# Meta-synthesis of player typologies

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## ABSTRACT
This paper investigates different ways in which players have been categorized in game research literature in order to distinguish relevant customer segments for designing and marketing of game's value offerings. This paper adopts segmentation and marketing theory as its bases of analysis. The goal is to synthesize the results of various studies and to find the prevailing concepts, combine them, and draw implications to further studies and segmentation of the player base.

The research process for this study proceeded from large literature search, to author-centric (Webster & Watson 2002) identification and categorization of previous works based on the established factors of segmentation (demographic, psychographic, and behavioral variables) in marketing theory. The previous works on player typologies were further analyzed using concept-centric approach and synthesized according to common and repeating factors in the previous studies.

The results indicate that player typologies in previous literature can be synthesized into seven key dimensions: Skill, Achievement, Exploration, Sociability, Killer, Immersion and In-game demographics. The paper highlights for further studies the self-fulfilling and self-validating nature of the current player typologies because their relatively high use in game design practices as well as discusses the role of game design in segmentation of players.

## Keywords
game design, marketing, player typology, segmentation

## INTRODUCTION
Recent developments in game business practices have especially elevated the need for distinguishing between types of players and play styles. For example, the new business models related to selling virtual goods has multiplied the amount of sold products within one game product or service as opposed to retail sale of games. With the new business models game publishers subject the entire game and game design with its different value

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offerings to more accurate scrutiny in terms of marketing. Today, virtual items in games are no longer designed only to be an integral part of the finely tuned game balance, but the designers also have to think who would potentially be the customer for the virtual goods in question. These increasingly relevant questions that linger in the cross-roads of game design and marketing call for the use of marketing practices of segmentation and differentiation as a part of game design (Hamari & Lehdonvirta 2010; Hamari & Järvinen 2011).

This study proceeds to investigate how the existing player typologies could be used as a basis for player segmentation. The paper adopts marketing as its theoretical lens. The paper proceeds as follows: In the next section, we derive the theoretical underpinnings and the perspective of the paper to the player typologies from marketing literature related to segmentation. In the third section we outline the research process. Fourth chapter discusses and combines previous literature on player typologies together as well as connects them to the background of segmentation theory. The final section of the paper presents the conclusions of the paper and proposes future avenues for research in player typologies and segmentation.

## SEGMENTATION PERSPECTIVE

Segmentation is a very fundamental concept in marketing theory and literature, which has also always been a central part of marketing practices, although not so far developed conceptually. In marketing theory, segmentation (and differentiation) can be traced back to beginning of 1900. Shaw (1912) described differentiation as meeting [identified/segmented] human needs as accurately as possible in such a way that it builds up demand in the targeted customer segments. In practice this implied that products were designed with certain end-users in mind, as opposed to mass marketing, where no aspects of the offering (e.g. the product itself or for example advertising) were differentiated towards a specific target group. Segmentation is the activity that aims to identify these customer groups (Kotler & Keller 2006). The goal of segmentation is to better serve customers by being able to offer products that better match their needs and wants, and also to do this as cost-effectively as possible.

Later marketing literature has attempted to more accurately reach different modes of segmenting customers. The goal of segmentation is to identify groups of people that are as homogenous as possible, but that differ from each other in a significant way. In marketing literature, the following four overarching categories of segmentation have acquired an established standing:

In **geographic** segmentation people are divided into groups based on their place of residence, for example country, county, city or so on. Considering the gaming context this could mean that gaming cultures differ between countries and continents.

In **demographic** segmentation consumers are categorized according to many descriptive features, such as age, gender, education, occupation or social status. These could be for example young male students or married middle aged women.

**Psychographic** segmentation is a more sophisticated approach, since it tries to group people according to their attitudes, interests, values and lifestyles. An example could be a social extrovert who enjoys meeting new people and likes surfing around the net.

Lastly there is **behavioral** segmentation which is an approach that tries to find patterns in consumers' behavior towards or with a product. Variables include benefits sought in a game, user status, and usage rate. A gamer might play every now and then to relax and take their mind off work.

