Game design as marketing: How game mechanics create demand for virtual goods

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Abstract

Selling virtual goods for real money is an increasingly popular revenue model for massively-multiplayer online games (MMOs), social networking sites (SNSs) and other online hangouts. In this paper, we argue that the marketing of virtual goods currently falls short of what it could be. Game developers have long created compelling game designs, but having to market virtual goods to players is a relatively new situation to them. Professional marketers, on the other hand, tend to overlook the internal design of games and hangouts and focus on marketing the services as a whole. To begin bridging the gap, we propose that the design patterns and game mechanics commonly used in games and online hangouts should be viewed as a set of marketing techniques designed to sell virtual goods. Based on a review of a number of MMOs, we describe some of the most common patterns and game mechanics and show how their effects can be explained in terms of analogous techniques from marketing science. The results provide a new perspective to game design with interesting implications to developers. Moreover, they also suggest a radically new perspective to marketers of ordinary goods and services: viewing marketing as a form of game design.

Keywords: online games, social networking, virtual world, virtual goods, business model, sustainability, captology

1 INTRODUCTION

Selling virtual goods has become a major new revenue model for consumer-oriented online services, social networking sites, massively-multiplayer online games (MMOs) and virtual worlds in particular. This is especially true in the East Asian market. In September 2005, 32% of titles surveyed by Nojima (2007) in Japan used virtual item sales as their main revenue model. In October 2006, the share had grown to 60%. The global volume of real-money trade of virtual goods was estimated at 2.1 billion USD per year in 2006 (Lehtiniemi & Lehdonvirta 2007). This dramatic rise of the virtual good model arguably merits increased attention from the disciplines of marketing and technology management.

In practice, the so-called virtual good sales or microtransactions revenue model involves selling some form of virtual items, "avatars" or currencies to the users of an online service. Perhaps most frequently, the object sold for real money is a virtual currency, which is then exchanged for virtual items. The items can range from weapons and armour in online games to clothes in virtual worlds and simple two-dimensional graphical badges in social networking sites. The items are used as part of gameplay or to fulfil similar social and aesthetic functions as physical commodities are used for elsewhere in consumer culture (Lehdonvirta, Wilska & Johnsson 2009).

In this paper, we consider the question of what leads consumers to purchase virtual goods. Previous studies on the topic mostly focus on the consumer, considering what motivations and decision processes lead individuals into purchasing virtual goods (Guo and Barnes 2007; Lehdonvirta 2005; Nojima 2007; Lehdonvirta, Wilska & Johnsson 2009). We adopt a different, complementary approach, focusing on how the rules and mechanics that developers build into their MMOs lead to virtual good purchases. Our theoretical perspective is based on marketing: we view game design as one aspect in the company's marketing process that aims to create demand for virtual goods that can be sold for real money. This way, we are able to offer new explanations as to how certain designs and patterns create demand and to suggest designs that could still be explored further. Moreover, learning can happen in the other direction as well, from game design to marketing. Insights built into game designs, based on the collective experience of generations of game designers, can potentially teach traditional marketers new things about how people's behaviour is shaped.

In the second section of this paper, we discuss the virtual good sales revenue model in more detail and review related literature. We also provide a review of basic marketing literature that acts as a conceptual framework for the rest of the discussion. In the third section, we outline the research design of the empirical part of this paper. In sections 4 and 5, we present empirical analyses of design and game mechanics in a number of MMOs. In section 6 we summarise the results, and in the final section, present conclusions and discuss the implications and limitations of the study.

2 BACKGROUND

2.1 Virtual Good Sales As a Revenue Model

Real-money trade of virtual goods first emerged in 1999 in the form of player-to-player trade in MMOs such as *Ultima Online* and *EverQuest*. Users would list their hard-earned game possessions on eBay and let other users bid for them (Lehdonvirta 2008). In recent years, the growth of the market has increasingly been driven by operators selling goods directly to their users. Instead of requiring users to pay a monthly subscription fee, operators allow users enter the service for free, with the expectation that some users will nevertheless spend money on virtual good microtransactions (Nojima 2007). For this reason, virtual good sales-based games like *MapleStory* are occasionally called "free-to-play" games. One example of a virtual world that follows the same model is *Habbo*. *Second Life* follows a similar but more complicated model, where users are the primary actors in virtual good production and sales.

Successful subscription-based MMOs charge around $10-$15 per month from their users, while Liew (2008a) estimates that successful "free-to-play" operators earn around $1-2 in monthly ARPU (average revenue per user). The estimate is based on figures pertaining to *Second Life*, *Club Penguin*, *Habbo* and *RuneScape*. Korean-based *MapleStory* is estimated to have a monthly ARPU of $20 in the United States (Liew 2008b), while Hyatt (2008) estimates the average ARPU of "free-to-play" titles being around $5 per month. At first glance it would therefore seem that the subscription model is often the more attractive option, but if we consider other metrics such as registered users, active users, conversion rates and costs, the situation may change. Users that are willing to pay a subscription fee belong to a fairly limited segment of hardcore users, while "free-to-play" services have the potential to court much larger audiences.

For these and other reasons, operators are increasingly applying the virtual good sales revenue model in virtual worlds, MMOs as well as other online services. Understanding how to create and maintain demand for virtual goods is therefore an increasingly pertinent question. How does a service entice users into virtual good spending? How can sales be sustained over time without saturating the demand? To begin answering these questions, in the following part we review relevant literature from MMO related studies.

2.2 Understanding Virtual Good Purchases

In the academic literature pertaining to MMOs, the majority of works focus on fascinating legal and philosophical questions that virtual worlds and real-money trade of virtual goods give rise to (e.g. Fairfield 2005; Lastowka and Hunter 2004). Works that deal with virtual goods from a business perspective are relatively scarce.

