



Animal Crossing: New Horizons meets 'Maslow's pyramid'

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Discussion Paper No. 424

April 2021

ISSN 1860 0921

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April 2021

Abstract

Relying on Maslow's needs-based theory of motivation, we analyze the role of the video game *Animal Crossing: New Horizons* (ACNH) in satisfying needs. We use an interdisciplinary framework involving both psychology and gaming. While ACNH creates a virtual world, we highlight its role in satisfying the needs of the real person. In doing so, we reflect on the interdependence between the real world and the virtual one.

Keywords: Maslow's theory of motivation, Animal Crossing, Maslow's pyramid, seven-stage model, real world needs, virtual world needs

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1 Introduction

In March of 2020, Nintendo released the game *Animal Crossing: New Horizons* (ACNH) (the latest in a series) which has since recorded high sales figures.¹ Therefore, it has become clear that the game is able to satisfy the needs of a large group of people. In this paper, we look at ACNH from the perspective of needs-based theory of motivation. The earliest and best known theory of motivation was created and extended by Maslow (1943; 1970), and states that human beings are motivated by the desire to satisfy hierarchically ranked interrelated needs. We investigate whether these needs are satisfied through playing ACNH. This approach clarifies the motivational role of the game in influencing the behavior of the players. Furthermore, by defining the boundaries between the real and virtual world, an investigation of the interaction between these two worlds is made in the context of needs-based theory.

This game has also received attention in the field of psychology. Zhu (2020) states that the game, as a social interaction platform, helps players to reduce their levels of anxiety and depression, by bringing spiritual comfort, calmness, and peace. Johannes et al. (2021) support this notion by analyzing self-reported and telemetry data about playing time, to confirm that there is a significant positive relation between ACNH game time and players' well-being.

The structure of this paper is as follows: Section 2 summarizes the needs-based theory of motivation and the applications of 'Maslow's pyramid' in the field of business. In Section 3, we describe and classify the game itself. In Section 4, we explain how the game serves different needs on various levels. Section 5 presents our conclusions and outlines avenues for further research.

¹Nintendo sold seven million copies of ACNH across Europe (which is the highest first-year total sale figure for all of its games) and 31.8 million copies worldwide (Handrahan 2021). It received the highest number of downloads of any premium console game in 2020, and its revenue of \$ 654 million is ranked seventh in the top 10 premium games (both console and PC) of 2020 (SuperData 2021).

2 The theory of motivation

2.1 Maslow's hierarchy of needs

Maslow's (1943) theory of motivation states that human beings are motivated by the desire to satisfy five needs or maintain the conditions that satisfy them. The prepotent *physiological needs* are biological needs that are independent but crucial for moving to the next level. *Safety needs* reflect the desire to have a predictable, organized, and orderly world. The *love needs* that reflect affection and belongingness emerge once the previous two are satisfied. *Esteem needs*, which are divided into two sub-needs describe the desire for status. The first are the desire to be strong, successful, and confident from an individual's perspective. The second represent endeavors of individuals to gain reputation, respect, and recognition from others. *Self-actualization needs* are aspirations to do what an individual is fitted for towards ultimate happiness (Maslow 1943, pp. 372–382).

One of the major preconditions for the satisfaction of these needs is having a set of freedoms² without constraints. Besides, cognitive capacities, which represent the search for knowledge, truth, wisdom, and solutions, are motivational needs requisite to satisfy the five needs. The hierarchical form reflects the fact that once a category of needs is relatively and recurrently satisfied, the next higher needs emerge. Satisfied needs cease to determine behavior and motivation. The needs determine both the expressive and coping behaviors of individuals.³ However, these needs are not single and exclusive determinants, as a particular behavior could simultaneously be determined by multiple needs (Maslow 1943).

The five needs mentioned thus far are called 'conative' needs, as they have a striving or motivational character (Maslow 1943). As the desire to fulfill physical, safety, love, and esteem needs becomes stronger the

²Maslow (1943, p. 383) gives a set of freedoms: to speak, to act as desired without harming others, to gain knowledge, to defend oneself, to seek justice, fairness, honesty, and orderliness.

³An expressive behavior is an unmotivated, random, and non-functional action of an individual that purely reflects their personality. Coping behaviors are motivated and reflect defense mechanisms of individuals to protect their needs (Maslow 1943, p. 391).

longer they remain unmet, they are grouped as deficiency-motivated needs. Self-actualization needs are growth-motivated needs, as they express the desire for personal growth (Maslow 1970). However, Maslow stresses that the hierarchical form is not as rigid as presented, and there are several exceptions. The order naturally changes, depending on an individual's priority of preference, the current state of existence, previous experiences, and cultural differences (Maslow 1943, pp. 386–388).

