Game Design and Business Model: an Analysis of Diablo 3

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ABSTRACT
This paper develops a theoretical framework for analyzing if a certain feature of the design of a game has been introduced to increase the financial profit created over a specific revenue stream. The framework is created from existing theory and consists of the points 1. Revenue Generation, 2. Game Design and Business Model Integration, and 3. Problematic Game Design. If all these points are given for a certain design feature than it has been implemented into the game to increase revenue. This framework is the used to analyze the design of the successful PC game Diablo 3. Diablo 3 features an auction house that allows players to trade their virtual items for real money while the owner of the game, Blizzard Entertainment, collects a fee for every transaction. The analysis shows that the economy of Diablo 3 is designed to increase the revenue of the real-money market place.

Keywords
Game Design, Business Model, Real-Money Trade, Diablo 3, MMORPG, Virtual Economy

INTRODUCTION
Digital games as a medium have been growing in many ways in recent years. The economic growth of the games industry to 24.75 billion dollars in the U.S. in 2011[1] is only one aspect. With the inclusion of games into social networks, casual gaming, and the rise of massively-multi-player online games and virtual world, the game industry is quickly developing new models to monetize their games. "Micro-transactions," "freemium models," and virtual item sales are examples here. Research has shown that these monetization methods and business models have an influence on design game from which the social interaction of the players and the culture of the game emerges (Alves and Roque, 2007; Hamari and Lehdonvirtä, 2010). However, there is no framework yet to show how a business model influences the design of a game. Making it possible to establish this connection will be useful for game designers looking for a way to monetize on their game that does not impact the design of the game as well as for critical scholars who investigate the influence of the economic production model on the design of games as cultural goods. This paper answers this need and develops a theoretical framework for understanding the connection between the design of a game and its business model using the example of the game Diablo 3 (Blizzard Entertainment). Diablo 3 is an influential and successful AAA title with a new monetization model, the "real-money market place" (typically abbreviated RMAH for "real-money auction house") in the game Diablo 3. The

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RMAH allows trading of virtual items acquired by players in the game for real money while the publisher of Diablo 3 collects a fee on the turnover.

BACKGROUND

Diablo 3 is an action role-playing game. In Diablo the player levels and gears up her avatar by killing computer controlled enemies and collecting experience and the treasures the monsters leave behind. The screenshot below (Figure 1) shows a typical gameplay scene where the player character in the middle of the screen, in this case a Monk, fights his way through hordes of daemons.

Figure 1: Screenshot of Diablo 3 Gameplay

The equipment, armor and weapons, of an avatar are decisive for its power. Beating the game on hardest difficulty requires a high quality of equipment and even after having beaten the game players typically continue to play in order to acquire more powerful items. Items can be traded over the auction house. The auction house's default currency is gold, the in-game currency of Diablo 3. The RMAH however uses real money as currency for trading virtual items in between players (meaning US dollars, Euros, or others depending on the location of the player).

Figure 2 shows the RMAH as it appears in the game. It allows searching for items according to their attributes and lists their prices and the left time in the auction.

Figure 2: The RMAH when browsing for a Weapon.

To be able to trade with real money players either have to charge their account on the Battle.net, Blizzard's distribution and online-play network, with real money (by paying Blizzard) or earn this money by selling virtual goods. Blizzard charges a number of fees for the use of the RMAH. The fee is either one Dollar/Euro (depending on the currency one is using) for items like weapons and armor or 15% of the final sales price for commodities like gems and for gold sales. In addition there is a 15% fee transferring the money associated with the Battle.net account back to a real bank account. Currently the maximum price for an item on the RMAH is 250 US Dollars. That means that Blizzard earns up to 38,50 Dollars from the sales of one item, 1 Dollar trade fee and 37,50 Dollars cash-out fee. This is more than 60% of the retail price of the game, 60 Dollars.

Figure 3: The Transaction Summary of a Player using the RMAH

The RMAH thus generates revenue for Blizzard by taxing the trade of virtual items for real money and the cashing out of money earned by players in the RMAH their real bank accounts. If, as Alves and Roque (2007,p. 662) claim, the design of a game is tightly linked to its business model, then the RMAH might have influenced the design of Diablo 3.

