Gamification Patterns in Selected E-Commerce Platforms

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Abstract— **Gamification and E-commerce are often combined nowadays to achieve flourishing businesses and engaging experiences for customers. Ascertaining how businesses gain deeper engagement in services and products they offer remains a viable research area.**

The complex and varied nature of E-commerce businesses makes it unnecessary to search for a one-size-fits-all solution in gamification as a wide variety of E-commerce functions can be gamified. By focusing on three E-commerce applications: shopping and browsing in webshops, product/brand experience and rating systems; this study presents a review of applied gamification in E-commerce. For each of the selected E-commerce domains, a description of the gamified E-commerce functionality is given, a detailed analysis of an existing system is offered and a list of further examples that also used gamification for the same functions is presented.

This study shows which different common E-commerce elements can be gamified and in which contexts the gamification is best applied.

Index Terms— **Gamification, E-commerce, E-commerce functionality, webshops, ratings systems, product/brand experience.**

I. INTRODUCTION

Gamification teacher Kevin Werbach wrote about gamification in the E-commerce context: "Your players aren't there to escape from your product into a fantasy world; they are there to engage more deeply with your product or business or objective." (Werbach, 2012) But how do businesses gain that deeper engagement with the services and products they offer? It has been observed before that E-commerce is a complex and varied field. Some # websites offer webshops and the amount of products offered can range from one special article to thousands of products from all kinds of categories. Some E-commerce providers offer their services like streaming of online content or file hosting – only online and don't sell tangible products at all. And in some big companies which operate on many levels, the E-commerce

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department is just one amongst many. And there are still many other imaginable variations of E-commerce businesses. This alone shows that there is a wide variety of functions that can be gamified, so it doesn't make much sense to search for a "one-size-fits-all" solution in gamification.

Application of gamification theories to e -commerce has being shown to help in building flourishing businesses and in developing engaging experiences for customers. It has been observed that E-commerce is a complex and varied field. Some E-commerce websites offer webshops and the amount of products offered can range from one special article to thousands of products from all kinds of categories. Some E-commerce providers offer their services like streaming of online content or file hosting only online and don't sell tangible products at all. And in some big companies which operate on many levels, the E-commerce department is just one amongst many. And there are still many other imaginable variations of E-commerce businesses. This alone shows that there is a wide variety of functions that can be gamified – so it doesn't make much sense to search for a "one-size-fits-all" solution in gamification.

Ascertaining how businesses gain deeper engagement in services and products they offer remains a viable research area. By focusing on three E-commerce applications: shopping and browsing in webshops, product/brand experience and rating systems, this study presents a review of applied gamification in E-commerce. For each of the selected E-commerce domains, a description of the gamified E-commerce functionality is given, a detailed analysis of an existing system is offered and a list of further examples that also used gamification for the same functions is presented.

II. METHODOLOGY

In an attempt to give a delineation of gamification patterns in E-commerce, a descriptive textual analysis of relevant literature was carried out. The reviewed research works were analysed for convergence, and relevant details were extracted, using inductive approach.

A catalogue of patterns are postulated in other to examine which important parts of the E-commerce world can possibly be gamified and what has to be considered in the specific cases. These patterns serve to enable businesses in E-commerce to understand which aspects of their services they could potentially enhance through gamification in an effective manner – and which not. In order to make the patterns comparable to each other, every aspect was examined after the same, following approach:

1. Description of the Pattern: describes the E-commerce

functionality that can be gamified. What use does it have to gamify this specific area, what are possible side-effects? Which conditions must be fulfilled so that this can be used in an effective way?

2. Example Analysis: detailed analysis of an existing system that used gamification for exactly that kind of functionality. The following criteria are being checked:

(a) Business Aspect: contains a brief description of the system: what has been gamified? What has been the goal or business objective behind it?

(b) Implementation and Components: what are the most important mechanics, dynamics and aesthetics that have been used? How and why did they work in this case?

(c) User Engagement: on which spectrum did the interaction address the different player types according to the framework by Amy Jo Kim. How is it offering intrinsic and extrinsic motivators to users?

(d) Evaluation: did the gamification succeed and have some positive impact (if numbers are available)? What did gamification help to expand: participation, sharing on social platforms, view etc.? Also: what weaknesses does the system have?

3. List of further Examples: a short collection of other examples that also used gamification for the same functions. Breakdown of the mechanics used by other businesses, are they quite the same or different?