Later, Maslow extended his original set of needs to a seven-stage model by first including *cognitive needs*, which reflect the need for knowledge and understanding, and *aesthetic needs*, which reflect the need for appreciation and search for beauty (Maslow 1970, pp. 48–51). These growth-motivated needs reflect the progressive character of human beings towards self-actualization, and are ranked above esteem needs (Ward and Lasen 2009).

2.2 Maslow's pyramid

Maslow's hierarchy of needs is frequently represented in the form of a pyramid, which is often referred to as "Maslow's pyramid." However, Bridgman et al. (2019) stress that Maslow never used the label 'pyramid' for the hierarchy of needs. They investigate how this came to happen. Accordingly, as of the 1960s, scholars have focused on integrating Maslow's theory of motivation into management science. Researchers have been engaged in testing Maslow's hierarchy of needs empirically. More scientific works and management textbooks started prominently presenting the hierarchy of needs in a pyramid form, seeking a simplistic, memorable, easily applicable, and audience-oriented framework. The book *Human Relations in Business* by Davis (1957) is regarded as the first publication with a triangular representation of the hierarchy of needs. The article by McDermid (1960), "How Money Motivates Men" has been identified as the earliest published rendition of Maslow's pyramid.

2.3 Applications in business: HR, marketing, and gaming

In modern organizations and business environments, Maslow's theory of motivation is frequently used to guarantee the satisfaction of employees' needs. For instance, Jerome (2013) uses the five-stages model to reflect that this human motivation theory plays a role in organizational success and excellence through improving the organizational culture, human resource management, and employees' performance.

Walker (2017) uses the original hierarchy of five needs and states that the theory can be helpful to address the needs of customers by way of attaching each level with a different type of products. Food and beverage industries satisfy customers' physiological needs while the insurance industry satisfies safety needs. The love and belongingness needs are the most important needs from a marketing perspective. Companies address these needs by ensuring customers' feeling of belonging to a special group. Luxury cars, fashion brands, and exclusive luxury holiday packages are designed to address esteem needs. Charity campaigns are mentioned concerning self-actualization needs.

– Insert Figure 1 about here –

In gaming, Siang and Rao (2003) adopt the seven-stage model (see Figure 1) to reflect the motivational needs of players in games. At the bottom two levels, players need to understand the basic rules of the game and acquire helpful information on how to survive and keep on playing. Subsequently, players have belongingness needs to feel comfortable and achieve the game's goals. Then, they have the esteem needs of having full control and feeling good about winning. Next, they have cognitive needs to know more about the game and its different strategies. Afterwards, players have aesthetic needs for good graphics, sound, and visual effects. Finally, players have self-actualization needs as they aspire to do anything within the game. Brown (2012) uses a similar model to look at the impact of games on the

satisfaction of needs.

In this paper, we follow Maslow’s 1970 extension (Maslow 1970, pp. 35–51) of his original model. Using the extended seven-stage model depicted in Figure 1, we investigate the role of ACNH game in satisfying needs.

3 ACNH: Description and classification

ACNH is launched for the Nintendo Switch game console. It is an open-ended social simulator game where players live on a deserted island with anthropomorphic animal residents. The players are given full control to build a community and customize their island using both pre-made and player-made decorative items (Totten 2020). After choosing the appearance of their avatar,⁴ players engage in relatively loose non-competitive in-game activities, such as interacting with computer-controlled animal residents, fishing, planting trees, collecting bugs, wood, and minerals, as well as building and designing houses (Webster 2020).

Coyle (2020) states that in ACNH there are around 400 animal residents (also called villagers or neighbors) whom players can invite to their islands by meeting them at randomly generated islands. A player’s island in ACNH can accommodate a maximum of 10 villagers from 35 different animal species (Animal Crossing Wiki 2021). These villagers have eight different personalities (four male and four female personalities), which determine their interactions with the avatar and other villagers (Grosso 2020). Villagers can move to a player’s island either temporarily or permanently. Players can then exchange gifts with the villagers, receive some tasks to do, and also get *DIY recipes*⁵ from the villagers (IGN 2021).

⁴Players freely choose the physical appearance of avatars, which can be altered at a later point. Players can make their characters look like a man or a woman. There is no impact of gender on the gameplay and in-game interaction with villagers (Sharp 2020).