THEORETICAL FRAMEWORK

The theoretical framework is comprised of three steps. In each step one part of a theoretical framework is devised that if all of the factors exist in the design of a game indicate that it has been influenced by its business model. The first part establishes on the example of Diablo 3 the link between game design and revenue model. The second part then explains on the example of "coin-drop" the mechanics of how a business model influences design. The third part establishes the notion of problematic game design as a consequence of the business model's influence.

The Business Model of the RMAH

In order to analyze the influence of the RMAH and its business model on the design of the game, it is first necessary to explain the whole business model. The taxation of trade in the RMAH by itself is a revenue model, i.e. not strictly a business models but only a part of it. (Osterwalder and Pigneur, 2002). "A business model describes the rationale of how an organization creates, delivers, and captures value"(Osterwalder and Pigneur, 2009). The RMAH would much like virtual item sales, micro-transactions, a freemium model, be seen as a part of the business model combining the value offering and the revenue model of the game (Hamari, 2009).[2]

The Business model of Diablo 3 is most similar to the model of time-based subscription used in MMOs like World of Warcraft (see Figure 4).

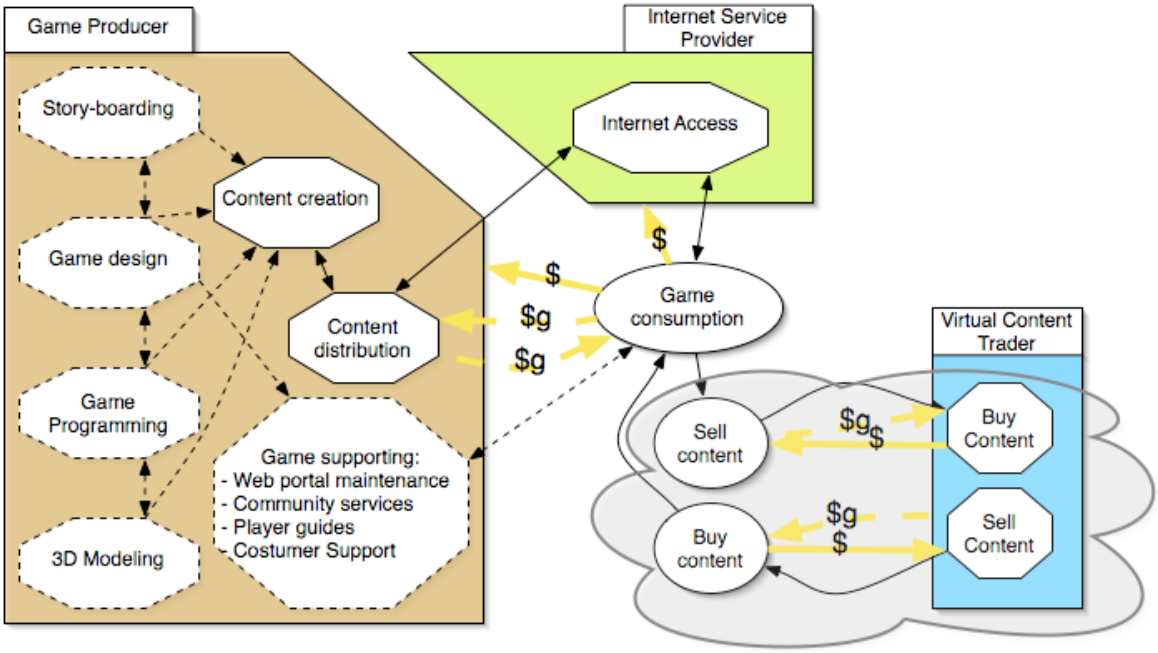

Figure 4: Value Net of a Traditional Time-based Subscription MMOG (Alves and Roque, 2005)

This representation of a business model can be criticized in a number of ways. It frames play as pure "Game consumption" even though it clearly acknowledges that it is productive and creates valuable and tradable content. Play as work that can be exploited and the commodification of play have been discussed in research (Terranova, 2000; Harambam et. al., 2011; Coleman and Dyer-Witheford, 2007). Alves and Roque's diagram does a good job showing that a game producer is not a single entity but a network of actors and groups with own aims and tasks inside an organization. This serves as a reminder of that it would be to deterministic to claim that only economic considerations drive the development of a game (or any cultural product). See Figure 5 for a graphic representation of the business model of Diablo 3 that takes these differences into account.

