Recovery and Support: Motivations for Playing a Social Video Game in the Midst of a Pandemic

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ABSTRACT

A social simulation game, *Animal Crossing: New Horizons*, has attracted considerable attention during the pandemic and was lauded for being helpful to players' mental health in numerous media coverages and prior research. Looking at *Animal Crossing: New Horizons* as a case study, we identify and understand which elements of the game specifically supported game players' mental health and well-being under stressful situations to gain insights into new ways of organizing and providing access to other games that can provide similar kinds of support. The research team conducted an open-ended online survey with 135 participants. Results show that game players seek social support, freedom and control, escapism, and a sense of achievement by playing this game. Our study suggests different organizational elements in recommendation services and systems to provide enhanced search experiences for users seeking games to support their mental health and well-being.

Keywords
Animal Crossing: New Horizons, COVID-19, social support, recovery experiences, mood regulation, metadata.

INTRODUCTION

From communication studies to information science, existing research has identified diverse motivations for playing video games to understand the users of this interactive media. While video games are often understood primarily as hedonic materials, prior research on game appeals provides a more complex picture of the role of games in how people enjoy them. For instance, people play video games to enjoy their interactive mechanics (Klimmt and Possler 2021), to immerse themselves into narratives (Lee et al. 2017), or to have social interactions with other players (Klimmt and Possler 2021; Pearce et al. 2021).

When the COVID-19 pandemic started in 2020, people's use of entertainment media changed. In the United States, the pandemic prompted an increase in media usage

across analog and digital activities (Bridge 2020). With limited physical access to media information sources, such as libraries, movie theaters, and bookstores, people opted for virtual entertainment resources. More than half of Americans turned to video games during the lockdown in the United States (Farokhmanesh 2021), and online video subscriptions and streaming services experienced a year-over-year increase of 32% (Adgate 2021).

Among these changes in users' entertainment media use and seeking behaviors during the lockdown, one notable phenomenon was the immense popularity of the newly launched game, *Animal Crossing: New Horizons* (Nintendo 2020—hereafter referred to as AC:NH). With one of the strongest launch and sales records (Khan 2020), this particular game has enamored game players across the world. By the end of 2020, 31.18 million copies of this game had sold globally (Robinson 2021). In this game, game players develop their own islands by harvesting fruit or designing terrains as they form friendships with their towns' animal villagers. Players can also interact with other players in the world or visit friends' islands. Major news media sources also discussed this game as a great tool to help users' mental health (Willingham 2020; Wynne 2020) by having a relaxing premise, a positive and engaging nature, and a wholesome community.

As previous studies identified associations between one's mental and emotional well-being and the use of entertainment media (such as Reinecke and Rieger 2020; Sonnentag and Fritz 2007), we seek to investigate how game players manage their mood in a stressful situation by investigating how players engaged with AC:NH during the global pandemic as a case study. We adopt Sonnentag and Fritz's theory (2007) of recovery experience as our framework to understand how playing AC:NH during the COVID-19 pandemic provides support for recovery. Our primary research questions are:

- **RQ1.** What motivated people to play AC:NH, and what kinds of support did the game provide to players during the COVID-19 pandemic?
- **RQ2.** What kinds of game metadata can be described to assist players seeking games to support their mental health?

By understanding video game users' needs and behaviors under stress, this study aims to provide empirical findings to identify important elements of leisure materials under stressful situations. Based on the findings, we discuss how information services should provide similar materials to game users. We aim to offer insights into the different organizational elements in recommendation systems or services to assist users in finding games that support their mental and emotional needs. We envision that the findings from this study may contribute to providing similar support, not just in situations like global pandemics but more broadly in our daily lives where we encounter various stressors.

LITERATURE REVIEW

Media and Recovery
Sonnentag and Fritz (2007) focus on how individuals' off-job activities are associated with stress recovery. Recovery from stress transpires when the functional systems used during work are no longer taxed (Meijman 1998). Through their synthesis of recovery and mood regulation research, they provide a four-dimensional framework for understanding the recovery experience: 1) psychological detachment, 2) relaxation, 3) mastery, and 4) control. Psychological detachment embodies both physical and mental disengagement from job-related activities. Relaxation is often related to leisure activities, especially those that eschew social demands as well as physical and

intellectual effort (Tinsley and Eldredge 1995). Mastery experiences that emerge from non-work activities provide a sense of challenge and competency. These feelings of effort and success lead to a positive affect that supports the recovery process. Lastly, control represents an individual's ability to choose an action from options, such as activities during leisure time, and this action regulation may satisfy the need for self-efficacy.