⁵DIY recipes allow players to craft different items out of resources gathered from their own or mystery islands. Players can get resources by shaking and chopping trees with an axe, hitting a rock with a shovel or an axe, fishing, gathering from the island, or wishing on a shooting star. Using the DIY recipes, players can craft items such as tools, housewares, furniture, and cloth, that can also be sold for more *Bells*—the primary currency used in the game—than the total value of the raw materials (Nookipedia 2021).

The game is categorized as a life simulation and role-playing game. It is rated as PEGI 3, i.e., appropriate for players who are three years old and above, and ESRB E, i.e., suitable for everyone⁶ (Animal Crossing Wiki 2021). These ratings are also appropriate since ACNH has won the ‘Best Family Game’ of the year 2020 award. It also finished second in the award categories of ‘Game of the year’ and ‘Best Multiplayer’ (The Game Awards 2021).

4 ANCH meets Maslow’s hierarchy of needs

In this section, we consider Maslow’s first extension with the hierarchy of seven needs, so as to reflect on the role of playing ACNH in satisfying needs. We take into account evidence of satisfying needs in the real world by way of engaging in the virtual world of ACNH. In addition, we also consider the needs of the avatars and villagers, who solely exist in the virtual world, and look into how their needs can be satisfied.

4.1 Deficiency-motivated needs

Physical needs

From the player’s perspective, it is unlikely to provide evidence on whether the satisfaction of physical needs could motivate players to play the game. Considering the eating habits of male players between 15 and 19 years of age, Chaput et al. (2011) confirm a positive relation between obesity (in terms of increased food intake) and a single session of video gameplay. However, Kracht et al. (2020) made a scoping review of studies on such relations and found ambiguous results. While 53% of the studies report no association at all, the rest report a positive relation.

In the virtual world, players gather edible in-game items⁷ such as fruits,

⁶Pan European Game Information (PEGI) is a video game content rating system established to provide age classifications for video games in 38 European countries (PEGI 2021). The Entertainment Software Rating Board (ESRB) is an American non-profit, self-regulating body established to help customers, especially parents, make informed choices and decisions about video games (ESRB 2021).

⁷Some of these items can also be sold to earn *Bells* (Nookipedia 2021).

vegetables, seafood, candies, fortune cookies, and snacks. When fed to the avatar, these items boost energy for performing activities such as relocating trees (Nookipedia 2021). Furthermore, in decorating their islands, players engage in public works projects to add new infrastructures, such as roads and shelters for the villagers (Animal Crossing Wiki 2021). Thus, in the virtual world, players are motivated to satisfy the physical needs of food and shelter for both their avatar and the villagers.

Safety needs

Human beings develop more feelings of safety, comfort, confidence, and control while conducting repeated routine behavior (Avni-Babad 2011). Momentary feelings about the meaning of life are positively affected by the routine structures in everyday life (Heintzelman and King 2019). In ACNH, there are several routine activities. For example, so as not to miss anything important while playing the game, a gameplay guide by Thorn (2020) provides a checklist of 15 in-game activities. Performing these activities thus constitutes a routine structure in the game, and provides the satisfaction of real world safety needs.

Players satisfy the virtual safety needs of their avatars by being careful while catching tarantulas, scorpions, and wasps/bees⁸. Bites and stings by these bugs make the avatars pass out, and later wake up in front of their home (Spear 2020). Besides, as villagers sometimes conflict, mainly due to having differences in their personalities, players could ensure their safety needs by carefully selecting villagers with compatible personality types. Approaching and talking to the villagers after conflicts also ensures their happiness (Holly 2020). Sometimes, players use bullying or torture to force villagers they do not like out of their islands. One might argue that these moves qualify as threatening safety needs. However, there is no evidence about whether these moves succeed in pushing the villagers out of the islands (Hernandez 2020a).

⁸Tarantulas and scorpions are called “the stunners,” and can be sold for 8,000 Bells. Players can also earn 2,500 Bells by selling wasps/bees (Animal Crossing Wiki 2021).

Love needs

While real-life connections are reduced due to Covid-19 lockdowns, family members and friends in ACNH are only a short flight⁹ away (Wiggins 2020). Lewis et al. (2021) indicate that those players who receive visitors on their islands most frequently report less feelings of loneliness. Virtual platforms become vital to making new friends and dealing with the feelings of isolation caused by the lack of social interactions and support. Initial communications in social media groups for ACNH allowed players to visit each other's islands and exchange in-game text messages.¹⁰ While a real-life friendship developed after communications started in Twitter continued in ACNH (Ramirez 2020), a couple who first met in a Facebook group and then got to know each other well in ACNH decided to get married (Steinbrecher 2020).