III. GAMIFICATION OF SHOPPING AND BROWSING IN WEBSHOPS

A. Description of the pattern

This type of gamification takes place when the browsing experience itself is gamified in a webshop. It is used to add a playful touch to the exploration of the offered products. Mihaly (2009) criticized that websites often expect that the users already know what to choose and that this is a wrong assumption. Instead he stated that "people enter web sites hoping to be led somewhere, hoping for a payoff." Gamifying the way the products are presented and recommended to customers can change that. For example, it can help to introduce the kind of serendipity that many real shops offer to the online shopping experience.

Depending on how the mechanics and dynamics are implemented and how much focus is laid on them, they might just add a little playful attitude or lead to a nearly game like experience.

Falling into this pattern are all kinds of websites that use game mechanics to lead the user through their assortment. Generally the approach of gamifying the browsing experience lends itself to businesses that have a wide range of different products and that want to help the user to explore those in a fun way.

I. Sneakpeeq.com

1. Business Aspect

Sneakpeeq.com is an online retailer that mostly sells apparel, accessories, housewares and gourmet food from various brands. Since there are many webshops today with similar products, sneakpeeq makes use of several gamification elements in order to engage the users. The current shop

system has been gamified together with Badgeville (a gamification service provider). According to Badgeville (2012), sneakpeeq tried to find a way to create long term engagement and win loyal customers. Also pulling in more traffic from users on Facebook was one of the goals. Game mechanics now support and reward certain customer behaviours on the website and turn browsing for articles into a playful experience. The shop is split up into the categories Beauty, Style, Living and Gifts. Each section contains collections of different brands, where those can display their current products.

While in most webshops products are displayed with the price right next to them, sneakpeeq shows only the retail price. To get to the "real" price of the item there, the customer has to "peeq" by clicking on a button labelled "peeq for your price". The price is then uncovered and is either the same as the retail price or reduced (in this case the amount of savings as displayed in Fig 1.).

Figure 1: Before and after peeqing

Other core actions users can perform are "loving", "sharing" or "buying" products. Loved articles are added to the users profile page and help the shop system to gain data for recommendations. Shared products are published on the users Facebook profile.

According to the sneakpeeq, the offered collections from the different brands are usually available for only a short period of time, so the assortment of goods always changes.

2. Implementation and Components

A novice user has only 40 "peeqs" per day - after that he is unable to flip over more price tags. The "peeq" mechanic combined with their limited amount results in a dynamic way that is often found in games: "Limited Resources". On one hand this limits the number of products one customer can check and so buy in one day – on the other hand it introduces several benefits:

· Provokes Curiosity: the user wants to know what is under other covers he could not turn over, so he is inclined to come back

· Adds Value to "peeqs": by limiting the number of peeqs they become more valuable. Users will not check every article, but only those they are really interested in. This means, they have to choose what is important to them and spend more time thinking about the articles

· Gives a chance to introduce unlockable content (New customers have only a small amount of daily "peeqs", those who come back regularly get more. That gives them a sense of growth and progress in the system).

i. Content Unlocking

Prizes next to articles cannot be seen right away, they have to be unlocked through "peeqing". The price can be a bit or far below the original price. In addition, "peeqing" may unlock surprise badges. This introduces anticipation and surprise – according to behaviourist principles those are very strong emotions that can be compelling. (As mentioned in chapter two, reducing the chance for a reward from 100% to between 25% and 50% can raise anticipation and thus lead to a stronger dopamine release). The "fans only" mechanic supports these aesthetics, too. In some collections are articles that are hidden behind tiles displaying "Only fans can see that". If the user wants to see those items, he first has to become a fan of the brand on Facebook. This gives the users a feeling of exclusiveness and motivates sharing.

ii. Badges

Badges are a very common mechanic used in gamification – sneakpeeq offers three different types of badges:

· Discount Badges – have gifts attached to them and many of them expire after a while. The gifts can be discounts, additional peeqs, sneakpeeq credits or prizes. The expiry date introduces time pressure and might serve as a trigger that motivates undecided users to buy something. Also loss aversion behaviour that has been explained in the previous chapter is activated by that mechanic.

· Collectable Badges – are unlocked on different occasions, often as a surprise. They have no direct purpose but motivate users who love completing collections to spend more time on the site in order to gain more badges.