## RESEARCH PROCESS

The present paper is a meta-analytical review of the previous works on player typologies and segmentation. Meta-synthesis as a research approach attempts to interpretatively integrate results from different inter-related studies (Walsh & Downe 2005). As such, the research process for the paper proceeded from literature search conducted in the most cited game studies journals and conference proceedings.

As a result of this literature search, the selected papers were analyzed based on an author-centric approach (Webster & Watson 2002) by connecting all the works to the main categories of segmentation in marketing theory (Kotler & Keller 2006) as well as to list the different types of player typologies found in those studies (Table 1).

The next step of the process moved to a concept-centric analysis, where the findings were pivoted and categorized based on the found player typologies (Table 2). This approach enabled us to analyze the qualitative differences of player typologies in game studies research.

## REVIEW OF PLAYER TYPOLOGIES

If we reflect the studies on player typologies to segmenting theory, we can immediately notice in game studies the geographic or demographic aspects have not been of interest in research on player typologies, although there has been some research which has broken some of the preconceptions about the "player prototype". For instance, Williams et al. (2009) found that female players actually played more EverQuest 2 than their male counterparts. Although there are increasingly more interesting research done on players, this paper will focus on papers that have attempted to conceptualize player typologies. The studies on player typologies and categorization seem to have solely focused on either the psychographic side or the behavioral side of segmentation. When it comes to game genres clearly some of them are better covered than others. From Table 1 we can see that MMOs and online games are the most frequent. This may be problematic for the generalizability of the results of this study.

| Author(s) | Year | Basis for categorization in the study | Presented player types | Games in the study |
|---|---|---|---|---|
| Leo Whang Lee | 2004 | Psychographic | Single-oriented player, Community-oriented player, Off-real world player | Lineage (MMO) |
| Tseng | 2010 | Psychographic | Aggressive gamer, Social gamer, Inactive gamer | Online games in general |
| Yee | 2006, 2007 | Psychographic | Achievement, Social, Immersion | EverQuest, Dark Age of Camelot, Ultima Online, and Star Wars Galaxies (MMOs) |
| Zackariasson et al. | 2010 | Psychographic | Progress & provocation, Power & domination, Helping & support, Friends & collaboration, Exploration & fantasy, Story & escapism | World of Warcraft (MMO) |
| Stewart | 2011 | Behavioral Psychographic | Guardian/Achiever, Rational/Explorer, Idealist/Socialiser, Artisan/Killer, Conqueror, Wanderer, Manager, Participant, Hardcore, Casual | The same ones as in the previous studies that it combines |
| Bartle | 1996 | Behavioral | Achiever, Explorer, Socialiser, Killer | MUDs |
| Drachen et al. | 2009 | Behavioral | Veteran, Solver, Pacifist, Runner | Tomb Raider: Underworld |
| Ip Jacobs | 2005 | Behavioral | Hardcore gamer, Casual gamer | Non exclusive |
| Kallio et al. | 2011 | Behavioral | Social mentalities, Casual mentalities, Committed mentalities | Non-exclusive |
| Hamari Lehdonvirta | 2010 | Behavioral | For example character levels and classes | EverQuest, Habbo, Puzzle Pirates, World of Warcraft… (Online games) |
| Jansz Tanis | 2007 | In-game demographic | Non-clan member, Amateur, (Semi-)professional | Counter Strike (Online game) |
| Williams et al. | 2006 | In-game demographic | Group centrality, Size of the guild, Type of server, Faction | World of Warcraft (MMO) |

**Table 1:** Studies on player types

Especially gamers' motivation and in-game behavior has been covered extensively. Psychographic and behavioral typologies are however oftentimes challenging to distinguish because they are really close to each other in terms of causal relationship. It could be argued convincingly that underlying psychological factors explicitly affect the way that we behave. Also, the use of some typologies has changed in time. For example, Bartle's (1996) types were originally interpretations of in-game behavioral patterns, but Yee (2002) took the types and used them as a basis for his motivation-based theory. Tseng (2010) did a psychographic analysis on gamer market, but one of his segments (Inactive gamers) encompasses the fact that many belonging to that segment are ex-gamers, which is actually a behavioral quality and not a psychological factor.

In the subsequent sections, we will review the papers. The review is divided into sections based on the perspective from which the players were categorized in the reviewed papers.

