show that problem gamblers spent more per month than non-problem gamblers. Their results gave no evidence that low risk, moderate risk and problem gamblers were different from each other as there wasn't a big difference between these groups. It's important to note that the moderate risk group only have 56 people in their sample.

An alarming rate of participants scored 8 or higher on the PGSI which meant they were problem gamblers. This might be due to where the survey was conducted. Also, the question they asked

about how much they spent on loot boxes in the past month is limited. Also, it's easier for participants to give an estimate of their spending than an actual report.

The results suggest that there is a link however, it is unclear. They suggest that further research with a bigger sample should be conducted as their results have produced a clear result. Also, they suggest adding more parental advisories into games which allow kids to play them or restricting games with loot boxes for children.

The positives for this study were that it was straight forward, and the survey was easy to understand. They had a lot of references and were able to stick to their aim. They also gave some suggestions to help solve the problem.

The negatives were that the survey was limited to a small sample and only posted on Amazon Mechanical Turk. Also, I think Zendle is a bit biased towards his research and I don't agree with some of his suggestions.

Annotated Bibliography

Carvalho, A. (2021) 'Bringing Transparency and Trustworthiness to Loot Boxes with Blockchain and Smart Contracts'. *Decision Support Systems, .*

The aim for this study was to solve the transparency and trust issues of loot boxes by using a blockchain network where players can see their odds before purchasing. A smart contract will be used as the loot box on the blockchain network. Before purchasing, players will have the ability to see the list of items and probabilities. The player can also check the inputs and outputs of each function call, so that they can make sure the system is working and check whether the transaction went through.

For the loot box mechanic to work, it needs to guarantee that the list of items and probabilities it uses is actually being used in-game which most games don't allow the player to see.

Since the contract is on a blockchain network, no one has control over it. This can improve transparency and restore relationships between the businesses and consumers. It can also protect the game company since these loot boxes would be difficult to argue against. Creating a more ethical way of using loot boxes instead of banning them could help the business and the players. For example, the result of banning loot boxes could lead to businesses going bankrupt and leaving the player with fewer titles released.

The blockchain network is great for keeping track of transactions since it's all stored in a database. The blockchain network is a distributed and decentralized database. This can be used for billing and auditing purposes and to make sure that the system is being used correctly by the game developers. Also, having a third party to monitor the use of loot boxes in games wouldn't completely stop the transparency and trust issues as the player would still need to trust that the third part is doing its job.

However, the blockchain still has its drawbacks. The researchers are using the Ethereum blockchain where there is a gas fee for every transaction. This is something that the game developer should understand and can find a solution to, either increase the prices of the loot box or leave it as is. At the moment, a transaction to process onto the blockchain takes about 40 seconds.

The researchers were able to create a system called DApp where it was created using HTML and JavaScript to mimic the process of loot boxes. They were able to test the code they present to make sure it was accurate and secure.

The positives of this study is that a gives a creative solution to one of the loot boxes issues. They were able to come up with a system that could potentially work if companies are willing to try it.

The negatives are that the system costs a fee and there is still a chance that a malicious attack could occur and ruin the whole system, even though it is unlikely on an Ethereum blockchain. It also doesn't address the gambling aspect of loot boxes.

Annotated bibliography

Kristiansen, S. and Severin, M.C. (2020) 'Loot Box Engagement and Problem Gambling among Adolescent Gamers: Findings from a National Survey'. *Addictive Behaviours,* Vol. 103.

The aim of the study is to find a link between loot box engagement among young adolescents and to examine the different types of engagement that can be linked to problem gambling. They had a sample of 1137 participants who were aged 12-16 years of age.

Since loot boxes is still a new topic, most studies are done using on-line surveys which are posted throughout the internet. This is what the researchers did. Once they completed the survey, they were able to examine the link between loot boxes and problem gambling was addressed.

56.1% of the participants said they engage with loot boxes to a degree. The majority of players who spend money on loot boxes are male. 70% of the males reported using loot boxes while only 15% of the females engaged with loot boxes. In the past 12 months, 20% of participants spent money on loot boxes, 40% received a loot box from the video game and 10% sold items that were in the loot box. They were able to find a link as players who purchased or sold items were at a higher risk of being a problem gambler compared to players who didn't engage with them.