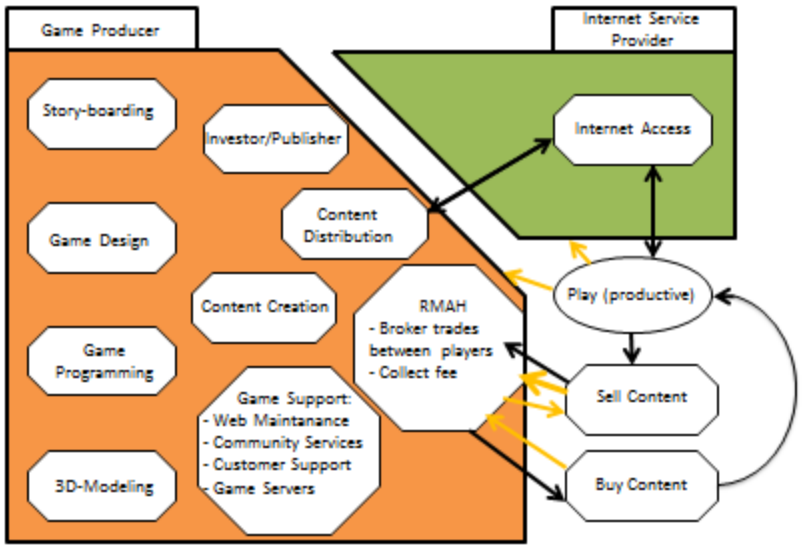

Figure 5: Value Net of Diablo 3 and the RMAH

However, the main differences between this model and the time-based subscription model are first that Diablo players do not pay a subscription fee and second and more importantly for the purpose of this paper that the trade with virtual content does not include a 3rd party. Trading of virtual goods over online auction houses like e-bay or and commercial farming of gold and tradable items have been around since the first online games. RMT has even become a lucrative industry with a turnover in the billions of dollars (Yee, 2006; Dibbell, 2006, 2007). However, in Diablo 3 it is kept inside the game software and under the control of the game producer. The "Set of illegitimate activities or flows" (Alves and Roque, 2005, p.1358) that is represented as the grey cloud around virtual content trade is now legitimate from the perspective of the business model as it creates a monetary flow to the game producer. This also means that any part of the game's design needs to in some way increase the revenue of the RMAH if it is to be seen as a consequence of this business model. This is the first part of the theoretical tool for the analysis:

1. Revenue Generation: A feature of the design of the game in some way increases the revenue generated over the RMAH.

Business Models Influencing Game Design

The value net of the business model by itself does however not explain how it might influence the design of the game. So if "the business model is inherently assumed as part of the game design" (Alves and Roque ,2007, p. 662) then it needs to be explained how this link works. The most accessible and well-known example of game design influenced by the games' business models is the design for "coin-drop" in arcade games. Rollings and Adams (2003) explain how the influence of designing for coin-drop on arcade games (Salen and Zimmerman call it design for a quarter. (p. 254)). "Arcade games have weird

design limitations not seen on other devices. They have to maximize what the operators call "coin drop" – the amount of money that people put through the front. Arcade Operators care little for richness, depth, and the aesthetic qualities of a game as long as it makes a lot of money for them. This requires some fine balancing. If a game is too hard, people will abandon it in disgust, but if it is too easy, they will be able to play a long time without outing any more money in." (Rollings and Adams, 2003) The design of the game, its difficulty, reward structure, and much more are directly influenced by the business model of selling arcade machines to operators who want to the machines to return a profit.

As Rollings and Adams point out, of all the qualities a game can have as a cultural text only those that result in increased financial gains by the arcade operators and thus the game developers are taken into account. Bogost makes this point very clear: "Despite the popularity and renown of coin-op games like PONG and Pac-Man the content of arcade and tavern game is largely irrelevant. Beyond persuading players to insert (more) coins, these types of video games offer little in the way of design imperatives." (Bogost, 2007 p. 305).

As the example of design for coin-drop illustrates there is a link between the design of a game and of its business model. This has been discussed in recent research mostly in connection to new revenue and business models for games like Real-Money Trade, virtual item sales, or a fee for trading items like in the RMAH. (Oh and Ryu, 2007; Lehdonvirta, 2005, 2008, 2009). The most accessible abstract discussion of this connection can be found in Extra Creditz, a weekly web show about game design.