Several studies have found associations between one's recovery process and media use. The Mood Management Theory (MMT) framework positions affect as a combination of two orthogonal dimensions (arousal) or the degree of positivity of the mood (valence) (Luong and Knobloch-Westerwick 2021; Russell 1980). In this theory, media users' desire to "maximize pleasure and minimize pain" (Luong and Knobloch-Westerwick 2021, 160), referred to as a hedonistic motivation, becomes the predominant motivation for media selection. In a similar vein, Reinecke and Rieger (2020) present the Recovery and Resilience in Entertaining Media Use Model (R^{2}EM-Model), which also points out that both "interactive and noninteractive entertainment media have a strong potential to facilitate recovery from stress and strain" (2020, 755).

Motivations of Interactive Media Information

The question of why people play video games has attracted a number of researchers in information science, communication, psychology, and, evidently, game studies. Przybylski and colleagues (2010) utilize self-determination theory to explain the motivations for playing video games. They suggest that the appeals of games (and well-being fostered by games) are based on competency, autonomy, and relatedness needs satisfaction. Similarly, Yee (2006) presents five motivations for playing games: Achievement, Relationship, Immersion, Escapism, and Manipulation. Yee's findings echo similar studies, such as Choi and Kim (2004) and Lee et al. (2017). Choi and Kim (2004) found that having effective personal interactions with the system or having pleasant social interactions with other players is foundational for satisfying gaming experiences, and through domain analysis, Lee et al. (2017) identified 12 experiential appeals of cross-media objects: Accomplishment, Arousal, Sensation, Fantasy, Mood, Challenge, Fellowship, Discovery, Expression, Cognitive, Submission, and Interactivity.

Recent Focus on Animal Crossing: New Horizons

With AC:NH's sudden popularity, several newly published studies have focused on this particular game. Similar to our current study, these investigations focus on the associations between COVID-19 and AC:NH gameplay; Zhu (2021) states the game provides a dreamland for players to temporarily escape from reality, and Lewis and Jameson (2021) suggest that increased gaming activities are predictive of higher levels of anxiety, which is also related to one's increased loneliness. Pearce and colleagues (2021) also view AC:NH as a tool for families to cope with the pandemic together; by interviewing 33 parents, the research indicates that parents use AC:NH to psychologically detach themselves from the stressful pandemic situation, to relax, to find a sense of accomplishment, and to appreciate the sense of control.

This emphasis on AC:NH as an emotional tool is reiterated in Comerford's study (2021). Comerford delves into different player personas to investigate AC:NH's appeal. The author explains that the game played a significant role as a "stabilising agent for upended routines" (2021, 102) during the pandemic by offering a sense of regularity and stability to the players. The game serves as a place where players can take on a range of different roles, such as collector, decorator, designer, and more, which provide routine tasks. Comerford (2021) also discusses how freedom of expression and the lack of a fail-state in the game contribute to a sense of agency.

STUDY DESIGN AND METHOD

Upon receiving Institutional Review Board approval, the research team conducted a pilot study with five participants, then updated question wording and formatting for clarity. The final survey included 35 questions concerning participants' general gameplay behaviors, motivations, and questions specific to the pandemic.

On September 19, 2020, the survey was distributed in two online AC:NH communities (*The Bell Tree Forums* and the *Animal Crossing: New Horizons Reddit* community) as well as the University of Washington's GAMER (GAME Research) group Facebook page. For compensation, participants could enter a raffle to win five $20 Amazon gift cards. After removing responses that did not meet our screening criteria or were incomplete, the survey resulted in 135 valid responses.

Regarding demographics, most participants identified as female (96, 71.1%), and the majority identified as White (83, 61.5%). Ages ranged from 18 to 71, with an average age of 27. The most common level of education was a bachelor's degree (55, 40.7%). Participants were primarily from the United States (93, 68.9%). Concerning their total AC:NH gameplay hours, participants reported playing from 10 hours up to 1500 hours with an average of 544. While the heavy female participation in this study can be explained by the series' popularity among female players (SATO 2013; Shutler 2021), the targeted online communities may also have been predominantly composed of female players. A different distribution method and/or different sample of online communities might have resulted in different findings.