MacInnes (2004) and Lehdonvirta (2008) discuss different approaches that MMO and virtual world operators can take towards real-money trade of virtual goods on a strategic level, without going into detail about what creates demand for the virtual goods. Nojima (2007), Lehdonvirta (2005) and Guo and Barnes (2007) focus on the individual user, examining motivations and decision processes that lead into virtual good purchases. Nojima (2007) examines relationships between the revenue models and players' motivations for play. The motivations are based on a model by Yee (2005). Nojima finds that players who buy items report higher levels of immersion in a game. One explanation offered is that it takes a certain amount of immersion before virtual objects begin to feel desirable enough to purchase. Using a similar approach, Lehdonvirta (2005) examines different motivations that players have for purchasing virtual goods: advancement in a status hierarchy, advantage in competitive settings, keeping up with co-players, experiencing new content, customisation, and self-expression, among others. According to Lehdonvirta, users' attitudes towards virtual good purchases are linked to their general motivations for participating in the service and the activities they engage in. Guo and Barnes (2007) use a technology acceptance model in developing a preliminary model for virtual good purchase acceptance.

Lehdonvirta (2009) approaches the question of why people buy virtual goods from the point of view of attributes pertaining to the goods themselves. Lehdonvirta categorises these attributes to functional, hedonic and social attributes. Lehdonvirta, Wilska and Johansson (2009) examine "virtual consumption" from a sociological perspective, documenting the way in which virtual goods are used as social markers to draw distinctions between "haves" and "have-nots" and to build and communicate self-identity to other members of the community.

Table 1: Explanations offered for virtual good purchases in previous literature

Work	*Perspective*	*Explanations offered*
Lehdonvirta 2005	individual/psychological	(various)
Nojima 2007	individual/psychological	high immersion
Guo & Barnes 2007	individual/psychological	psychometric model
Oh & Ryu 2007	game design	(various)
Lehdonvirta 2009	virtual item attributes	functional/hedonic/social
Lehdonvirta, Wilska & Johansson 2009	community/sociological	social distinctions, identity, self-expression

The different approaches to understanding virtual good purchases in previous literature are summarised in Table 1. Most studies adopt the individual user as their unit of analysis, focusing on the individual's motivations and decision processes that lead into virtual good purchases. In contrast, Oh and Ryu (2007) examine ways in which game design can successfully accommodate and enhance virtual item sales. Based on observations from two Korean online games, *KartRider* and *Special Force*, they present examples of how design and game mechanics built by developers can be used to create and sustain demand for virtual goods; a fact fairly obvious to gamers but little explored in literature. Oh and Ryu's paper is a start in analysing these mechanics, but it lacks ties to any previous body of knowledge that could be used to put the observations in perspective. In the following part of this paper, we outline a perspective from marketing that can be used to examine efforts aimed at promoting virtual good sales.

2.3 A Marketing Based Approach

Traditional authorities in marketing emphasise that marketing is about identifying and meeting human and social needs (Kotler and Keller 2006; Drucker 1993). In the ideal case, marketing results in a customer who is willing to buy. Thus the aim is to understand the customer (Durcker 1993). On the

other hand, marketing can also be seen as an activity that *creates* needs. This view is particularly pertinent in the context of MMOs, where designers create the rules and mechanics that determine to a large extent the activities and specific needs of the participants.

In traditional marketing activities, products are offered in an already-existing market and customers are segmented mostly based on existing segmentation attributes, such as socio-demographic variables. When designing a virtual world, its rules and internal economy can be regarded as marketing activities concerned with creating the underlying needs and conditions for customers to become incentivised to buying virtual goods. The design and creation of virtual goods can then be regarded as separate design iterations that address the needs created in the previous stage (see e.g. Stabell & Fjeldstad 1998 and Porter 1980 on value configuration). This sets value creation through virtual goods somewhat apart from traditional marketing, as the value for the goods has to be first created through designing the context for the goods. Next we will present some examples of value creation from traditional marketing science that will be linked with game design patterns in the next section.

Segmentation is one of the basic and central concepts of marketing. Its purpose is to identify and divide populations into strategically relevant homogeneous segments based on segmentation variables and customer needs. This enables companies to target their marketing efforts according to the defining attributes of the segment (Day 1981; Jonker et al. 2004; Kotler and Keller 2006). Segmentation in game design can be used in forming segments to which sell virtual goods to: for example, in-game classes and professions. Game design -derived player demographics have also been covered in literature (e.g. Bartle 1996; Bartle 2003; Yee 2007).

Differentiation is another basic concept in marketing. The aim of product differentiation is to attain higher desirability, and therefore promote sales, by being distinguishable from rival products (Kotler and Keller 2006; Sharp and Dawes 2001). Differentiation can take place in relation to a multitude of product attributes, but it can be divided into two general subsets: vertical and horizontal differentiation. Vertical differentiation refers to the differentiation of product attributes that are comparable to rival products' attributes. Horizontal differentiation refers to differentiation by offering a completely different set of attributes, as in a different product (Piana 2003; Vandenbosch and Weinberg 1995). Both of these dimensions will be further discussed in the context of game design.

In product life cycle management, the concept of *planned obsolescence* is particularly pertinent. It can be divided into two subcategories: 1) contrived durability and 2) actual planned obsolescence (Orbach 2004). Contrived durability refers to the intentional shortening of a product's lifetime in the production process, leading to quality deterioration. Planned obsolescence refers to an artificial shortening of a product's useful lifetime by means of fashion cycles or technological developments (Kotler and Keller 2006). The purpose of these strategies is to encourage customers to make repeated purchases and to enables sales to be sustained over a long period of time (Bulow 1986; Choi 1994; Orbach 2004). These strategies are interesting in the context of virtual items, since they are digital products: whatever their durability, it is always rather artificial.