> I can't stress it enough. Monetization is part of game design. It is an inescapable fact of the future. (Extra Creditz, Season 5, Ep. 6 - Digital Rentals and the Online Arcade)[3]

Hamari and Lehdonvirtä (2010) suggest as a marketing strategy for companies that "The whole customer relationship, from acquisition through retention to monetization, could be modeled as an interactive game." (Hamari and Lehdonvirtä, 2010) In order to maximize the impact of this marketing inside the game design, Hamari and Lehdonvirtä recommend that business models should be integrated into the game design from the start. I will quote them here in some length to show their recommendations for game designers in their own words.

> Based on the findings, we assert that game designers, by creating and modifying the rules and mechanics of the game, SNS or other online hangout, have an essential, but sometimes unrecognized role in planning the marketing. *MMO operators are able to adjust the environment in which their products are sold and marketed, and the rules according to which the products are used, not to mention their role in creating the environment to begin with.* […] Even though virtual world operators have been forerunners in coordinating the efforts of game design and marketing, there still seems to be a way to go before game design is harmonized with overall business logic. Many virtual world operators find themselves in a situation where revenue generation logic is distanced from the design of the service itself. […] One potential direction for future research could thus be found in examining how *business models*

> *and service design, including game design, could be integrated and aligned from the start.* (Hamari and Lehdonvirtä, 2010; emphasis added)

Hamari and Lehdonvirtä write about MMOs and virtual item sales here. That means that the above mentioned products to be sold are virtual items and the environment is the game world and its rule set. This is not how Diablo 3 and the RMAH function but the general point can be transferred. If a game can be designed to make players desire virtual items that are sold by the game producer then it is also possible to design a game in order to incentivize players to trade their items on a taxed auction house for real money. In a similar case, the decay of items in Entropia Universe (Mind Ark, 2003), Alves and Roque state that "a game rule that is a *translation* of a business model requirement into the game design. Other identifiable cases may manifest as: expected game rhythm when the player is paying for time online, as taxes over in-game transactions,…" (Alves and Roque ,2007, p. 662, emphasis original)" Taxes over in-game transactions" is the model of the RMAH. The Director of Community Relations and Marketing and Director of Concept Development for Entropia Universe, Marco Behrmann, explained in an interview that "This business model was the vision from the start, and everything in Project Entropia is designed around it."(Aihoshi, 2007). Along with the example of coin-drop this shows that designing games is also designing a business model. From this we can conclude the second part of the theoretical tool for the analysis:

2. Game Design and Business Model Integration: The feature of game design needs to be deeply integrated into the design of the game in a way that the business model and the design of the game are purposefully aligned.

This previous research further suggests certain parts of the game's design for analysis. Hamari and Lehdonvirtä (2010) and Alves and Roque (2007) point to the design of the game economy as the most important point for analysis while also mentioning customer service, the way social status is made visible in the game, and more generally rules of the game.

Problematic Game Design

With the first two statements to guide the analysis of the design of the game it is possible to find features of the design of the game that generate revenue over the RMAH and that are, to borrow Alves' and Roque's (2007) formulation, "a *translation* of a business model requirement into the game design" (Alves and Roque ,2007, p. 662). However, this can only be criticized if the game design feature is problematic in some way. While the influence of a business model could in principle also be positive. However, a part of the design of a game that has a positive outcome for the game could have been introduced for its own sake without the link to the business model. This means that in this framework design will only be included if it might lead to negative or problematic outcomes for the players or limit the potential of the game as a cultural product. Design for coin-drop in arcade games is a good example again. The design of arcade games has numerous design features that were so problematic for the game that as soon as these games moved out of the arcades on personal gaming consoles they disappeared. Many of these features are today listed as negative examples in literature teaching game design like for example the need to start at the beginning of a level after death, no possibility for saving the game, and high difficulty to keep people from playing too long or beating the game. (Adams, 2003) Bogost explains that games designed for coin-drop "ignores the games medium´s

potential for persuading user to believe or act a certain way, not just to play again." (Bogost, 2007 p. 306)

3. Problematic Game Design: In order to be able to scrutinize relationship between business model and game design the game design feature needs to be problematic in that it either includes elements that are seen as negative in game design literature, have negative consequences for the players, or limit the potential of the game to be a persuasive game.