For our data analysis, the current study adopted a combination of inductive and deductive approaches. Initially taking an inductive approach, the research team used thematic analysis to identify major themes from the survey data. After analyzing a sample of responses, a codebook was created for analysis via NVivo 12, a qualitative analytical software. To test this codebook, we measured the intercoder reliability of 40 responses between two coders. The average Kappa coefficient value between them was 0.79, with an agreement ratio of 99.33%, thus indicating a good agreement (NVivo n.d.). Then we proceeded to code the entire dataset. With the inductive coding complete, a deductive approach was used, particularly considering how our findings relate to previous literature on emotional recovery and resilience experience. In this paper, any direct quotes from the participants are presented as-is, without correcting grammatical errors or typos.

FINDINGS

This section outlines our findings regarding AC:NH gameplay motivations and how they relate to emotional recovery and resilience during the pandemic. Furthermore, we highlight potential limitations and challenges that accompany this game. Table I provides an overview of our utilized codes, their definitions, and the frequencies at which they emerged during analysis.

Table I. Operational definitions and frequencies of the study's parent and child codes

Code	Operational Definition (and Child codes)	Ref #
Communication	Information transfer between players ● Communication methods (64) ● Communication problems or suggestions (96)	160
Conflict	Clashing interests or challenges between players.	51

COVID	Pandemic-related responses ● Can be improved (1) ● Changed COVID-19 behavior (68) ● Not changed (56) ● Personal life - contexts (44) ● Preferred games (146) ● Time (81)	403
Game design/Mechanics	Formal properties of AC:NH which govern interactions.	52
Hosting/Visiting	Sharing one's island or going to another's island for structured or unstructured events.	145
Learning	Acquisition of knowledge or skills due to AC:NH gameplay ● Communication skills (8) ● Cultural learning (13) ● Design learning (25) ● Fact-oriented learning (99) ● In-game learning - mechanics (13) ● Learning about themselves (13) ● Social skills (15)	226
Mental/Emotional Support	AC:NH properties that provide comfort, care, reassurance, empathy, or other forms of assistance related to mental or emotional needs.	192
Motivation	Driving factors for AC:NH gameplay ● Accessibility (18) ● Achievement - accomplishment (85) ● Aesthetics (45) ● Atmosphere (6) ● Creativity - expression (109) ● Discovery (25) ● Escapism (56) ● Freedom - control (134) ● Loyalty (21) ● Nostalgia (16) ● Passing Time (35) ● Realtime - real life connection (40) ● Social motivation (314)	960
Unique characteristics of AC:NH	The player highlights the distinguishing features of AC:NH in comparison to other games or media.	175
Other	Responses that do not intersect when the established codebook.	26

Motivations for Playing AC:NH

AC:NH was launched amid the COVID-19 pandemic (March 20, 2020), and the data collected shows that its launch dovetailed with participants' leisure needs. When discussing their motivations for playing AC:NH, participant responses indicate that the game 1) provides social support, 2) fosters a sense of freedom or control, 3) creates an escape from reality, and 4) prompts feelings of achievement.

Social Support

AC:NH allows players to host island visits with other players, and participants depicted AC:NH as an outlet for social interaction. Several participants focused on maintaining

social connections during self-imposed pandemic isolation. Frequently, these participants described how AC:NH allows interactions with already-established friends or family members. Although a couple of players mentioned that virtual visits could not replace face-to-face interaction, most participants were grateful to have some way of connecting during the pandemic. P70 shared,

> *It fulfills my desire for companionship, especially as socialization*
> *has shifted to the virtual environment. It has provided a consistent*
> *way for my friends and I to meet up and socialize while we*
> *maintain a safe distance from home.*

Robust online AC:NH communities also helped participants fulfill their social needs during the pandemic. Participants appreciated the kind and friendly nature of AC:NH communities and a handful of participants shared their virtual birthday party experiences with other players. Participants expressed a sense of gratitude, whether with people they already knew or with new people they met online.