In the virtual world, villagers are cute animals having their own personalities and adorable characters. This cuteness influences players to establish sincere relationships with the villagers and to be more nurturing (Coyle 2020). In addition, the day-to-day interactions and communications between avatars and villagers are vital to satisfying their love needs. IGN (2021) states that once interactions are established, villagers and avatars exchange gifts. A “thank you for being a friend” mail is also sent by villagers to avatars after receiving gifts, such as designed clothing and decorative items.

Esteem needs

Mao et al. (2020, p. 2) explain a flow experience as “a mental state in which individuals are fully immersed in a particular activity without a sense of time, fatigue, or awareness of other irrelevant matters.” They provide evidence of a positive correlation between flow experience and self-esteem. Hu (2020) states that, in the usual design of a video game, there are

⁹In the game's online mode, players can visit friends' islands and also invite others to theirs. Invitations can be sent to an in-game 'best friend list' or by sharing a 'Dodo Code,' a randomized alpha-numeric five character code, to whoever is interested (Animal Crossing Wiki 2021).

¹⁰ACNH has a chat feature where players can use their virtual NookPhone to exchange text messages with other players on their best friends list or invited players visiting their island (Animal Crossing Wiki 2021).

predefined goals, such as beating other players, that put players under constant time and achievement pressure. On the contrary, in ACNH, there is nothing to put players under pressure. Players simply start from scratch, define their purpose, and then accomplish something on their island. The opportunity to set their own goals has a lasting motivational impact and results in higher confidence levels than the externally set goals. The aggregate impact can thus reflect the satisfaction of esteem needs in the real world.

In the virtual world, giving gifts to villagers satisfies their esteem needs, as it shows respect and a sense of recognition. Besides, the ‘Island evaluation’ program, which rates an island’s popularity on a scale of one to five stars, is vital to satisfying the esteem needs of avatars. Once an avatar has built a campsite on their island, camping villagers come to visit. Residents and visitors are then asked to rate the island through a survey. Achieving three or more stars is then recognized with different rewards (Animal Crossing Wiki 2021).

4.2 Growth-motivated needs

Cognitive needs

Lin and Su (2020) state that the day-to-day tasks of players enable a continuous learning environment. Players have to consult the in-game app Critterpedia¹¹ to get detailed information about the fish they caught. When donating items players found on the island to a museum¹², the director of the museum offers a detailed explanation about each item. In particular, players enhance their real world knowledge about fish types and fossils in addition to being able to identify the difference between fake and genuine in-game artworks (Animal Crossing Wiki 2021). The stalk market in ACNH emulates real world stock trading activity. In this market, players are allowed to buy bundles of turnips, a root vegetable, on Sundays, and then resell them

¹¹Critterpedia is an app that is similar to a real-world Encyclopedia. It is accessible on the NookPhone. It allows players to know more details about the fish, bugs, and sea creatures they have caught (Animal Crossing Wiki 2021).

¹²The museum in ACNH collects and displays all items that a player has found, including fish, deep-sea creatures, bugs, fossils, paintings, and sculptures (Animal Crossing Wiki 2021).

to other players or shops during the week. Since selling prices vary, players enhance their financial knowledge to maximize profits. In addition, players are expected to make rational decisions about investing and hoarding, since turnips rot and become worthless after a week (Nelson 2020). The knowledge gained can also be applied in the real world day-to-day life of the player.

Aesthetic needs

Maslow (1970) mentions that aesthetic needs are satisfied when human beings are surrounded by beauty. The design of ACNH is a beautiful replica of things selected from the real world (Hu 2020). The fairly muted colors used and the smooth natural sound effects give the game a simple, enjoyable, pleasing, and relaxing nature (Mercado 2020). Webster (2020) states that while players are customizing their island, they aspire to create something out of nothing. In doing so, they engage in a constant search for beauty. Furthermore, by way of choosing the appearance of their avatar, players address their aesthetic needs. Recently, a player initiated a petition for the inclusion of ethnic hairstyles as she wanted to customize her avatar to look more like her (Thorne 2020). In its winter update, Nintendo responded to the petition by including six new options for hairstyles (Hernandez 2020b).

In the virtual world, avatars get bedhead (a kind of messed-up hair) if the player resumes playing ACNH after a break of 15 days or more. Villagers dislike this, and usually comment on it during conversations. Thus, by fixing their hair or getting a haircut, players can meet the virtual aesthetic needs of their avatars and villagers (Animal Crossing Wiki 2021).