Finally, various cognitive and psychological biases are frequently studied and exploited in marketing. Hsee et al. (2003) found that introducing points as a medium of exchange had a clear effect on people's behaviour in a setting where no effect should have been observed under an assumption of rational choice. According to the study, the medium caused an illusion of advantage, certainty and linearity and led test subjects to change their preferences and select the options that were originally less desirable. Subjects were willing to pay more effort when points were used as a medium between the effort and the outcome, compared to a situation with no mediating factor. These results are interesting, because most MMO operators use a virtual currency as a medium of exchange between real money and virtual items. Virtual currency as a medium also enables other psychological pricing possibilities, such as odd-pricing.

In summary, basic approaches in marketing include segmentation and differentiation on one hand, and a large variety of devices for enhancing the perceived desirability of purchases on the other hand. In the following sections, we examine how game mechanics and design patterns found in MMOs can be mapped to these marketing techniques.

3 DATA AND METHODS

This empirical part of the paper is based on an exploratory study of how existing MMOs, especially massively-multiplayer online role-playing games (MMORPGs), are currently creating and sustaining demand for virtual goods through their design and game mechanics. These design patterns and game mechanics are then compared with concepts and techniques outlined in the previous section to examine how design can be linked with marketing science.

Table 2: Games, virtual worlds and other online hangouts referenced in the study

Title	Publisher
Cyworld	SK Telecom, Korea
Entropia Universe	MindArk, Sweden
EverQuest	Sony Online Entertainment, U.S.
Habbo	Sulake, Finland
IMVU	IMVU, U.S.
KartRider	Nexon, Korea
MapleStory	Nexon, Korea
Puzzle Pirates	Three Rings, U.S.
Special Force	Neowiz, Korea
Travian	Travian Games, Germany
World of Warcraft	Blizzard, U.S.
ZT Online	Giant Interactive, China

The virtual good platforms referenced in the study are listed in Table 2. Most of the titles are performance-oriented games as opposed to socialising-oriented hangouts, which is somewhat visible in the scoping of our study. Many of the game elements analysed below are connected to performance-oriented game rules. A few of the above titles do not actually use the virtual good sales revenue model. They can nevertheless be equally informative cases, because demand for virtual goods exists and varies regardless of whether the operator harnesses it as a revenue stream or whether the demand is simply part of the internal mechanics of the game.

We studied each title through first-hand use experience and/or related literature and online materials. The data was collected during 2007-2008. We then analysed our observations with assistance from MMO design literature (Bartle 2003; Pardew et al. 2004; Alexander 2003, 2005) to identify generalisable design patterns and game mechanics that contribute towards creating or sustaining demand for virtual goods. In the following sections, we report the findings, examples from our observations and references to literature that were used as sources.

The selection of titles discussed in this study is based on their popularity, relative variety in mechanics and availability of information. This information-oriented sampling, as opposed to random sampling, is appropriate for exploratory studies and situations where depth of information is valued over breadth (Flyvbjerg 2006). No claim is made as to how representative the identified patterns are of virtual worlds and MMOs in general; only that such patterns have been used by designers in several cases. The actual identification and abstraction of relevant design patterns and game mechanics from the cases is necessarily a somewhat subjective step, although grounded in design and marketing literature.

4 SEGMENTATION AND DIFFERENTIATION – CREATING NEEDS ON MULTIPLE DIMENSIONS

While segmentation itself does not make products more desirable to customers, it enables identification of strategically relevant customer groups and enables differentiation of products to address the needs of customer segments, resulting in more desirable products (Day 1981; Jonker et al. 2004; Kotler & Keller 2006). This section focuses on how MMO design can generate and enforce user segments and create targeted offerings for them.

Companies offer different products according to customers' usage rate and status, which are behavioural segmentation variables (Kotler and Keller 2006). For example, an amateur might require lesser products than a professional. This enables companies to sell new products as a customer's skill or interest increases. In the real world, an amateur might directly buy the high-end products and thus bypass the entry-level products. Alternatively, a consumer might settle for the entry-level products and leave higher quality products on the shelves.

4.1 Stratified content
Usage rate and status in MMOs is typically reflected in stratified content (Figure 1). The most common example of this is found in MMORPGs, where a player's avatar starts from level one and gradually through gameplay progresses through the game content and gains levels, rising in status. This mechanism can be used to segment players vertically and then differentiated items can be targeted accordingly.

Figure 1: Content stratification based on avatar levels
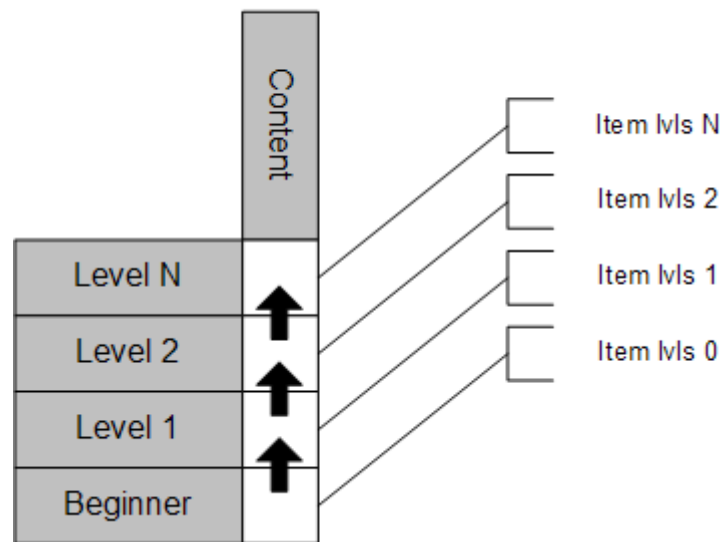
In practice, while most users progress through stratified content, the segments might not be as clear cut. Users go through the content with differing time investments and thus it might be reasoned to offer even more differentiated items in smaller increments as players are differently price sensitive and have varying amounts of time at their disposal. The levels represent a game design -derived segmentation, whereas differentiation within these level tiers (black blocks in Figure 2) addresses users' real-world behavioural segmentation attributes. For example, in *World of Warcraft* there are items of several quality rankings inside each level tier (Figure 2), which can be seen as addressing sub-segments within each tier that invest differing amounts of time in the game. The degree of vertical differentiation is determined by the operator according to its business strategy.