Although participants appreciated their online communities, explicit descriptions of social motivations and emotional support frequently centered on the non-player characters (NPCs) called the villagers. Beyond being "cute," the villagers played a vital role in the AC:NH's restorative qualities. Participants described looking forward to having conversations with their favorite villagers as a way to destress, the excitement of seeing returning villagers from the AC:NH franchise, and the process of developing friendships with new villagers. P62 points out how *"the animal villagers also occasionally talk about how much they appreciate you, send you letters and gifts, and throw birthday parties to make you feel extra special,"* and P99 shared how the resemblance of an animal villager with their lost dog made them feel more connected with the character and the game.

> *I lost my beloved best friend (who was a dog) 2 years ago, and*
> *some villagers remind me of him. Goldie, who lives right behind*
> *me, constantly visit the in-game grave I made for my dog and*
> *waters the flowers around it. I know Goldie is just code, but it's so*
> *heartwarming and nice to see.*

This sentiment of developing needed relationships with 'just code' also emerged. P52 shared, *"I'm aware some virtual animals cannot replace real-life people and friends, but since I haven't seen my friends since January, it has helped with coping with the situation."*

Freedom and Control

Participants often mentioned elements of freedom or control in conjunction with mental health, stress, and relaxation. Some participants specifically described that this feeling stemmed from the lack of competitive play in AC:NH. Beyond a lack of competition, participants also shared that a sense of ownership with their in-game island and the fact that they could decide the pace of their gameplay without a penalty created a relaxing gameplay experience for them. As P52 described,

> *Because the game is a sandbox type of game, it's perfect for*
> *destressing. There is no "end". I can play however I want*
> *whenever I want. [...] There is a lack of penalty for not playing*
> *when I choose to, so I can take a break from the game and not feel*
> *I will be punished for it.*

AC:NH also provides a sense of routine during COVID-19 forced isolations. For many people across the world, social lockdown resulted in job loss. P123 explained how AC:NH has helped:

> *the daily routine has really helped me during the pandemic since I*
> *lost my job and was out of school, so having to check turnip prices*
> *in the mornings and afternoons gave structure to my day and*
> *helped me get out of bed.*

Rather than focusing on COVID-19, some players emphasized how this routine aids their mental health generally. P21 also described how they use AC:NH as part of their morning and evening routines:

> *my mental health and well-being have definitely been slightly*
> *improved with this sense of 'routine.' […]I can wake up, do my*
> *morning routine, get it out of the way, and then i can settle down*
> *with my switch and coffee and wind down for my day.*

Escapism

Throughout the responses, participants emphasized distracting themselves from *"the real life situation"* (P32), *"an unsure time"* (P33), *"the anxieties of real life"* (P52), *"the outside world"* (P54), and *"the life around me"* (P69). As P2 succinctly put it, *"It allows you to escape into a dream land where everyone is happy while things in real life are not."* For one isolated participant, AC:NH was not just a distraction but a conduit for experiencing the outside world: *"I play more often and get to do what I can't in real life (leave the house)"* (P9).

A couple of participants pointed to specific current events, such as the political climate, elements of governance, and social unrest. For example, P36 describes AC:NH as a reprieve from national events:

> *acnh is a wonderful reprieve from the real world a lot of the time.*
> *Not just the pandemic, but given the current state of our*
> *governmen (ie the corruption and depravity of the presidential*
> *administration), the wildfires, and etc.*

Gameplay Achievements

Participants reported feeling a sense of achievement as they played AC:NH. Because AC:NH's design contains only a few small milestones (e.g., paying off one's debt to the game character Tom Nook), participants often created their own gameplay goals. These goals often involved decorating and designing their islands. For example, P102 reported their excitement about sharing their achievements:

> *We have the ability to design our own clothes, build our island the*
> *way we want, and decorate freely both indoors and outdoors.*
> *Having the freedom to express myself in-game brings a lot of*
> *fulfillment to my life. Kind of like, 'I made this and I'm proud of*
> *it!'*

Additionally, AC:NH's temporal aspects seem to impact feelings of achievement. AC:NH runs in real-time based on the player's Nintendo Switch clock. Because of this, in-game time flows like 'real life,' and the players get to concurrently experience changes in the seasons as well as other important holidays. This allows players to feel that they are living and growing with the game.