· Series Badges – are awarded for repeating certain actions (peeqing, sharing, inviting). They share the same basic motives, but the more badges of one type the user unlocks, the more beautiful or detailed the motives grow. For example "The Monarch" badges, as displayed in Fig 2, is awarded, when a user shared items he loved on Facebook (5 loved and shared items = level I, 25 = level II, 50 = level III, 100 = level IV etc.). Through this, even though they are badges, they also function as levels at the same time and so can deliver a feeling of progress.

Figure 2: Collage of different kinds of sneakpeeq badges

iii. Leaderboards

Each collection (respectively brand) has a leaderboard that can be found below the offered products. The leaderboards show the six most active users in that section. Points can be gained by peeqing, sharing and buying articles from that certain brand. Once the sale in the collection is over, the top 3 of the users win credits they can redeem in the sneakpeeq store. The fact that each collection has a leaderboard of its own is an interesting approach. Through that, there are a lot of leaderboards where a user can try to gain a place. This helps to reduce the risk, that only few very active members occupy one "main"-leaderboard permanently (which often happens on other sides) and instead gives new users a chance to enter anytime a new collection is presented.

Possibly demotivating effects arise from the rule, is that the winners are declared once sale is over – but there are no indicators when a sale is ending, so users have to stay active all the time in order not to lose their rank on the board as shown in Fig 3.
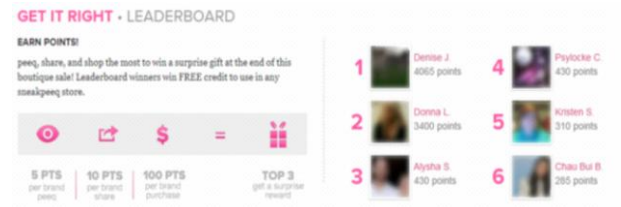

Figure 3: Screenshot of a leaderboard in the "Get it Right" collection

iv. Other mechanics and dynamics

· Feedback – The page offers a lot of instant and eye-catching feedback to the users. When new badges are unlocked or the user runs out of peeqs a big, centered pop-up appears and when a user is "peeqing" at a price tag it flips over. Overall this helps to stay engaged and reflects the user the impact of his behaviour.

· Scarcity – Prominent hints show up when only few of one product is left, which builds a certain pressure to act on yet undecided users.

· Time Limits – Collections are only available for a certain period of time, which brings people back on a regular basis.

v. User Engagement

The core aesthetics that are transported through the applied mechanics and dynamics are discovery, anticipation and surprise as well as possibility and luck. Sensation can be mentioned, too, since the visuals and the visually appealing and prominent display of the articles with big pictures play an important part in the design of the page. Expression can also be found, since the articles a user "loved" are displayed as a little gallery in his profile and reflect her or his taste. Possibility and luck play a role, too.

Most key engagement verbs come from the "Explore" sector: explore, collect, rate, view (peeqs) and review. Less marked are the other three sectors, but still all of them are covered to a certain amount: Through the leaderboards compete, win and compare are introduced. The strong connection to Facebook introduces collaborative actions like comment, like and share. And purchase, choose and express (through badges and the "likes"-collection) can be found, too.

Extrinsic motivators are found in digital (badges) as well as tangible form (possible prizes and cash value that can be won through leaderboard and special events). However, relatedness, autonomy and competence or mastery, the key preconditions for intrinsic motivation fall rather short on this platform. Mastery plays a minimal role. The system tries to deliver a sense of "progress" through the Series Badges, but

fails to evoke a real feeling of competence, since there is no real challenge involved.

vi. **Evaluation**

According to a case study (Badgeville, 2012) the additions have had a very positive impact for the website. They say since 2011 it helped to raise engagement and delivered a 70% month over-month lift in "peeqs" and an overall lift of 935% in "loves". The social "shares" on Facebook have been raised nearly six times, compared to the old design. Also they mention a much better conversion rate that increased by roughly 18% each month and led to a total 3000% lift in buy clicks. So it is clear that the use of game mechanics noticeably improved the experience on the platform.

However there are obvious weaknesses in the design of sneakpeeq. The mechanics and dynamics can only work efficiently, if new items are added on a regular basis. Some feedback on Facebook and Twitter suggests that the page does not add new products that often. For example Fig 4 is taken from sneakpeeq's Facebook-page and demonstrate quite clearly that the customer is bored and frustrated:

Figure 4: Screenshot – Comment of an unhappy customer on sneakpeeq's Facebook-page

This demonstrates well that mechanics and dynamics should only be utilised if it can be guaranteed that basic conditions, which need to be fulfilled to make them work, can be met.