Figure 2: Differentiation within levels
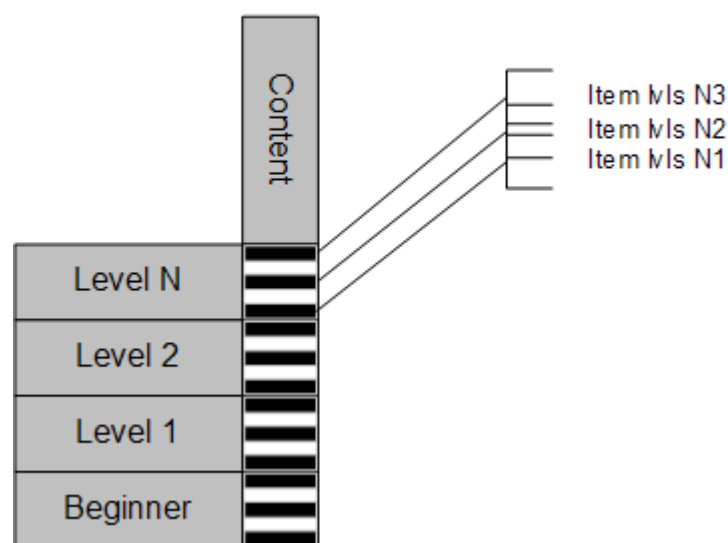
4.2 Status restrictions

Programming status restrictions into items is one way of enforcing the differentiation of items. This way, the operator forces players to obtain new items iteratively if they wish to maintain the same relative performance or status. This mechanism could be compared to regulations in karate belts, which can officially be worn only when the karateka has achieved the appropriate status. A karateka iteratively progresses through the different skill stages and has to purchase a new belt on every stage.

Status restrictions in items also bear a resemblance to contrived durability, as the restrictions are designed into the products themselves. On the other hand, it also has similarities to planned obsolescence, as the players' progression in the game gradually renders old items useless.

Vertical status restrictions have been implemented in at least two ways: 1) an item cannot be used if the avatar's level is too high (e.g., *ZT Online*), and 2) an item cannot be used if the avatar's level is too low (e.g., *World of Warcraft*). This way, the avatar has a sliding window of usable items at a given time depending on the avatar's level, thus iteratively directing buying behaviour. According to Davis (2007), in *ZT Online* players essentially have to renew their inventory every five levels. Status restrictions are also implemented horizontally, e.g., via avatar type restrictions, offering goods that are only usable by a certain avatar type.

Online hangouts such as *Cyworld* and *Habbo* lack explicit level systems, but similar item tiers could perhaps be designed around more socially oriented measures. For example, in many services participants either implicitly or explicitly compete for fame. In *MapleStory,* there are explicit lists of "most famous" players.

**4.3 Increasingly challenging content**

Content that gradually turns more challenging is a design pattern that has many of the same implications as status restricted items, discussed above. The difference is that the measures implemented are directed towards the game environment, avatar, and rules. When the game content becomes increasingly difficult, it requires the user to obtain better items to maintain the same relative level of performance or status, as old items gradually become useless. Thus the operator is able to differentiate items in terms of quality and item effectiveness in differing content difficulty. This is a very common game design pattern and is implemented in almost every MMO, but rarely as a marketing device to support virtual good sales.

In other types of services, the concept of "game content" is more ambiguous. In socially-oriented online hangouts, gameplay could be understood as the user-to-user interactions aimed at establishing social distinctions and hierarchies. For example, in *IMVU,* participants rate each other "cool", "smart", "fun", "hot" or "lame". The difficulty of the "competitive gameplay" thus depends on other users and their behaviour. Introducing explicit measures in this way might further help the operator in identifying segments and selling items accordingly.

4.4 Horizontal gameplay

While the mechanics discussed above enabled vertical segmentation and differentiation, horizontal segmentation is an equally important marketing device. In MMOs, horizontal segmentation is achieved via multiple content or gameplay dimensions (e.g., performance-oriented, socialising, trading), which can be used in designing differentiated virtual goods that are mutually non-rivalrous and not explicitly comparable. The dimensions can be further divided into smaller horizontal modes of play. For example, performance-oriented content might require the user to have several types of items to address varying needs derived from content; social status of an avatar could be rated on multiple scales (e.g., IMVU, see black blocks in Figure 3). Such dimensions must have meaningful content, however; otherwise they risk being seen as blatant profiteering.

For example, a simple form of horizontal differentiation is offering many types of avatar clothing (e.g. shirts, trousers, vests), which are not mutually rivalrous. These can then be seen inside a larger horizontal dimension covering gameplay concerned with avatar clothing in general. For example, in *Maplestory*, it might not be well reasoned to add more clothing categories for the avatar itself, but the addition of *pets* creates another meaningful context for offering more (pet)clothes for sale.