## Psychographic basis

### *Hardcore and Casual gamers*

A prominent way in previous literature and in popular discussion has been to divide user population into hardcore and casual players, although it also has been criticized (e.g. Bateman et al. 2011) as too simplistic. In the reviewed literature these two types are treated either as a segmentation in itself (Ip & Jacobs, 2005) or as a part of a more comprehensive and multifaceted player type model (Stewart, 2011). As opposed to casual players, what Ip & Jacobs call hardcore players are people who are more dedicated to gaming in almost every way, demonstrating for example deeper knowledge of the industry, playing longer sessions more often and spending time discussing on game-related forums. Hardcore players also want to differentiate themselves from the mainstream and modify the game they are playing.

This model, as is, is of course very simplistic and generalizing if we are looking for player types that are as homogenous and descriptive as possible. It raises a question that where can we draw a line, and whether we can divide all players of the world into casual and hardcore. As such it would be a fairly poor basis for market segmentation. However, in more general terms, people have a degree of willingness to participate, make effort, pay money and so forth for different things. Perhaps modeling hardcoreness and casualness as a continuum would make some sense to this simple notion instead of understanding it as a dichotomous division. However, as games are complex services, it might be difficult to infer whether some person is a hardcore player of some game or just a hardcore player of some part of the game, such as crafting in World of Warcraft.

Stewart's (2011) claim is that hardcore behavior implies a significant level of immersion in the game world. According to Stewart, hardcore players require their games to be intellectually challenging and provide interesting and compelling adventurous experiences. Stewart suggests their preferred games are adventure and puzzle games. This might sound a bit surprising, as in popular discussion being hard-core is commonly related to younger males (Selwyn 2007) who play action or strategy games, which Stewart regards as games that casual players would prefer. This sounds interesting in the sense that many of today's adventure and puzzle games are differentiated mainly to the female market, and most of the action FPS games are seen as being designed towards masculine pursuits. Within the focus of this paper it is not of importance what different authors regard as preferred games for each segment. However, these varying notions of the "hardcoreness" seem to imply that there are multiple different interpretations about its

meaning and that it remains as a central term in the popular literature and discussion (e.g. Juul's Casual Revolution 2009).

The problem with dividing players into just two segments is that it seems to be filled with excess simplifications and even implausible speculation, e.g. the suggested game types. The question of hardcore and casual gaming behavior doesn't seem to be black and white. Instead of being two clearly identifiable and explicit groups, there are those players – most if not all of the people in fact – who place somewhere in between the two extremes. So in the hardcore-casual analysis we're actually looking at a continuous scale instead of a typology. In Stewart's case the types are part of a more extensive model but still, how can the division between hardcore and casual players be based on immersion, and solely immersion, in the first place? And can't players be or not be just as immersed in a game of any genre? As also pointed out by other studies (e.g. Yee, 2007; Kallio et al. 2011), immersion is a part of a much more complex set of motivational factors that guide player behavior, which should be taken into account in order to fashion a much more robust segmentation of players.

## Behavioral basis

Behavioral segmentation is concerned with how player, users or customer behave with and within products and service. A study conducted by Drachen et al. (2009) looked at how a set of players completed the popular adventure game Tomb Raider: Underworld. They identified four different styles each with different playing patterns and solutions to specific problems and also a certain level of performance. By using game log information such as total number of deaths and completion time, the players were divided into the following four groups.

Veterans, as the name suggests, are the most seasoned players. They die fairly rarely and complete the game very quickly. Solvers take their time to solve the puzzles encountered during the play. Pacifists die mostly from enemies (as opposed to e.g. falling), and are fairly fast at completing the game. Runners are named according to their swift play-through of the game. Hamari & Lehdonvirta (2010) compared the status hierarchies, player progression and affordances in games related to different ways of playing and found that the way games are often structured resemble the way in which marketers also think about customers. Games and especially persistent online games are commonly structured through character leveling in multiple different progression metrics. This, the authors point out, is similar to how services and customer loyalty programs are structured in progressions in multitude of service dimensions and where different products can be differentiated to customers in each step of these progressions. Authors show that, in online games, virtual goods have also been targeted to certain players in certain stage of their progressions and style of play according to these aforementioned criteria.