The game's record-keeping and collecting features also added to participants' sense of achievement. For example, all the creatures, fossils, and art the player obtains and brings to their personal museum are saved. P45 shared how seeing *"tangible results for time spent"* and *"museum displays being upgraded"* motivated them to play the game, and P90 liked that they are *"able to see how close you are towards getting each [achievement]."* For many participants, this sense of accomplishment was especially important in light of COVID-19's various challenges.

Limitations and Challenges of AC:NH

Although participants overwhelmingly described how AC:NH supports their emotional well-being, they did report two negative aspects of this game: 1) communication limitations and 2) challenging situations with other players. These two aspects, which pose an obstacle to meeting players' social needs, may illuminate particular difficulties that an emotionally supportive game needs to incorporate.

Communication Limitations

When asked about communication effectiveness in AC:NH, participants frequently expressed frustration with using the game's controller as an input device. As a game with online play elements, AC:NH has surprisingly limited in-game communication features. This is perhaps due to the designers' intent of creating a communication-based game that encourages players to talk about the game in real life ("Animal Crossing - Developer Interviews" n.d.) instead of inside the game. Despite this intention, players emphasized communication challenges in their responses. P62 aptly summarized these concerns:

> *The existing methods in the game itself work fine for quick trades*
> *and interactions, but for communicating with actual friends as*
> *you play together, the chat message box is a bit too limited and*
> *not everyone is comfortable with voice chat. For longer messages,*
> *people need to use a third-party tool to communicate.*

It is worth noting that Nintendo does provide an application to support communication between players, but participants expressed mixed feelings about being required to use a second device during gameplay. Participants often proposed increasing the character limit or including in-game voice chat when asked if they had any suggestions for improving communication in AC:NH. There are caveats to including such features, however, such as having to read a too-long text appearing on top of characters or feeling uncomfortable revealing their voices to others.

Challenging Situations with Other Players

In-game communication concerns represent a balancing act between fully expressing oneself and maintaining a cordial environment. When asked whether they have had any conflicts with other players, participants' descriptions highlighted this need for a conflict-free space. Although the majority of participants did not report any in-game conflicts, a sizable portion (51 out of 135, approximately 38%) described having some form of strife. These challenges fall into two categories: miscommunication and deviant behavior.

Miscommunication included issues that arose during trades or taking someone's in-game possessions without explicit permission. Other times, miscommunication was related to breaking someone's established island rules or not following common manners. These challenges stemmed from minor transgressions, such as trampling someone's flowerbeds or showing up late to events. Typically, such infractions could be solved by explaining AC:NH etiquette.

Other conflicts stemmed from what participants perceived to be deviant behaviors, including trade scams. Participants also reported hacked islands, rudeness, and "trolls," people who intentionally engage in inflammatory behavior. P18 describes their approach to this negative behavior: *"[...] usually I ignore them (trolls), you know the rule: don't feed the troll."* Beyond ignoring such behavior, participants described relying on community resources to ban or report deviance. Describing a mass scam cloaked as a turnip selling event, P47 and others banded together to resolve the issue: *"After all of us were kicked from the island I took to the Discord used by the turnip selling site and got together with other users to report and ban his Discord account from the group."*

Considering these challenges, calls for expanding communication channels embody a particular quandary. Increased communication abilities may solve misunderstandings during trade and solve some etiquette issues quickly, but it could provide fuel for inflammatory behavior. Ultimately, there may not be an easy solution to appease all participants. As P88 states, *"For the most part people are nice, but there are always going to be some bad apples who spoil the bunch."*

DISCUSSION

Recovery Experiences

Our survey responses reveal that AC:NH did support participants on all four aspects of recovery experiences, as discussed by Sonnentag and Fritz (2007): Psychological Detachment, Relaxation, Mastery Experiences, and Control During Leisure Time. Our findings also echo the work of Pearce et al. (2021), who show how parents of young children used AC:NH to relieve pandemic stress related to these four dimensions. In the following sections, we discuss how the game supported these four recovery dimensions for a broader group of participants.

Psychological Detachment

Prior literature focuses on work or the workplace while discussing psychological detachment (Etzion et al. 1998; Sonnentag and Fritz 2007). Sonnentag and Fritz (2007) discuss being psychologically detached from work as a crucial aspect of recovery. Because of the pandemic, most people were affected by some degree of quarantine and social distancing measures. As such, many people were suddenly working from home. This most likely affected people by making it difficult to stop working or disengage themselves mentally from work, thus making it difficult for them to recover fully. In addition, the pandemic also resulted in other stressors and responsibilities, such as managing children's online schooling, job loss or job security being threatened, and having to spend most of their time with family members without having their own space or time.