Figure 3: Horizontal dimensions of content
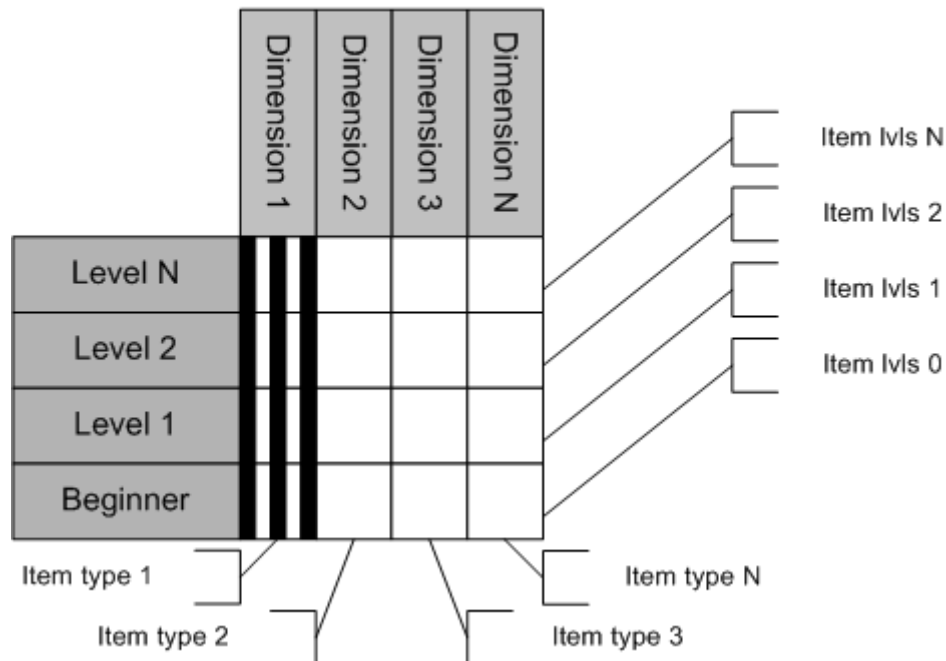
In Figure 2 and Figure 3, the dimensions are simple examples from actual implementations. In practice, the design of vertical and horizontal dimensions is specific to each MMO: there are no fixed sets of dimensions. There are no explicit limits on how many nested dimensions can be designed, but it considerations of usability, compelling gameplay and business strategy that set practical limits.

4.5 Avatar types

While segmentation and differentiation can be achieved through game design patters presented above, a further overarching way of creating segmentation is avatar types. Most performance-oriented MMOs have avatar "classes", which determine avatars' core competencies, items they can use, and their play style in the gameworld. In more socialising-oriented MMOs, appearance-related avatar attributes such as gender, hair colour, and style might be more relevant avatar-defining attributes.

In terms of Figure 3 above, avatar types can be said to create avatar-specific gameplay dimensions. Additionally, avatar types are implemented to further create nested segments inside larger segmentation blocks. For example, for slaying monsters in a MMORPG, a hunter might require a bow, whereas a mage requires a magic wand. This way, avatar type is one of the determinants of differentiation of virtual goods.

In essence, designing avatar types and attributes is equal to designing game-based behavioural and demographic segmentation factors. Whereas in traditional marketing, independent customer attributes are examined to segment customers into strategically relevant groups, the design of avatar attributes is actually a process of deciding and forming some of those factors beforehand. This is not say that real-world segmentation factors would not apply, but both have a role in determining and creating user segmentation and differentiation of virtual goods.

5 MECHANICS THAT DRIVE DESIRABILITY OF VIRTUAL GOODS

5.1 Item Degradation

In some virtual worlds, virtual items *degrade* with time or usage, sometimes to the extent of vanishing completely. In performance-oriented MMOs such as *World of Warcraft* and *EverQuest*, item degradation by use is frequently implemented by items degrading due to combat. Items may also degrade gradually with time, or alternatively, item can have a set expiration date after which they vanish or become useless (e.g., in *Puzzle Pirates* and *MapleStory*). Items vanishing can also prevent "rich" players from giving items away to "poorer" players and thus encourage players to purchase

items by themselves. Item degradation through destroying items or by rendering them useless creates the possibility of selling replacement items over and over again. In marketing terms, degradation is closely analogous to contrived durability, as the operator controls exactly when and how the item ceases to function or exist.

Unlike with material goods, there is no technical reason why virtual items could not last indefinitely, so the marketer may have to justify why such a mechanism is implemented. Degradation through usage is easily justified in terms of the background fiction in performance-oriented MMOs such as *World of Warcraft*. Items usually break gradually when used in combat. Repairing costs currency, which can also be harnessed as a revenue stream, as is done by the operator of *Entropia Universe*. In online hangouts such as *Habbo*, item degradation is more difficult to implement in a way acceptable to users. In these contexts, degrading could perhaps be justified using more mundane scenarios such as items becoming dirty and requiring washing.

One way of implementing item degradation is to have "charges" in items, that is, setting a limit to the number of times an item can be used. This is often the case with consumable items. For example, a player can drink from a magic potion five times. Consumable items can have many purposes for players in a given game or service. For example, in *World of Warcraft,* there are many performance-enhancing consumables. In *MapleStory,* players can purchase a wide variety of performance-enhancing and functional consumables, such as a bonus that prevents players from losing experience points when killed. Time-based degradation is used in *Cyworld*, a socially oriented online hangout.

Habbo does not use degradation at all. As a result, some users have accumulated massive amounts of items in the service, and it is not unheard of for older users to give away substantial goods to new users for free, essentially cannibalising the operator's sales. On the other hand, very old items that are no longer available for purchase have become highly valued content among *Habbo* users. Lack of items with interesting histories and provenance (Lehdonvirta 2009) is a drawback of services utilising the degradation model.

In summary, degradation works in the same way as contrived durability, forcing customers to buy replacement products after a certain time. On the other hand, rational players should factor potential degradation into their value assessment of a new good, lessening its appeal. Implementing degradation is thus essentially an optimisation problem between initial sales potential and sustained sales potential, with game mechanics and background stories being applied to nudge players' economic reasoning towards the desired outcome.