The positives of this study were that it was simple and clear to understand. The target audience that they surveyed was related to their aim. The study was also funded by the Spar Nord Foundation. They provide solutions such as reduce loot boxes purchasing and reduce marketplace structures.

The negatives of this study are that the data provided doesn't give an answer to whether loot boxes promote problem gambling or if problem gambling leads to gambling with loot boxes. No data was also not taken in regard to the frequency of the purchasing or selling of loot boxes in the last 12 months. More research is needed to understand the relationship.

Themes:

Problem Gambling:

Intro - Problem gambling is a term frequently used when describing potential effects such as overspending on loot boxes. Problem gambling can occur when the player is addicted to buying loot boxes and spends more money than they wish. A lot of games have these loot boxes which can in turn, increase the potential causes of problem gambling (King and Delfabbro, 2018).

Content - Most games encourage the purchases of loot boxes. For example, CS: GO allows players to buy weapon cases which have random skins (Zendle and Cairns, 2019). Controversy around loot boxes has caused people to question their similarities to gambling. Gambling experts state that a link between loot boxes and gambling can be seen by their similar features they offer such as some games only allow the player to buy the in-game currency in the game in order to open loot boxes. This is similar to how casino chips are used to play their games. Concerns of gambling made people fear that these players will end up having a problem with overspending on loot boxes.

Quote - "Loot boxes share psychological and structural features with gambling." (Zendle and Cairns, 2019)

"An important element in video games, loot box purchasing may be related to problem video gaming, as some items obtained from loot boxes may increase players' experience and competitiveness, which may, in turn, intensify their involvement in video gaming." (Li, Mills and Nower, 2019)

Conclusion - Problem gambling still has yet to be identified as a cause from loot boxes. These companies sell these loot boxes to these players, some loot boxes more potentially harmful than others. Until there is definite proof, these gaming companies will continue to take advantage of the system and loot boxes will not be changed as they continue to make these companies a lot of money.

What is currently being done:

Intro - Loot boxes have made their way into the public eyes after the shared resentment from players towards them. For example, Star Wars ignited this resentment when they released their game full of loot boxes which made the game pay to win (McCaffrey, 2019). People also expressed their frustrations online with others which lead to people speaking up about this issue.

Further issues have caused entire countries to start trying to regulate loot boxes. However, regulating loot boxes is not an easy job.

Content - It is difficult to regulate loot boxes. For example, The U.S. states have their own gambling definitions and at the moment, compulsive behaviour found in gambling has not been validated for the case of loot boxes (McCaffrey, 2019). However, some companies have started to regulate themselves such as Turn 10 and some countries such as Belgium and the Netherlands have banned loot boxes.

Quote - "It is unlikely, for the moment at least, that loot boxes will be declared gambling in the U.S." (McCaffrey, 2019)

Conclusion - Loot boxes are slowly being regulated. However, it is a very difficult process to try to regulate this mechanic due to different laws against gambling etc. Progress is being seen but right now it is more efficient if companies self-regulate themselves.

Solutions to the problem:

Intro - It's clear to see that there are a lot of issues and controversy with loot boxes. This section shows all the possible solutions to this problem. Some are more realistic than others while some offer creative solutions to try solve the problem.

Content - Consumers have become less trustworthy of these companies due to loot boxes. These companies should become more transparent with their system and they can solve this by revealing the odds. Another way could be with using a smart contract on the ethereum blockchain (Carvalho, 2021). The blockchain network is a distributed and decentralized database. Since the contract is on a blockchain network, no one has control over it. This can improve transparency and restore relationships between the businesses and consumers. This offers a more creative solution. Some suggest adding a spending limit which sounds great but restricts players. (Xiao and Henderson, 2021).

Another great solution would be having the government reward game companies for compiling with benefits such as funding and tax reliefs. This would motivate companies to adopt a more ethical approach to their games.