Summary

The final analytical tool to be used looks like this:

1. Revenue Generation
2. Game Design and Business Model Integration
3. Problematic Game Design

The next step will be to analyze the design of the game in order to see if there are features of game design that fulfill these three criteria.

METHOD

The data for the analysis of Diablo 3 was collected in three different ways. The game economy was analyzed using a part of a methodological tool recommended by Consalvo and Dutton (2006) for understanding "the economic structure of the game" (p.4) and "the pricing of objects, their relative scarcity or abundance" (p.4), the object inventory. The object inventory in this case does not produce a spread sheet of different ready-made items that can be obtained but a set of mechanics for random item creation depending on certain parameters like the strength of the monsters items are dropping from. This set of mechanics cannot easily be obtained from own play but instead was obtained from fan sites in the Diablo 3 community which points towards the second way of data collection, the use of web searches in the Diablo 3 community.

The analysis of data from fan websites of a game as a means to get not only information about the design of a game but also to see how that design affects players (Waern, 2010). In order to see the discussion around changes to the game I collected all communication of Blizzard community managers with the community and the forum threads this communication happened in. This was done using a tool called "blue tracker" that tracks all the forum posts of Blizzard employees (who write in blue, hence the name of the tool) in the official Blizzard forums from the launch of the game until the end of data collection on 15.10.2012. All relevant conflicts in the community led to subsequent searches on the web with relevant search terms in order to find discussions about these topics that happened outside of the official forums. These searchers led to finding high-profile players that acted as opinion leaders and experts inside the community as well as journalistic writing about the game. Finally I played the game logging over 160 hours of play over multiple characters, character classes, and continent servers to get a better understanding. I participated in trading items in the RMAH and the gold auction house. This experience informed the data collection and helped to understand the relevance of the issues discussed in the analysis.

ANALYSIS

The theoretical framework is showcased in an analysis of two cases of the design of Diablo 3.

The Economic System of Diablo 3 - Mudflation, Drop Chances, Affixes, and Immersion

The economic system does increase the revenue of the RMAH if it drives players towards using it. The economic system of Diablo 3 uses a number of methods to incentivize trade of the auction house and the RMAH the first of which can be found in the way items are created in the game. Trading items has already been an important part of Diablo 2 where item drops were so random that players needed to trade to advance. However, even in comparison with its predecessor, Diablo 2, Diablo 3 still made changes to make the item generation more random. While Diablo 2 divided affixes (attributed of items) in prefixes and suffixes thus guaranteeing that each item had at least some of the most useful statistics on it Diablo 3 assigns affixes randomly which makes it a lot less probable to get a good affix combination on a dropping item.[4] The random combination of affixes on each item that drops in combination with varying item levels and ranges of power inside certain affixes create a space of possibilities in which it is very improbable to find a very powerful item. The quotes below illustrate the probabilities for item drops. The first quote is from a video by Kripparian, a professional gamer who achieved celebrity status. Kripparian has a youtube channel with close to 100.000 subscribers and over 25 million video views.[5]

> That's why the items you guys have been getting are really crappy. The reality is, the way the game is set up, it just has a stacked odds system. So you need many many things to line up to even have a pretty good item in this game. (Kripparian, Why Your Item Drops Suck, 272328 views when accessed, 08/07/2012)[6]

The second quote is from a forum post in the official Diablo 3 forums where a player models the math behind item drops and derives the chance for a perfect item to drop.

> We want all of these events to occur when an item drops, so multiplying them together we get a chance of 1 in 12,430,127,609,782,100,000,000.
> […]
> If all people on earth (6x10^9) farm 100 rares a day for their whole life (365x80years), the chance would be.
> (6x10^9x100x365x80)/(12.4x10^21)=1.41 × 10-6 = 0.00000141% chance.
> (Baboon, poster on the official Diablo 3 forums, 09/07/2012)[7]

This system for item generation drives players to trade for items in two ways. It reduces the probability for players to ever find items they actually want to use on their characters making it necessary to trade the items the do find and it makes it near impossible to ever acquire perfect or close-to-perfect items leaving players always potential to improve their gear and incentive to trade items. As players progress and require higher quality items the RMAH becomes the only way to acquire them. An example for this can be found in Athene, a prominent gamer and the self-proclaimed "best gamer in the world" [8],

explained in a video on his youtube channel with 649,668 subscibers and 356 million views that "I can't buy any upgrades unless I pay real money." (Athene, To Blizzard, Diablo 3 feedback)[9] He has reached a point in the game where the only way to improve gear for him is to buy it for real money. Blizzard acknowledged that there is pressure on the players to use the auction house in case of high end items the RMAH.