5.2 Inconvenient Gameplay Elements

Several free-to-play MMO operators sell user interface (UI) enhancements to generate revenues. This implies that some gameplay or interface elements have been intentionally designed to be somewhat inconvenient, at least from the point of view of an advanced user. The enhancements range from actual virtual items to non-item power-ups and UI upgrades. Some services provide additional advantages over other players, others merely ease the use of UI. Below, we discuss a few examples of such implementations.

A "Travian Plus" account in *Travian* provides users with several UI and performance enhancements. For example, users can make shortcuts to more easily manage their civilisation. Other purchasable user interface enhancements include a larger map view, construction queues, information sorting and statistics. In *Special Force*, a Korean first-person shooter game, the default colour of the weapons' crosshair can be difficult to recognise on some backgrounds. To address this inconvenience, players can purchase new crosshairs (Oh and Ryu 2007). In *MapleStory,* there is only limited space available for storing friends' contact information. Once the limit is reached, users have to buy more "friend slots". *MapleStory* also sells avatar facial expressions to help players communicate in more varied ways.

The virtual landscape of many MMO worlds is so large as to make travel between places time-consuming. In most MMOs, distance is countered by teleportation or other instant means of travel. These instant travel mechanics can come with a price. In many games, such as *World of Warcraft*, they are paid using in-game money. In *MapleStory,* some travelling requires a currency that must be purchased with real money.

Gathering "loot" left behind by vanquished enemies is a common mechanic in MMOs. For high-performing players, it can become a significant inconvenience factor, as it takes time away from "productive" gameplay. In *MapleStory,* a pet can be taught to collect loot for the player, but the ability costs money. Limited storage space for items is a related inconvenience factor that will be discussed further below.

Operators might also seek to take advantage of the always-on nature of virtual worlds, and the fact that players have limited time to be online. In *MapleStory,* users can buy an automated merchant

character that will conduct trade on their behalf while they are offline. Players' scarce time resources are also harnessed as a business opportunity by the so-called secondary market service providers that offer unsanctioned "power levelling" services and virtual currency sales in MMORPG games.

Unlike many other game mechanics that can be compared with marketing techniques, many of the inconvenient gameplay elements are clearly intentional parts of the design from the start, implying that they are understood as a form of marketing by the developers. A game-specific need is created, to which a virtual good that addresses the need is offered as a solution. In marketing terms, this is similar to how a generic product might be sold with certain limitations, to which augmenting products are offered as a solution.

5.3 Mediums of Exchange

In MMOs and other online hangouts, various points, credits and currencies are used as mediums of exchange in purchases and transactions, and also as rewards for accomplishments. In most free-to-play games, users first buy credits with which they buy the actual virtual items. Credits can also sometimes act as a status indicator and thus can be a desirable virtual asset themselves. In this section, we concentrate on the use of credits as a medium of exchange, and how they can be used to encourage demand.

Besides the possible economic-psychological advantages of virtual currency as medium (see section 2), a virtual currency also enables more pricing possibilities, allows the operator to sell larger amounts at a time compared to single items, and adds one more layer to maintaining the virtual economy. Operators can sell currency in amounts that are not quite divisible by the item prices. As a consequence, the users are left with change, which by itself is not sufficient for additional purchases, suggesting that the user should buy more currency. These tricks are used by most virtual item sales - based MMO operators examined in this study.

In *Puzzle Pirates,* two currencies are implemented to indirectly monetise otherwise non-paying users. This is achieved via two mutually tradable currencies, one of which is bought with real money and the other earned through gameplay. The rationale is that paying users will buy more of the paid-for currency in order to trade it for the earned currency, in order to be able to buy items which can only be purchased with the earned currency. This design could also alleviate perceived problems of unfairness relating to the use of real-money purchases that give gameplay advantages, because it allows both "money-rich" and "time-rich" users to access all goods through exchange.

5.4 Inventory Mechanics

In a typical MMO, users store their items in several types of inventories. Most commonly, users have separate spaces for items that are in use and for items that are in storage. One model is to have separate inventory categories for different types of items. Typically, all types of inventory slots are limited in number, which means that when obtaining new items, users might have to either dispose of some less needed older items or purchase additional inventory slots.

Limited inventory space is often used as a gameplay element, but it can also be a means to increase sales. In *MapleStory,* users store different item types to different inventories, which enables the operator to sell additional slots separately to each of the various inventory types. Buying four more slots to one of the inventories costs approximately 4 € in the European version of the game. Moreover, new inventory types can be introduced through gameplay. Virtual pets are a common example: they come with a set of empty inventory spaces for new clothing and other accessories.

Limited inventory slots have an obvious drawback from a sales point of view: a full inventory can prevent a user from buying more items. To make the disposal of old items easier to the user, the operator can offer to buy items back from the user for a fraction of the original purchase price in virtual money, or provide some other means of compensation. For example, *Habbo* contains a recycling machine where users can exchange 20 old items (originally purchased for real money) for a single new item.

5.5 Special Occasions

Christmas, Halloween, birthdays and other special occasions have been actively used by virtual world operators to promote virtual item sales. Occasions that traditionally provoke buying behaviour are simulated and referenced so that the same effect may be achieved in the virtual setting. For example, Christmas and Valentine's Day are used in services such as *Habbo* as they encourage gift giving and offer a natural context for selling new types of items. This strategy can further be extended to birthdays of users and their avatars, a technique used in some social networking sites.

World of Warcraft has an event calendar containing all in-game events, such as competitions. It also includes traditional seasonal occasions, which are usually modified slightly to better suit the lore

of the game. For example, winter holidays are named "Feast of Winter Veil" and Halloween is "Hallow's End".

Besides real-world occasions, operators can also create their own special occasions based on the fiction of the game. One major example of a fiction-based special occasion was the release of the "Ahn'Qiraj" dungeon in *World of Warcraft*. Blizzard Entertainment designed several quests that required a server's population to collect millions of items to open the "Gates of Ahn'Qiraj". Ostensibly, the main motivation for players to collect all the items was to progress in the game faster, as the Gates were to be opened later in any case. This event caused the player populations of many *World of Warcraft* server clusters to organise co-operative attempts to amass all the required items, even before the quests were actually released into the game (WoWWiki Contibutors 2009).