Also that there are no strong mechanics that open the path to intrinsic motivation, as described before, can be critical. Even though the turning of the price tags can be engaging and entertaining, this must be questioned, if this is enough to create sustainable brand loyalty.

II. Further Examples

Another page that follows the example and gamifies its browsing experience is the homepage www.thefancy.com. It focuses more on community, recommendations and liking. Users can make collections of the things they like, display their collections, follow other collections and thus browse to the offered items. It is inspired by social image sharing platforms like tumbler or pinterest, but they also sell a big part of the things people can fancy. They also use badges in their system to reward certain user behaviours.

1. Gamification of Product or Brand Experience

There are many platforms provided by brands that serve the purpose of strengthening brand loyalty and advertising new products to the users. While some other patterns (such as gamification of browsing experience or payment) are not yet very common today, the combination of gamification and product and brand engagement can be observed quite often. Many businesses today turn to game mechanics in order to create engagement loops which help to keep the customers connected to them.

The pattern is applied when not the shopping process is in the centre of attention but the interaction with the brand. The goal is not only to sell products, but to raise the brand awareness and affinity of the users.

Gamification in this field is found quite often because it provides more liberty than some other areas. In browsing and payment gamification for example – no matter how appealing the mechanics are – the goal is still to generate revenue from the customer. That makes them delicate to design since people can easily feel manipulated if the design is too pushy. Gamification in the brand experience context is more about making the customer feel as happy as possible or offering him an exciting experience – with the intent that the customer then attributes those positive feelings to the brand.

It can be exceedingly powerful if the brand knows their target group well and manages to connect their business values with the ideals of the customers in a meaningful way. A danger of gamification and games in the context is that some companies fail to integrate their brand in a memorable way even if the gamification is successful. Then it might happen that users remember the fun experience they had in the gamified system but not the exact brand. That's why it is important to create a link between the users' needs and the brand as a solution to them.

III. Nike+

1. Business Aspect

Nike+ is probably one of the best known cases of gamification in the E-commerce field. Nike's goal was to strengthen user loyalty as well as brand awareness and collect user data, gain insights and connect the brand with the experience of running, being sportive and active. In this use case, the interaction with the products and the brand was gamified. The first implementation of the system was a running sensor for shoes and that could be used in combination with the iPod. Over the last years the application has evolved and today it offers many ways to participate to all kinds of users: People who love Nike products can buy special tracking devices like the Nike Fuelband or Nike+ SportBands. Those who want to save money can simply download a free app to their mobile phone and participate in the system. This leads to a high accessibility and enables Nike to address a big crowd of customers. The main goal of the application is not to sell tracking devices, but to get many people excited about the app and brand. That way, they talk candidly about it on social media channels to their friends. This way Nike can attract new potential customers. Unlike the other examples, Nike+ is not a pure external gamification, it also is a behaviour-change gamification.

2. Implementation and Components

The system changed its design quite much since its introduction. Over time new features have been added and others have been removed again. In the following paragraph there will be a selection of the mechanics, dynamics and aesthetics the system has implemented over the course of its existence. Not all of the integrated game elements that have been in the system will be listed here since an in-depth analysis would exceed the scope of this paper. Instead some light will be shed on a selection of the most powerful and interesting aspects.

i. **Progress, Feedback and Mastery**

The Nike+ page offers each participant a massive collection of his or her personal data as shown in Fig 5. The user can see the total of the time, covered distance and burned calories he accumulated over his sessions. Also his average speed and

cardiac frequency. And the same kind of data and even more is also tracked for every single run – the user can also add how his mood was on that day and which kind of ground he was running on. The longest covered distance and the personal best time are very prominently displayed and always motivate the user to beat his own best, run faster and wider. If he succeeds he gets positive feedback. For example, it plays voice recordings of famous athletes which congratulate the user if he managed to beat his personal record. Or the user is encouraged to post his success in social networks so his friends can praise his achievements. The players also get praised, when they reach milestones (such as reaching a total of 250 kilometres). And in addition to that, users can define their own goals.
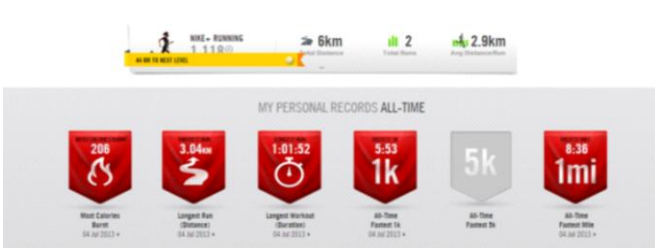