This way the developers of the game could track, for example, the infamous hardcore/casual continuum by operationalizing the in-game behaviors to the already established structures built into the game, such as levels and achievements. While Hamari & Lehdonvirta (2010) do not explicitly propose a player typology they suggest methods and a framework for segmenting players via in-game behavior.

### *The four archetypes*

Bartle (1996) is one of the most referenced authors with respect to player types. His player typology is based on observations about player behavior in Multi-User Dungeons (MUDs). According to Bartle's player types, there are two dimensions to playing, namely

action vs. interaction and player-orientation vs. world-orientation. By determining one's position in each of the axes one could determine which of the resulting player types he fits in. First of the types is Achiever who prefers action and is world-oriented. An Explorer prefers interaction and is also world-oriented. Killers prefer action and are player-oriented. The last type is Socialiser who prefers interaction with other players. Figure 1 demonstrates these four types' relations to the player preferences and each other.

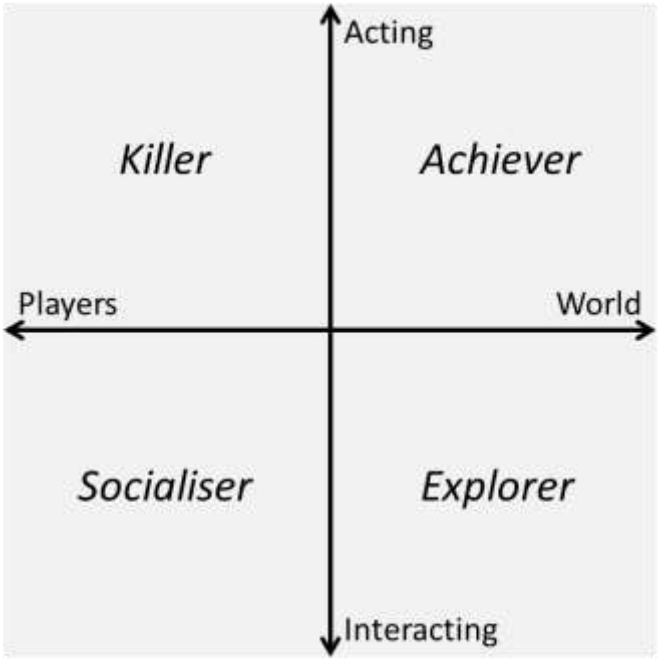


**Figure 1:** Bartle's player type axes

Bartle's player types have also received criticism for being too dichotomous and simplifying, although possibly a good tool for design purposes. The central criticism is based on the notion that people's behavior and motivations can change in time and based upon the context, and therefore it can be impossible to pin-point exactly to what category people belong to. There is no proof that the types wouldn't overlap in reality, or that they are certainly mutually exclusive player types (Yee, 2002 & 2007). However, in reality most the criticism has most probably been directed to how Bartle's player types have been used. While Bartle's types are commonly used as a clear-cut categories, the frameworks consists of scales instead of nominal categories and therefore, some of the criticism towards Bartle's types about being too strict are partly unwarranted. However, it would make sense to quantitatively test the validity of Bartle's player types with for example factor analysis. This would, however, not tell us whether Bartle's types are comprehensive enough in describing all the possible types.

Yee (2002, 2006, 2007) has carried out a line of empirical studies about player motivations using Bartle's types as one of the references to ground the initial work. He used factor analysis to validate five motivational factors in his first article (Yee, 2002). Putting emphasis on the later work we present only the latter results, which saw five initial factors transformed into three main factors, which altogether included ten sub-

factors. According to Yee (2007), the three factors that motivate (online) gamers are Achievement, Social aspects and Immersion.

Yee's Achievement and Social factors resemble Bartle's world-orientation and interacting axes, but are not still perfectly analogous. Some underlying facets (or sub-factors) that Yee found to be applicable to Achievement weren't the same as in Bartle's heuristics. For example, Yee (2002) did confirm that achieving game goals was part of the Achiever type, but that it also includes the wish to gain power in the game setting. Still, a will to beat the game was shown to be a motivating factor for gamers. Bartle didn't cover Immersion explicitly, but Yee found that immersing oneself to the game world is one major motivation for play.