Self-actualization needs

Self-actualization needs have the greatest individual differences and are satisfied through a continual process in which individuals do what they are fitted for (Maslow 1970). The customization features in ACNH allow players to express themselves, use their imagination, and be creative, which translates to satisfying self-fulfillment needs (Hu 2020). Tan (2020) reports on the success of three players in designing avatar outfits that replicate famous real world fashion designs. Through these designs, those three explored their true de-

sires and later achieved their professional goals, as they secured a chance to collaborate with famous fashion designers and brands. Totten (2020) has used ACNH in teaching to enhance the “suddenly online” semester due to Covid-19. Students from two courses at Kent State University showcased arts designed using the in-game paint tool. Supported by the game’s massive user base, these creative designs attracted a large professional audience. Collaboration and networking opportunities opened up, which shows that the personal potentials of students are enhanced and realized.

5 Conclusions

We applied Maslow’s theory of motivation to the game *Animal Crossing: New Horizons* (ACNH). Concerning the deficiency-motivated needs, with the exception of players’ physical needs in the real world, we have found evidence that these needs are satisfied both from the perspective of the gamer (real world) and that of the avatars and villagers (virtual world). The evidence from gameplay elements shows that growth-motivated needs are also satisfied in the real world. In addition, we found that players can partially satisfy the growth-motivated needs of solely virtual elements. This can be attributed to the fact that avatars and villagers are computer-controlled elements of the game, to whom the players have only limited possibilities of feeding additional information. In general, we have confirmed that playing ACNH in the virtual world has a role in satisfying needs in the real world, something that is explained through spillover effects. Furthermore, we regard these findings as possible factors for the wide range of acceptance of the game.

Further research could focus on looking at the psychological effect of satisfying the needs of virtual elements on the players. In addition, other games or game genres could be considered.

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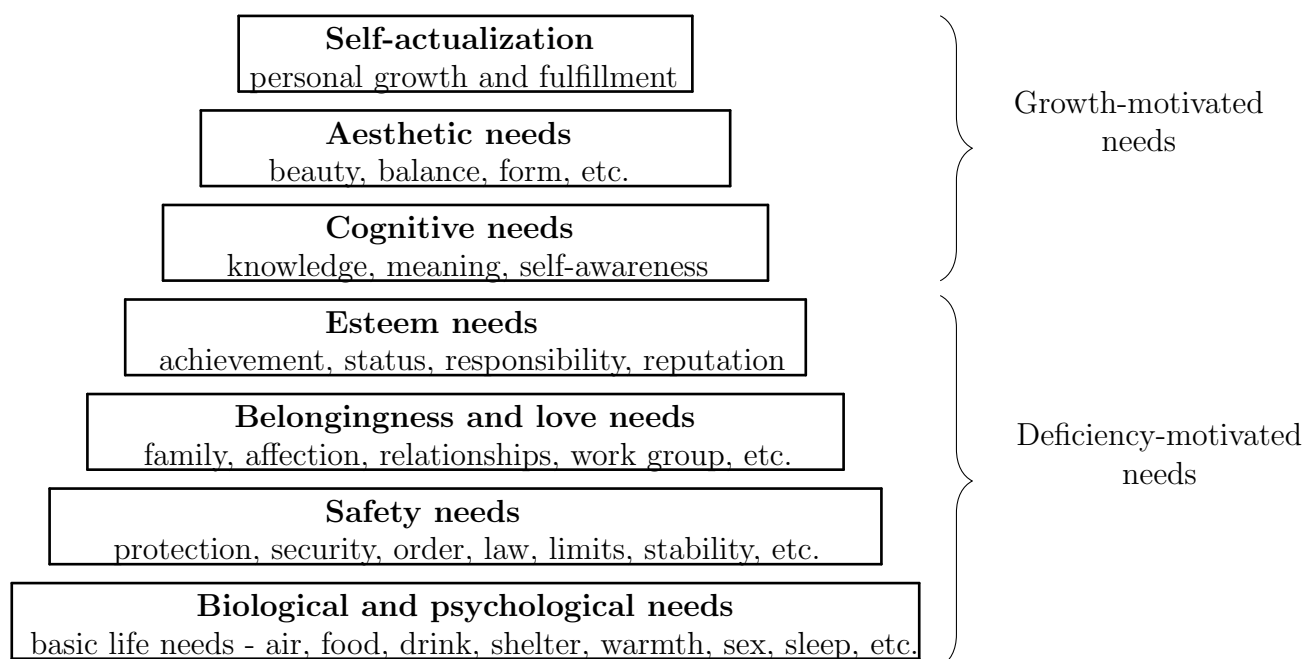
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Appendix

Figure 1: Maslow's seven-stage hierarchy of needs



Source: Adapted from Figure 5 in Ward and Lasen (2009, p. 142)