Figure 5: Screenshot-excerpt with statistics from current Nike+

All this adds up to a system that offers space for personal progress for different kinds of users. Other mechanics, that support the feeling of progress are levels and badges. All these mechanics and dynamics have always made up the core experience of the system and are still active today

ii. Competition and Cooperation

Nike+ offers several mechanics that allow users to compete on different levels. When a user has friends on Nike+ he can compare himself to them on leaderboards or challenge them otherwise – taking into account different metrics. Training on Top Routes, the most popular running routes in an area, is also a way to compete. Everyone can search for nearby Nike+ Top Routes. Those come with two kinds of leaderboards: One called "Local Legend" (Most runs on a Top Route) and one called "Speed Demon" (Fastest pace on a Top Route). So even if a player doesn't have a lot of contacts on the platform she can find ways to participate in competitions with other users. Competing is one way to participate – but since it is voluntary and does not force the user to compete against others, it helps every user to find their own source of motivation. The game can also be played very cooperatively by searching for challenges that one wants to tackle together with a group of friends or family members. This ensures that many different player types can find their own way to enjoy the platformas shown in Fig 6.

Figure 6: Screenshot – Top Route in Stuttgart (Example)

iii. Secret Power

This mechanic is interesting because it demonstrates how metaphors from games can be translated into a real world context in an effective manner. When Nike+ is used in combination with an iPod or a mobile phone and the user listens to music while running he can define a "power song" before his training. Whenever he starts to get tired he can activate the song to gain a motivational boost. While games often take mechanics that are easy to implement like points, badges and leaderboards this example shows, how translating other mechanics can help to create a unique experience. Game designer Jane McGonigal stated that this was one of her favourite features and writes, that activating the power song feels like she is unlocking some secret super running power that she did not even know she had: "The faster pace, the pounding beat, the lyrics ringing in my ears like a personal mantra it's the one time in the real world I feel like I have the ability to summon the kind of magical powers that I'm used to deploying in virtual worlds." Not all users might feel as strongly about it, but it is an interesting feature that makes the system special.

iv. Nike Mini – Avatars

A feature that is not used anymore, but has been popular for a long time in the Nike+ world, are the so called "Mini"'s. They were little, animated, digital avatars which players could customize and then install as widgets on Facebook, homepages and their PC. Depending on the players activity the Minis gave feedback as shown in Fig 7:
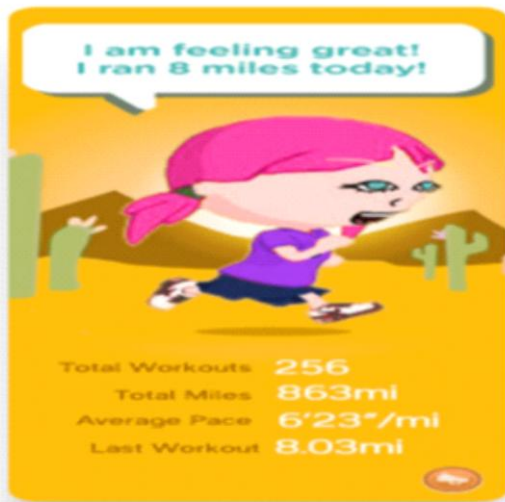
Figure 7: Old widget with Mini

After a completed sessions they would dance or jump around happily after a long time of player inactivity they would start to look sad or bored and even tease their owners with trash talk(McGonigal, 2011). Introducing customizable characters can have different side effects:

· If a user configures an avatar to have similarity to him (based on looks, personality traits or attitudes) that can make him identify with the figure (McGonigal, 2011). According to a study [FB09], watching a look-alike avatar perform a task has a positive effect on a player's motivation to perform well at the same activity. This so called ambient avatar feedback is a powerful tool for a behaviour change application like Nike+.