These motivational factors are not exactly player types, like Bartle's, but they can be seen as a possible basis for psychographic segmentation based on motivations for play. The relationship between psychographic and behavioral factors is that the latter are partly a manifest because of the former and thus as no surprise the conceptualizations of both end up being very similar. If a person reports having a motivation for achievement, it is expected that studies that investigate the actual behavior, found connections to these motivations. Another interesting point about player typologies is that when game developers started to use them as tools in game design, the games gradually started having the exact same dimensions that are found that people like. For example, game designers have made sure that the game has the elements that resonate with every player type in Bartle's typology (based on discussion with several game designers).

Stewart (2011), in his conceptual piece, combined the Bartle's behavioral typology with the Keirsey temperaments (Guardian/Achiever, Rational/Explorer, Idealist/Socializer and Artisan/Killer) which also enabled him to draw combinatory player types out from the main types, which Keirsey typology permits. The author conceptually connects many inter-related and unrelated works to game studies and concludes that all of them seem to fit together and describe similar player type. The conclusion therefore was that all player behavior can already be explained by for example Keirsey temperaments.

Zachariasson's et al. (2010) study used Yee's motivational factors as a starting point in their two-phased method in their segmentation addressing MMOG players' buying behavior. They merged Yee's three motivational factors with identity construction to get closer to gamers' online personas. We consolidated the types a bit for the sake of practicality. The two sides, "I" and "me", both have their own preferences in their model. The types could be called Progress & provocation, Power & domination, Helping & support, Friends & collaboration, Exploration & fantasy, Story & escapism. The first two go under Yee's Achievement, second two are under Social, and so the latter two stem from the Immersion factor. Because the typology is based on Yee's model, the outcome is very similar to both Yee and Bartle including the concepts of achieving goals, being social while playing and immersing oneself in the game.

### *Other approaches*

There are also other approaches to explaining possible motivations behind gamers. Tseng (2010) approached the question with a two-fold model using two motivational factors, namely the need for exploration and the need for conquering. The need for exploration entails not only the obvious exploration, but also social and achievement orientations. Need for conquering then quite logically consists of attributes linked to Bartle's Killer kind of type, i.e. enjoying killing others and seeing their misery. The questions used in

the survey that Tseng did points pretty obviously to these four archetypes established earlier. After using factor analysis on his data Tseng divided players into three segments accordingly. Aggressive gamers scored highest on both factors. Social gamers score high on need for exploration but lowest on need for conquering. Inactive gamers score somewhere in-between, that is, lowest on first factor and in the middle on the latter factor. The naming of Social gamers segment is a bit curious because the exploration factor included other aspects of gameplay also. But in this case, "exploration" means also for example discovering new relationships, so the segment can be concluded to be inclined to social activities.

Based on their study on lifestyles that people lead in the online game Lineage, Leo Whang & Lee (2004) divided the population of an online game into single-oriented, community-oriented and "off-real world player". According to Leo & Whang, single-oriented players view any game as a single player game, and as a result prefer to act alone even in a game with rich social features. They do not want to be interfered with. Community-oriented players, on the contrary, represent the part of a player community which appreciates the social aspect of playing and embrace it with great enthusiasm. This group is similar to the type or motivation which is identified as "social" in many studies. The off-real world type of player aims to achieve personal gains in the game world by any means necessary and is very anti-social. This type of player is also discriminative in the game world, unlike the single-oriented player. Off-real world players also have a tendency to play a role instead of appearing as their real world self.

Off-real world players can then be equated to Yee's Immersion motivation, but also Bartle's Killer. Community-oriented is clearly the social type. Single oriented seems to match the Achiever kind of player.

Kallio et al. (2011) discard altogether the traditional type theories. Their goal was to fashion a gamer mentality heuristic which would be independent of any domain or genre. They suggest that the play style depends on so many variables, like company and time available, that placing gamers in rigid "boxes" doesn't work. The mentalities that they suggest are divided into three main categories each with three sub-categories. The first set of three is Social mentalities i.e. Playing with Children, Playing with Mates and Playing for Company. The second one is Casual mentalities i.e. Killing Time, Filling Gaps and Relaxing. The last one is called Committed mentalities and it consists of Gaming for Fun, Immersive Play and Gaming for Entertainment. Even though these are not sustained segments they can help understand the reasons why someone plays in some situation.