Many of our participants discussed how playing AC:NH was their opportunity to try to detach themselves from work-related or other pandemic-related stress in their lives, as they were able to escape to their digital islands and forget about their worries. As many players were confined in the physical space and lost the ability to freely visit places that were not their homes, having this virtual place to distract them from various stressors was important; it made players feel better and more able to cope with challenges.

Relaxation

Relaxation is "a state of low activation and increased positive affect" (Sonnentag and Fritz 2007, 206). Participants in our study often discussed the leisurely aspects of the game, particularly the fact that there is little-to-no pressure to complete specific tasks or meet certain deadlines. This freedom, coupled with the game's slow (or controllable) pace and relaxed atmosphere, allowed players to feel at ease. Tinsley and Eldridge

(1995) discuss how these kinds of activities with few demands, such as dealing with others, exerting physical/intellectual effort, or completing challenges, gratify people's needs for relaxation.

Participants discussed feeling relaxed in their virtual islands, which distracts them from the state of the world in a global pandemic. Some parts of the game are even created to readily evoke feelings of calmness, such as the museum and aquarium features. These elements, which participants reported enjoying, mimic common activities that may promote feelings of relaxation in real life. As Frederickson (2001) suggests, positive feelings may undo the effects of negative emotions. In this case, relaxing gameplay helped counter the negative feelings caused by various stressors related to the pandemic.

Mastery Experiences

Unlike psychological detachment and relaxation-oriented strategies that "imply that no further demands are made on functional systems called upon during work" (Sonnentag and Fritz 2007, 205), mastery-oriented strategies support the recovery process by developing new internal resources, such as self-efficacy, skills, and competencies (Parkinson and Totterdell 1999; Sonnentag and Fritz 2007). By partaking in off-job activities, people experience challenges that help them experience competence and proficiency (Sonnentag and Fritz 2007). Although this may add more 'workload' to an individual's functional systems by challenging them in certain ways, it does not indicate that it would create more stress. Overcoming certain levels of challenges and attaining mastery experiences help people recover from stress—such as a pandemic.

In the current study, participants often mentioned that they felt a sense of achievement, especially when designing their own islands (e.g., terraforming, gardening, and building) and keeping records of the goals they achieved in the game. Their comments on feeling relaxed while working on their islands, collecting different types of bugs and fish, or completing game goals align with findings from the previous studies. For example, Parkinson and Totterdell (1999) learned that spending time on activities that are not work-related helps people improve their mood, and Sonnentag et al. (2008) also found that mastery experiences during the evening can predict positive activation and relaxation.

Control During Leisure Time

Many of the participants shared how the pandemic upended their lives with examples such as job loss, isolation, anxiety, and depression. Rosenfield (1989) claims that having low control can affect individuals' psychological well-being. The author states, "a critical cause of depressive symptoms is the belief that the outcomes of one's actions are uncontrollable" (1989, 79). Although the pandemic dissolved a sense of normalcy for many, participants in this study could create a sense of control through AC:NH.

Aligning with Sonnentag's and Fritz's (2007) recovery framework, feelings of control were related to positive reactions from the participants. According to Sonnetag's and Fritz's definition, personal control refers to the "degree to which a person can decide which activity to pursue during leisure time, as well as when and how to pursue this activity" (2007, 207). Participants were able to play AC:NH in their free time and at their own pace, providing them with a strong sense of control in their daily lives. Furthermore, the game does not include any commitments; every goal, no matter its scope, is completely up to the individual player. Pearce et al. (2021) also explain how having small and achievable goals was important for parents, as they could finish the tasks in games and feel a sense of achievement instead of increasing in-real-life tasks that are often unmanageable.

The process of how AC:NH players feel better (or become resilient) by having a sense of control is similar to that of mastery experiences. Sonnentag and Fritz (2007) argue that satisfying players' desire to have control is related to promoting their self-efficacy and feelings of competence. In the midst of COVID-19, when many aspects of life were uncontrollable, individuals met their needs for control by creating their own daily routines and choosing how and when to play AC:NH.