· Since the Mini's well-being depends on the users' actions, some feel an emotional connection or even responsibility towards their Mini. Social players who enjoy nurturing can be reached that way. This mechanic might motivate them to go for a run to make their Mini appear more "happy". According to McGonigal, this happens in a lot of games – especially those focusing on tending and caretaking.(McGonigal, 2011) Including avatars helps to include players who don't want to upload profile pictures but still want to show a part of their personality. If a platform chooses to use avatars instead of user pictures this can help to give the impression that all users are more or less equal. This can strengthen the sense of community and maybe even helps to lessen the potential for social envy

v. **User Engagement**

The Nike+ system is very complex and includes a lot of features which allow to address a lot of different player types effectively. Challenge is the one of the most important aspects. Depending on the way the user chooses to play further core aesthetics can either be fellowship or competition, accompanied by feelings such as anticipation, possibility, and surprise. Other than most other examples that are analysed in that chapter, the Nike+ system is closely connected to personal development and mastery. So it enables users to link their experience with an emotion that is very powerful but very hard to implement: fiero. The term is

used by game designers and brain scientists in order to describe an emotional high that is reached through triumph over adversity (McGonigal, 2011). When a runner overcomes an obstacle that has been very challenging for her, she experiences fiero: It is a strong feeling that lingers on and creates a positive memory.

It can also be seen that the whole Nike+ system covers a huge range of key engagement verbs:

· express, choose and create (through challenges and goals) as well as design, customize (through avatars) _ compete, compare and challenge (through several mechanics, can relate both to others or self) and win, show-off and taunt (through competitive play)

· explore and collect (badges), review (tracked statistics and mood) and rate(for example the mood and other influential factors of the track)

· collaborate and share (team challenges, comment, like, share (through social media connection) and also help and give (one can cheer on ones friends while they run)

These analyses already show that the system operates on many levels of engagement and motivation. External motivators, such as badges and titles are part of the system. But the system puts an even stronger emphasis on intrinsic motivators: Personal growth, helping the user to get better, fitter and healthier is a core element of the system. This makes the users feel empowered and lets them experience mastery and competence. The complex system and adjustable goals offer autonomy and the good integration of Twitter and Facebook, together with the huge internal community of athletes lead to an experience that results in relatedness. The sense of community is integrated in the user's dashboard and displays how many miles were run, calories burnt and steps taken by all users of the community together. So the platform offers ways to meet all three basic needs of the SDT and thus is a great example of engaging and fulfilling E-commerce gamification.

vi. **Evaluation**

Since the system, in form of iPod and Sensor Kit, has been released in 2006 it underwent a lot of changes and grew constantly. So a direct comparison from "before Nike+" to today is hard to draw. But now in 2013 Nike is one of the largest suppliers of athletic shoes and other gear – and part of this success can be contributed to their clever online marketing and their gamification approaches. In 2012 the Fortune magazine wrote an article about the success story of the Nike marketing campaigns and stated that "the Nike+ platform creates an intimate conversation and a laboratory that lets the company study its customers' behaviours and patterns. The company won't offer financial details about Nike+, but analysts say the 55% growth in membership last year was important in driving sales in its running division up 30%, to $2.8 billion." (Cendrowski, 2012) The well-designed mechanics and the smart idea to connect the flow-inducing activity of running with their brand helped Nike+ to attain great popularity. Instead of focusing on their products and trying to persuade the users to buy them, they examined what the users want (self-improvement) and tried to connect those means with their brand. Their application engages users by

trying to tap into their enthusiasm for running and by supporting them to reach their own goals – while gaining profit at the same time. And it can be seen that this works quite well

IV. **Further Examples**

Another examples of Brand Experience Gamification is Samsung Nation6. It describes itself as a "social loyalty program where you earn badges, move up the ranks and have fun discovering everything Samsung.com has to offer". Basically it is a platform where users can discuss and discover Samsung products. It relies strongly on Points, Badges and Leaderboards.

This study has presented three case studies of applied gamification in E-commerce platforms. Our review showed that Gamification of shopping and browsing experience in web shops is especially suitable for shops that have many products to offer. Furthermore it is a good tool for a business which desires to introduce novelty or playfulness so it can stand out from its competitors. It is achieved by creating an alternative, playful way to explore the products that are being offered.

Gamification of product or brand experience is best applied when a brand seeks to increase awareness of itself or a special product among customers. It is a good solution when a company wants to raise their popularity in social media channels or bind fans more strongly to their platform. To use this pattern in an efficient manner, the company needs to create an engaging system that links what the company has to offer to the interests and needs of the customers.

Gamification of rating systems serves as a good tool whenever ratings, reviews or recommendations are a vital part of the system. It is implemented by enhancing rating systems with game mechanics and dynamics to make them more attractive and motivating to use.

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