Committed mentalities can obviously imply commitment and at least some level of intensity in the play. Also, the aforementioned immersion that a lot of players look for is included. Kallio et al. don't talk about achieving, even though one might imagine it be part of committed playing. Social mentalities obviously correspond to the other social concepts covered earlier. Also notable is the fact that here sociability isn't tied to MMOGs. Even single-player games played one at a time can be social in nature. Casual mentalities correspond to the casual types, at least that of Ip & Jacobs'.

### In-game demographics

Game design and game mechanics are a fairly new and industry-specific way of looking at marketing. Not only do they give relevant data on the player, game designers as marketers can be for once proactive about segmentation and actually affect the way segments are formed within the game. This has been studied from the viewpoints of both

real-world products (Zackariasson et al. 2010) and digital items (Hamari & Lehdonvirta, 2010). Zackariasson suggests that marketers might have better luck targeting their products towards the avatars instead of players.

As mentioned in the previous section, Hamari & Lehdonvirta proposed a two-dimensional segmentation related to the game design. The vertical component would correspond to the progress of a character, such as advancing in levels could be accounted in part for being committed to the game i.e. gaming intensity, and in part for drive for progressing, which would be related to achievement as a motivation. As the horizontal component there are different avatar classes, generic examples being for example warrior and wizard, and professions, such as blacksmith and tailor, to pursue. This is in-game demographic segmenting. According to Hamari & Lehdonvirta differentiated digital products could be developed and marketed to match the needs of players of given dedication and orientation to the game.

Williams et al. (2006) studied the meaning and value of guilds in World of Warcraft. Authors don't offer a thorough player typology or suggest a way to segment players explicitly; they identified many game design related features that work as good indicators as to what player's preferences and orientations are. For example what they found was that players in specific role playing servers play the game in a completely different fashion than people who are less interested in posing as someone fictional. Role players are deeply immersed in the game world. Also, smaller guilds are usually more tightly knit together than larger ones, meaning that the members are more active, or more social if you will. Also, the type and size of the guild is related to one's ambitions of achieving end-game content, since only larger guilds have the resources to pursue such a challenge which requires a considerable group force. Jansz & Tanis (2007) were also interested in the social group dynamics in games. They studied gamers who play first-person shooter games online. They divided the players into Non-clan members, Amateurs and (Semi-)professionals.

### Typologies combined: a concept-centric summary

The findings and the different concepts discussed in the analysis section along with responding segments and other typologies are summarized and presented in Table 2. The "Concepts" are common ideas that recurred across several papers. The concepts were given names that reflect the common ideas discussed in the papers.

Most covered concepts in reviewed literature seem to be Achievement and Sociability. The bottom three concepts Killer, Immersion and In-game demographics appear the least. Especially In-game demographics could be found only in a few papers.

| Author / Year / Concept | Bartle 1996 | Leo Whang & Lee 2004 | Ip & Jacobs 2005 | Williams et al 2006. | Yee 2006; 2007 | Jansz & Tanis 2007 | Drachen et al. 2009 | Hamari & Lehdonvirta 2010 | Tseng 2010 | Zackariasson et al. 2010 | Kallio et al. 2011 | Stewart 2011 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Gaming intensity and skill** *(Hardcore, Committed mentalities, Aggressive gamer, Veteran, Casual, Casual mentalities, Inactive gamer, Pacifist, Avatar level,(Semi-)professional, Amateur)* | | | **X** | | | **X** | **X** | **X** | **X** | | **X** | |
| **Achievement** *(Achiever, Single-oriented player, Guardian/Achiever, Aggressive gamer, Achievement, Progress & provocation, Power & domination, Runner, Casual (Stewart), Avatar level, (Semi-)professional)* | **X** | **X** | | **X** | **X** | **X** | **X** | **X** | **X** | **X** | | **X** |
| **Exploration** *(Explorer, Solver, Rational/Explorer, Aggressive gamer, Social gamer, Immersion, Exploration & Fantasy, Story & escapism)* | **X** | | | | **X** | | **X** | | **X** | **X** | | **X** |
| **Sociability** *(Socialiser, Social mentalities, Community-oriented player, Idealist/Socialiser, Social, Helping & support, Friends & Collaboration, (Semi-)professional, Amateur)* | **X** | **X** | | **X** | **X** | **X** | | | **X** | **X** | **X** | **X** |
| **Killer** *(Killer, Artisan/Killer, Aggressive gamer, Off-real world oriented player, Progress & provocation, Power & domination, Casual (Stewart))* | **X** | **X** | | | | | | | **X** | **X** | | **X** |
| **Immersion** *(Immersion, Committed mentalities, Exploration & fantasy, Story & escapism, Off-real world oriented player, Hardcore (Stewart))* | | **X** | | **X** | **X** | | | | | **X** | **X** | **X** |
| **In-game demographics** *(Avatar class and profession, non-clan member, Amateur, (Semi-)professional, Group centrality, Size of the guild, Type of server, Faction)* | | | | X | | X | | X | | | | |