> Personally I don't think I wouldn't be super surprised if the best items in the game moved exclusively to the RMAH. I'd suspect not all would, there'd still be some on the gold auction house, but sure, there's a reasonable expectation that all the best items could move to the RMAH. It makes some sense, why sell an item for gold when you could stand to make some money? (Bashiok, Blizzard Community Manager, 12/06/2012)[10]

This shows that Diablo 3 is designed to push players towards the RMAH. PCGamesN, a gaming website, connected in an article about the economy of Diablo 3 the incentives for the use of the RMAH Blizzard's financial interests.

> If we're being cynical, however, it's Blizzard's vested interest in the success of the real money auction house that undermines confidence in the design of the game itself. Blizzard enthusiastically deny that loot drop rates (which many players complain are too miserly) are tailored to suit a healthy auction house, but it's clear that a scarcity of decent loot - deliberate or otherwise - drives more players to the auction house and so more revenue into Blizzard's coffers. If this is the case, players who don't use the auction house are losing out.
> (PCGamesN, a games news website, in an article titled Diablo 3 gold prices continue to fall in auction houses while gold farmers undercut Blizzard, 16/07/2012)[11]

The RMAH's revenue model is deeply embedded in the design of the game economy. The PCGamesN quote mentions that Blizzard's vested interest in the success of the RMAH "undermines confidence in the design of the game". This leads to the last point of analysis, problematic game design.

For a second example of how it introduces problems to the game we can take a look at another well-known community member and his reaction to the RMAH. Force started his website, www.forcestrategygaming.com, after building a successful youtube channel with teaching videos for Starcraft 2 (Blizzard Entertainment) players. He started gearing his channel and website towards Diablo 3 already before the release of the game, covered news around the beta, and prepared to be a central community actor for this game. His channel has 180,587 subscribers and all his videos have 67,449,835 views. However, in his video "Why I stopped playing Diablo 3", with at the time of access 149,522 views, he informed his viewers that he would stop playing Diablo:

> "As soon as I crossed that threshold and purchased items in the real-money auction house it just killed it for me. I really do wish that it was not in the game. I do understand Blizzard's reason behind it. I understand the fact that buying items existed in Diablo 2. It exists in many RPGs. It just happens from outside sources. I understand all that and that

> transpired. **But the fact that it is in our face now and the fact that it feels, not that it is, but it feels necessary to progress,** the fact that it feels that way as a player, just kills the desire for me to actually play the game." (Force, Why I stopped playing Diablo 3, 149,522 views when accessed 11/09/2012)[12]

The inclusion of the RMAH and the way it is "in our faces now" makes it (feel) necessary to play the game. It increases the level of commodification of play[13] and leads to what has been called *mudflation*. Mudflation has been first encountered in early MUDs and is a kind of inflation of the value of items. Castronova explains it as follows:

> Players who spent time in a synthetic world gradually get better and better gear as they play, and then regularly replace their old gear with new gear. […]as players become more advanced, they acquire better equipment and sell their old equipment to less advanced players, who in turn sell theirs to still less advanced players, and so on. The gear flows down the power stream while cash flows up it. (Castronova 2005, p. 197)

The influx of power and money from the physical world created by the RMAH influence the autonomy, economy of a virtual world or online game and breaks "magic circle" (Huizinga, 1950[1938]). The magic circle is here seen as a membrane (Castronova, 2006) or a weak boundary (Pargman and Jakobsson, 2008) that permits some transfer between the virtual and the physical world. The problem with commodification is seen in that "commodification brings reality into virtuality" (Bartle, 2006) as well as hinders immersion into the game (Harabam et. al. 2010; 2011).The membrane that let financial capital pass between the game worlds already before the RMAH in the form of (illegal) real-money trade completely brakes down at the point where the RMAH is included as a central part of the game and where the most efficient way to play might very well be working to earn money in the physical world that can be used to advance the character in the game.