5.6 Artificial Scarcity

Scarcity is a common strategy in traditional marketing. It has been used as an indicator of high quality and thus to justify premium prices (Kotler and Keller 2006). Another way of utilising scarcity without sacrificing sales quantity is to create an illusion of it through marketing communications. In essence, this means giving customers the impression that the product is almost sold out when it is in fact not, a common if somewhat questionable marketing technique. A perception of scarcity can also be achieved through exclusiveness, making a product in one way or the other challenging to obtain without necessarily altering the price.

In *Habbo*, some items exist in abundance while others are circulated in very small quantities. For example, a limited number of DJ style record players were distributed for free by Sulake in 2002 as part of an advertising campaign. In 2006, users were trading them for around 250 "Plastyk", which equals a re-purchase cost of approximately 200 € (Lehdonvirta, Wilska & Johansson 2009). Considering that the record player cannot actually play music, it is no different functionally from many other much less valuable items. Thus a large part of the record players' high value can no doubt be attributed to its scarcity.

Around mid-2006, the Habbo record player was again distributed as part of a new promotion (ibid.). This multiplied its supply on the user-to-user marketplaces, leading to a drastic decrease in its price and the prestige associated with owning one. As a consequence, its position as a top luxury good was taken over by other items, and status-conscious users had to purchase new items to maintain prestige.

Sulake also introduces collectible items, which are sold only for a limited time. This time varies from few hours to weeks. Sulake suggests that buying these items is an investment, saying that their value will rise as the same item will not be sold again after the limited sales period is over (Sulake Corporation 2009).

In most performance-oriented MMOs, scarcity is more commonly achieved by making certain items difficult to obtain through gameplay. Most commonly, these rare items drop from slain monsters. Either the rate at which the rare items are dropped is small, or the monsters that have to be slain are hard to come by and slay. These items are most commonly not purchasable and thus do not represent a revenue stream to the operator. However, users may well be incentivised to spend money on purchasable items that help them to reach the rare and desirable items. An example is found in *ZT Online*, where players use real money to buy keys that are used to open boxes dropped by slain monsters. Opening a box is designed to be similar in experience to a slot machine: superior items are shown to the user, but rarely given. The implementation thus also has elements of gambling. There is moreover a ranking of players who have opened most boxes on a given day. This ranking can be regarded as another horizontal gameplay dimension, where the ranking provides the competitive context that encourages players to keep buying the keys.

5.7 Alterations to Existing Content

One way of addressing the long-term attractiveness of an MMO and the items sold inside it is to introduce regular updates and to add new, meaningful content. At the same time, the new content devalues the existing content and items, hence making the new content and items more desirable to obtain. Updates are also used to fine-tune game rules to keep the game and its internal economy in balance.

The underlying design and rules are not perceived as intentional alterations to the service and can be more easily incorporated to the game lore, thus supporting user acceptance. On the other hand frequent upgrades are necessary to address promotional needs and in-game balance issues. Therefore, the operator might actively seek to adjust rules, items and environment, or arrange events to promote new or seasonal items. For this reason, it is important to design the initial mechanics and platform carefully and flexibly to facilitate further updates.

In traditional marketing, it may be difficult to modify tangible elements of a product after a customer has already purchased it. Virtual world operators have this possibility to some degree, but it is limited by user acceptance. This is especially the case with items that have been bought with real money, even if the modifications are necessary to balance gameplay.

Modifications do not have to be directed towards the items themselves to achieve the same effect. An item's functional effectiveness is a function of its potency as well as the game environment and its rules. By modifying the environment and the rules, the effectiveness of certain items or item types can be affected without touching the items themselves. However, despite the fact that operators have considerable power to make such adjustments, this power should be used cautiously. Modifying the specifications of a product that has already been sold simply for the reason of promoting additional sales may be ethically questionable if not illegal.

Alterations to existing content are commonly introduced through patches and upgrades, frequently rolled out by the developer. Upgrades or expansion commonly expand the gameplay by introducing new gameplay dimensions as well as building on top of the existing ones. In terms of the view introduced in Figure 3, upgrades are commonly implemented to add additional segment blocks vertically and horizontally, providing new contexts for differentiated goods to be sold.

6 SUMMARY OF RESULTS

The patterns identified in sections 4 and 5, above, can be divided into two categories. The first category consists of mechanics that in marketing terms create segmentation of users and enable differentiation of virtual goods; in other words, game mechanics that divide service content into differentiated contexts along vertical and horizontal lines, and in the process create a need for corresponding virtual goods. These mechanics are summarised in Table 3.

Table 3: Segmentation-related game mechanics that promote virtual goods purchases

Design pattern	In marketing terms	Towards	Aims to
Stratified content	Segmentation, differentiation	Rules, environment	Create segmentation, enable differentiation and generate incentives for repeated purchases
Status restricted items	Differentiation, planned obsolescence	Items	Enforce segmentation and generate incentives for repeated purchases
Increasingly challenging content	Segmentation, differentiation, planned obsolescence	Rules, environment	Enforce segmentation and generate incentives for repeated purchases
Multidimensional gameplay	Segmentation, differentiation	Gameplay	Create segmentation and enable differentiation and create differentiated additional settings for virtual goods
Avatar types	Segmentation, differentiation	Avatar	Create segmentation and enable differentiation

The second category includes mechanics that are used to create demand for virtual goods and encourage repeated purchases. Inconvenient user interface elements and similar gameplay factors have also been used as means to create need for complementary and value-added services that augment the core product. Special occasions related to real-world culture as well as to virtual world -specific contexts have been used in the seasonal promotion of virtual goods. These mechanics are summarised in Table 4.