**Table 2:** Concept-centric listing of the player typologies in game research

## CONCLUSIONS

The field of study in player types is perhaps surprisingly uniform. Pretty much every segment discussed in the Analysis part could be fitted in one of the concepts listed in Table 2 without much effort. The qualitative segmenting concepts which are related to the type of gaming activities derived by synthesizing all the previous works on the subject were **Achievement**, **Exploration**, **Sociability**, **Killer**, **Immersion** and **In-game demographics**. Furthermore, in previous literature it has become accustomed to discuss player activities also from quantitative perspective which has most commonly manifested in the articulation between **hardcore** and **casual players**, differences in **skill** and **time-investments.**

Even though the research has focused largely on well-defined player types, there are also those who question this approach (e.g. Kallio et al. 2011, Dixon 2011). Dixon's conclusion, in line with this paper, was that in reality no one can be generally categorized into one specific group. Alternative theories are Kallio's et al. model based on playing mentalities and Bateman's et al. (2011) trait theory (as opposed to type theory).

Contrary to other works discussed in this paper, Hamari & Lehdonvirta, (2010) suggest that instead of solely relying on pre-established segmentation factors, game developers are in an exceptional position where they have freedom in crafting the structures of the game in a way at the same time forms character-based segments. This way the segmentation and differentiation activities have to be approached from two directions.

An interesting point about player typologies is that when game developers use them as tools in game design, the games gradually start having the exact same dimensions that are found that people like. For example, game designers have made sure that the game has the elements that resonate with every player type in Bartle's typology (based on discussion with several game designers). This creates a situation where gamer typologies are self-fulfilling and self-validating. In other words, designing a game for certain player types results in the same player types ending up being the dominant player types within the game as well. In the marketing point of view this is of course a desired implication, since the targeted players find the games intended for them, playing them the way designed and that pleases the players. So as marketing and design frameworks they might work, but not necessary as an explanation to more fundamental human characteristics.

After going through numerous papers concerning research about player types and possible segmentation variables and consolidating these results, some coherence can clearly be found. The results of this paper could help game companies better understand their clientele, and the results could be used as a starting point for a more thorough and "exact" segmentation. In addition, in relation to game design, designers now have in their knowledge the common behavioral patterns and motivational factors of players and can design and develop their games accordingly. Of course the limitation of this paper might be the over-emphasis on certain game genres, notably MMOGs, RPGs and FPSs, which still are pretty broad and major genres in themselves. Another limitation which can be observed by looking at the author listing is that there are a lot of cross-references which might limit the actual number of different viewpoints on the matter.

As future research we suggest forming scales and measures for quantitatively studying player typologies by factor analyses. Thus far, most of the common typologies are based generalizations from qualitative observations in confined environments. However, the

suggested reductionist factor analysis would also fall into the trap of creating clear-cut categories on player perceptions. Therefore, it is also important to maintain the qualitative approach when studying on players, their perceptions and activities within games.

Another interesting notion to pursuit would be to investigate, how game designers have used the existing player typologies and how it has affected the game design and further how it creates a feedback-loop back to the studies investigating players and their activities within games.

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