Mudflation is generally considered a problem to be solved by designers of virtual worlds and MMOs because of its negative effects on the play in these places. The still fairly good gear that cheaply floats the market negates the need for newer players to earn this gear themselves and trivializes all but the hardest tasks of the game. The scarce top-of-the-line items that are on the market and still desired by advanced players on the other hand increase in price because they are the only thing that players with considerable income still desire. Castronova (2005, p. 199) himself recommends a number of measures to limit mudflation. He suggests making items break after a certain time or usage or a high up-keep for high-level items. Blizzard also already had devised a solution for the problem of Mudflation. In World of Warcraft [Blizzard, 2004] items can become "souldbound" which means that they cannot be traded to or used by any other character than the first one using them. This severely limits the possibility and impact of RMT. However, Diablo 3 does not feature such a system, which would limit trade and instead has heavy mudflation. The economic system of Diablo 3 is designed to increase the revenue from the RMAH at the cost of problematic design for the players and the game.

Case Study: Natalya's Wrath

The next example aims at showing the influence of the revenue model on ongoing design decisions while maintaining and developing the game post-launch. For this case I will

analyze the controversy around the item set "Natalya's Wrath". Natalya's wrath is an "item set" for the Demon Hunter class which means that the set has additional attributes to the individual items that become active if a character is using the set items together. This set bonus became much more powerful through a bug after a patch. Players realized this and started using the now very powerful set accordingly tempting a response from Blizzard.

> Yeah that was an unintentional change in 1.0.3, and we've been aware of it. We're not quite sure what we're going to do yet. We're a bit apprehensive because we really don't want to keep fiddling with people's items, even though this makes the set quite good. On the other end, it was an unintended change and so correcting it isn't quite the same as fiddling. In any case, it hasn't been discussed fully and so we don't know yet, and probably won't know exactly what we'll do until next week. (Bashiok, Blizzard Community Manager, 23/06/2012)[14]

The next quote from a poster on the official Diablo 3 forums, Waggon, illustrates well how powerful the bugged set bonus of Natalya's wrath was in different contexts in the game.

> After the 1.0.3 patch, the Natalya's Wrath (demon hunter) […]
> Let's see why this is so grossly overpowered. […]
> Without set bonus: […] Result: 12s of (near) immunity.
> With set bonus: […] Result: 20s of (near) immunity. […]
> This is just silly, who approved this set bonus change or snuck it in? I thought you guys learned, this is WAY more overpowered than SS pre-nerf, come on guys.(Waggon, poster on Blizzards official forums for Diablo 3, 22/6/2012)[15]

The ability of Demon Hunters to stay invisible and invincible for longer periods of time had just been reduced to half by Blizzard in a hotfix exactly a month earlier. (Hotfixes to Diablo 3 on 22/5/2012[16]) That this was done in a "hotfix" means that it was seen as a problem important enough to fix it right now and not to wait and do it with the next patch. This is what Waggon refers to in his last paragraph as "SS pre-nerf". This shows that Blizzard, like Waggon, viewed a situation in which a character can stay invisible for an extended period of time as not desirable, be it for balance reasons or because it makes for bad game design. It had been a common strategy for Daemon Hunters before to defeat strong enemies by staking up only offensive attributes and kill them before their invisibility ran out. However, subsequently Blizzard decided not to fix the bug that lead to Natalya's wrath being so very powerful.[17]

The reason for Blizzard not to bring such an overpowered set back in line is not obvious. Possible Blizzard did not want to break play stiles that emerged even if they were more powerful than Blizzard had planned. However, in other cases outliers in power are brought in line in the interest of the game even though it might cause conflict with some players. In an example case the community manager reasons that an overpowered way to play the game would be "punishingly unfair" (Lylirra, Blizzard Community Manager, 24/09/2012[18]) to other classes. A talent build was reduced in power. The same conclusion never comes up in the discussion about Natalya's Wrath even though the power of

Natalya's Wrath was due to a bug, a mistake in the code of the game, not the smart combination of abilities working as intended by the player.