Quote - "Therefore, instead of attempting the impossible task of codifying and enforcing King and Delfabbro proposed social responsibility measures as law, governments can instead incentivise their adoption by game companies through discretionary funding, tax relief and other benefits." (Xiao and Henderson, 2019)

Conclusion - There are countless ways that loot boxes can be dealt with. The main thing companies should be trying to do is become more transparent with their consumers and gain their trust back. If not, there will always be a division between these game companies and consumers.

Loot box survey:

Intro - To find more information on loot boxes, many researchers have turned to surveys. Since this is fairly recent, most findings are mostly found through surveys. The aim of these surveys are always similar which is to find a problem within loot boxes.

Content - Countless studies have now been conducted with these surveys. They do give us an insight into loot boxes and problem gambling. For example, a survey was conducted on Amazon Mechanical Turk and was issued to people over the age of 18. The loot box spending was measured by the results of asking how much they spent in the last month prior to the survey. Problem gambling was measured by the results of 9 questions related to problem gambling. They were then measured using the Problem Gambling Severity Index which is used to rate the severity of the participant's gambling problem (Zendle and Cairns, 2019).

These surveys are good as they give an insight into loot box behaviours. It can help open the discussion about loox boxes. However, they do have their drawbacks. For example, most can't make a full conclusion and more research is needed to figure it out.

Quote - "It is unclear, for example, whether one behavior increases the likelihood or the severity of the other (i.e., whether one causes the other). Alternatively, it is possible that both loot box purchasing and gambling behaviors stem from the same underlying causes." (DeCamp, 2020)

Conclusion - Loot box surveys are a starting point into the research done on them. As the topic develops, hopefully more advanced methods of testing can be used to draw conclusions. As of today, these surveys can not pin-point exactly whether loot boxes and problem gambling have a relationship.

Link between loot boxes and gambling?:

Intro - One of main issues researchers are trying to investigate is the link between loot boxes and gambling. On the surface, they seem to be very similar with their mechanics such as having the players introduced to a system where they are encouraged to spend their money to receive rewards and a bigger pay-out. Researchers are trying to find a definite answer for this problem.

Content - Finding a link has been difficult. There hasn't been much evidence found so far. Most of the research suggests that further research should be done. Some findings suggest there is a link but they are unclear as to what it is (Kristiansen and Severin, 2020). For example, in a Zendle and Cairns survey, they found evidence that there is a link but further research is needed.

The link between loot boxes and gambling has not been taken seriously. For example, The French gambling authorities have cited that because the rewards from loot boxes don't have a real-world value, it means that it can't be gambling. (cited from research).

Quote - "If players pay for them then they are linked in some way to problem gambling." (Zendle and Cairns, 2019)

Conclusion - The surveys conducted on this topic have found little to no evidence that there is a link. There is not enough evidence to prove that loot boxes have a link with problem gambling. Until then, nothing can be done about this issue until there are regulations with this issue.

Loot Boxes:

Intro - Loot boxes are a mechanic used in games that players can access with real world money and can have a chance to receive a valuable item in the game. There are many types of loot boxes but have a similar goal which is to have the player spend their money. One type of loot box system is one where players can sell or trade their rewards. Games like CS: GO have this option and are integrated in Steam's marketplace.

Content - One of the main reasons why people buy loot boxes is because loot boxes provide the option to save time for the player in exchange for real world money. Many players think this is unfair as it encourages them to spend more money on the game rather than spending time to achieve the reward.

Players even upload videos of them opening loot boxes for entertainment which entices the viewer to try their luck as well. EA is one of these companies that try to exploit this loot box system. People have also started to realize what these companies are doing with loot boxes, e.g. they see this activity as illegal or exploitative. Legislators have been trying to crack down on this as they are encouraging gambling through addictive spending.

Quote -

Conclusion - Loot boxes has become a popular mechanic seen in the majority of top selling games. Their use is controversial and may be a cause of problem gambling. This could be dangerous for children as many parents buying these games don't know if loot boxes can cause harm to them. In order to solve this problem, game companies should be fully transparent with their use of loot boxes in their games.