Table 4: Other game mechanics that promote virtual goods purchases

Design	In marketing terms	Towards	Aims to
Item degradation	Planned obsolescence	Items, rules, environment	Create incentives for repeated purchases
Inconvenient gameplay elements	Core product -> Augmented product	User interface, gameplay	Create settings for additional virtual goods and services
Currency as medium	Psychological pricing	-	Create incentives for (repeated) purchases
Inventory mechanics	-	Items, avatar	Create incentives for repeated purchases
Special occasions	Promotional	Environment, items	Benefit from cultural patterns that encourage buying behaviour and create settings for additional virtual goods
Artificial scarcity	Exclusiveness	Items, environment, rules	Make selected virtual goods more desirable
Alterations to existing content	-	Environment, items, rules, gameplay	Create new settings for virtual goods to have value

7 CONCLUSIONS AND DISCUSSION

In this paper, we considered the question of what leads consumers to purchase virtual goods. Most previous studies adopt the individual user as their unit of analysis, focusing on motivations and decision processes that lead to virtual good purchases. We adopted a complementary approach, focusing on how the rules and mechanics developers build into MMOs encourage virtual good purchases. The theoretical perspective was based on marketing: viewing game design as one aspect in a company's marketing process aiming to create demand for virtual goods. We focused on performance-oriented gameplay elements in MMO games, as their gameplay conventions are quite established. Our objective was, firstly, to identify game design patterns that create and sustain demand for virtual goods, and secondly, to associate and compare them with analogous marketing concepts to obtain new insights about both game design and marketing. The identified patterns are summarised in the previous section. In this section, we discuss their implications for managers and policy makers, and consider potential directions for future research.

7.1 Game design as part of business planning

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 unrecognised role in planning the marketing of virtual goods. 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. This uniquely wide and flexible position the company occupies in the life cycle of the products requires a wide approach to marketing.

Even though virtual world operators have been forerunners in coordinating the efforts of game design and marketing, there still seems to be way to go before game design is harmonised 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. If an operator was to change their revenue generation logic, it would also require drastic changes to the service itself. For example, *Chronicles of Spellborn*, operated by Acclaim Games, had to undergo a costly re-development due to a change of revenue model from subscription to free-to-play. 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. As a first step, this could entail theoretical work that combines game mechanics with business model literature.

From a policy perspective, the findings of this study can be problematic. One cornerstone of media regulation in many countries is the conceptual distinction between content and advertising (although in film and television, this distinction has recently been challenged by product placement and multi-channel concepts). This study suggests that in games and online services that utilise the virtual good sales revenue model, it may be conceptually impossible to distinguish between "innocent" game

mechanics and content that has a marketing purpose. Some other rule than the separation of "content" and "advertising" may thus be necessary if commercial online services are to be regulated in the future.

7.2 Marketing as game design

An important conclusion that can be drawn from the results is that it is possible to see many traditional marketing techniques as the equivalent of game design patterns. From this perspective, the task of planning a marketing strategy for a traditional product or service could be approached as a task of creating a game design: a structure of choices, restrictions and incentives that engage the player-consumer in an interactive relationship with the product or service. Marketers already use terms and devices reminiscent of game design: progressions, levels, prizes, collectibles, memberships and points, among others. As game design patterns, these devices are not very advanced, however. Some problems with these real-life "marketing games" are arguably the following: the game is too simplistic, the game fails to engage for more than a short period of time, the game is too easy to provide excitement or too difficult to be rewarding, or the marketer's commercial motive is blatantly obvious, preventing immersion in the game.

Our suggestion to marketing managers is, therefore, to approach the marketing task as a serious game design challenge: to hire professional game designers, to consult the large body of literature on game design, and to strive to create engaging games around their products and services. The whole customer relationship, from acquisition through retention to monetisation, could be modelled as an interactive game. This approach would be especially suited for businesses where customer interaction is mostly computer-mediated (including automatic telephone services) and the variety of possible interactions is restricted. On the other hand, businesses with face-to-face interactions and a complex variety of possible interactions could perhaps apply game design on a suitably abstract layer, and also make use of techniques and patterns in so-called *pervasive gaming*: games that are layered into everyday life as opposed to being played on a distinct device at a distinct time (Montola & Stenros 2009).

One challenge in implementing advanced game design patterns in more traditional forms of business is the obvious lack of "gameness" in such services. Complex rules and achievements might be difficult to articulate in marketing communications without an explicit agreement that there is a game in progress. One potential direction for further research could thus be to examine ways in which marketers could build game mechanics into marketing strategies in contexts where there is no explicit agreement that a "game" is being played; in other words, research on "business game design".

7.3 Patterns of persuasion

Finally, one more possible link for the patterns identified in this study is so-called *captology* or *persuasive technology*: the notion of using technology to persuade people to change their behavior towards some desired goal (Fogg 2003). These patterns can be seen as one branch or subset of persuasive techniques that could be applied in a variety of areas. Applications for persuasive technology are diverse, ranging from promoting environmentally friendly behavior (Nakajima et al. 2008) to motivating exercise (Toscos et al. 2006) or house cleaning (Strengers 2008). Selling products or services could be seen as one application area, linking game design, persuasive technology and marketing.

Malaby (2007) suggests that if we look at games as domains of artificial outcomes, of "contrived contingency", we find that society is full of games: ones associated with business risk, others associated with political risk, and still others that relate to cool consumption styles, popularity and friends. Increasingly, the distinction between computer games and these other "games" in the society is blurring, with MMOs and SNSs blazing the trail. It should perhaps not be surprising, then, that we can find similarity in the rules and structures of these domains, even if the study of those rules takes different names, such as marketing and game design. A promising direction of research, pioneered in this study, is to take what we have learned in one domain and adapt it to others.

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