The decision to accept this kind of overpowered item, even though it only exited due to a mistake in the first place, makes sense when understanding it in terms of stakeholders that would be affected by balancing it. The item set Natalya's wrath had after the discovery of the bug and the power it granted led to a rapid increase in its price in the RMAH. Many of the items were sold for the maximum amount of 250 US Dollars. The players who acquired the set for real money would have lost a part of the power they had paid for. The rest of the players who could not afford these items on the other hand would have gotten a better game because an imbalanced item set would not allow players to break the game and get an advantage any longer. However, players who trade items for high prices in the RMAH generate income for Blizzard. Fixing the item after it had been traded high on the RMAH for some time would also remind players that the power of the items they are paying real money for is not set in stone but can be reduced by Blizzard any time. Fixing the item would have made the item market traders insecure about the value of their items and might have harmed the trade volume. Blizzard thus decided in favor of the players they earn more money on and against the rest of their players. Here Blizzard tolerated problematic game design because it contributed to the revenue gained from the RMAH.

CONCLUSION

This paper developed a theoretical framework using existing literature for analyzing the influence of a business model on game design and explained how it is used on examples of the design of Diablo 3. The analysis shows that elements of the design of the game, the in-game economy and the management of ongoing design decisions in post-production, are influenced by the revenue model of the games real-money market place and result in problematic design. The tool can be used to scrutinize the design of other games in search of the impact of their revenue models on the design of the games.

Diablo 3 as a game is an influential case as the best-selling PC game in the US and Europe and has the potential to direct the rest of the industry also in terms of the used business model. The critique mounted in this article on the influence of a business model on the design of a game is thus also in anticipation of a future development of the games industry towards similar models. However, after the data collection ended Blizzard put forward a number of changes to the game's economy that reduce the negative impact of the revenue model of the RMAH on the game's economy. Blizzard raised drop rates and introduced crafting reagents and items that cannot be traded but only obtained through play and that have a certain quality of useful affixes guaranteed. This change might be related to the loss of players Diablo 3 experienced after launch in which case it would show that Blizzard has understood the negative impact of their design for RMAH revenue. However, it remains to be seen how industry and players will negotiate around the topic of how much games can be designed by their business model.

ENDNOTES

[1] According to the Entertainment Software Association. (http://www.theesa.com/facts/pdfs/ESA_EF_2012.pdf, accessed 07.09.2012)

[2] For an in-debt discussion of the relationship of virtual item sales and game business models see Hamari(2009) and Ostenwalder (2004).

[3] http://penny-arcade.com/patv/episode/digital-rentals-and-the-online-arcade, accessed 15/10/2012

[4] The list of item affixes can be found in www.diablowiki.com on the respective pages, http://www.diablofans.com/topic/41045-spoiler-diablo-iii-item-affixes/ for Diablo 3 and http://www.diablowiki.com/Affixes_%28Diablo_II%29 for Diablo 2.

[5] http://www.youtube.com/user/Kripparrian?feature=watch, accessed 26/11/212

[6] http://www.youtube.com/watch?v=GtAreSOCyDw&feature=plcp, accessed 15/10/2012

[7] http://eu.battle.net/d3/en/forum/topic/4903361564, accessed 15/10/2012

[8] Both Force and Athene are the offical nick names of these players which they use for their professional gaming websites and youtube channels.

[9] http://www.youtube.com/watch?v=_o3qrnYrlCg&feature=plcp, accessed 11/09/2012

[10] http://us.battle.net/d3/en/forum/topic/5794589617?page=8, accessed 12/10/2012

[11] http://www.pcgamesn.com/diablo/diablo-3-gold-prices-continue-fall-auction-houses-while-gold-farmers-undercut-blizzard, accessed 15/10/2012

[12] http://www.youtube.com/watch?v=Aed55ZYRv4c&feature=player_embedded, accessed 11/09/2012

[13] The commodification of play imposing the rationality of productive work on leisure, relaxation and self- actualization has been observed for a number of games and game genres (e.g., Rettberg, 2008; Postigo, 2003, 2007; Gunster, 2004; Terranova, 2000; de Peuterand Dyer-Witheford 2005). It is relevant as a background for this discussion, but not the central point.

[14] http://us.battle.net/d3/en/forum/topic/5911881917?page=1#13, accessed 13/09/2012

[15] http://us.battle.net/d3/en/forum/topic/5911881917?page=1#13, accessed 13/09/2012

[16] http://us.battle.net/d3/en/blog/5825330/, accessed 13/09/2012

[17] http://us.battle.net/d3/en/forum/topic/5911883850#3, accessed 13/09/2012

[18] http://us.battle.net/d3/en/forum/topic/6679558916, accessed 12/10/2012

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