Participant discussions on the temporal qualities of the game, however, do not readily align with Sonnetag's and Fritz's (2007) description of control during leisure. One may assume that the synchronization of in-game time with real-life time heightened stress levels. In some instances, it can. For example, failing to log in and tend to one's virtual crops on a given day or greet a new NPC visiting the island may result in missed opportunities. In such instances, players are unable to control the pace of the game without resorting to reconfiguring system settings—a tactic some refer to as cheating. Although some players admit to using this form of time travel, we found that, overall, this game flow created feelings of gradual accomplishments over time as well as a certain coziness for participants. It may be that, with the game's low stakes, individuals may adopt a "tomorrow is a new day" mentality and remain unperturbed by the passage of time and missed opportunities. Thus, a fruitful area for future research may be exploring the threshold of when synchronized game-time impacts feelings of relaxation.

Social Support

In addition to the four recovery strategies, AC:NH participants found that the game offered much-needed social support during the pandemic. The participants' attention to social support echoes Sonnentag's and Fritz's (2007) emphasis on control, especially emotion-focused coping. Emotion-focused coping embodies attempts to manage the cognition or direct experience of specific emotions without changing one's environment. These coping strategies often include the denial or use of emotional and social support (Sonnentag and Fritz 2007). In the case of AC:NH, NPC interactions, recreating in-person gatherings, and online communities embody emotion-focused coping.

Parasocial relationships with AC:NH's NPC villagers provided control in a chaotic time when social contact was minimal. Parasocial relationships are often free from obligation when individuals form emotional relationships with fictional characters (Horton and Richard Wohl 1956). Yet many video game characters do have human-like needs that imbue animate qualities (Calvert and Richards 2014). Consider the Tamagotchi or Giga Pet which are digital representations of baby-like animals that require caregiving. Such digital characters embody "kawaii," meaning cuteness, or "kindchensema," meaning baby schema (Lorenz 1943; 2010). Baby schema describes the process by which objects with childlike features (e.g., large eyes, big cheeks, uncoordinated motor skills, etc.) foster caregiving behavior (Nittono et al. 2012).

AC:NH's villagers, however, do not require constant attention; they simply respond to and appreciate player care, thus aligning with parasocial dimensions of attachment and friendship without excessive caregiving (Calvert and Richards 2014). Additionally, because the AC:NH franchise has existed for nearly two decades, previous parasocial relationships with childhood digital 'friends' may boost feelings of nostalgia (Frolich et al. 2020). As such, the socially-imbued nostalgia from past AC:NH gameplay may promote recollections (and feelings) of need satisfaction (Wulf et al. 2020). The NPC's ability to retain the information about prior interactions/conversations with the player in AC:NH contributed to the player's feeling of connectedness, and with the rapid development of artificial intelligence, we may see more games that afford the

conversations that feel much more realistic and personalized and thus, further supporting the need for social interactions despite the NPCs being non-human.

Participants described gratitude toward online AC:NH communities and the ability to interact with offline friends when explaining their social interaction with other players. Given the social restrictions during the COVID-19 pandemic, the ability of games to combat social isolation in itself is not uncommon; the positive social aspects of online games, such as Massive Multiplayer Online Role-Playing Games (MMORPGs), are well documented in previous studies (Cole and Griffiths 2007; Longman et al. 2009; O'Connor et al. 2015). However, AC:NH's unique social aspect may be its massive popularity in the early pandemic (Khan 2020). It was almost an internationally collective behavior that influenced non-gamers to start playing. Future studies may create useful insights by investigating collective gameplay behavior during the crisis.

Lastly, Sonnentag and Fritz (2007) warn that social outlets have the potential to undermine recovery due to interpersonal conflict. As our findings report, conflicts do emerge from miscommunication as well as deviant behavior. Despite these issues, our participants maintained that AC:NH is a supportive social space. Rather than being a digital land for mutual conquest, in-fighting, or sabotage, AC:NH provided our participants with an idyllic pastoral escape for social interaction.

Implications for Game Organization and Recommendation

Video games are often organized and provided based on their genres, popularity, platforms, and release date in most commercial game recommendation systems and streaming services. With the heavy reliance on broad genre terms and platforms, the current video game recommendations and search systems have limited abilities to support more specific searching needs, such as finding games for emotional and mental well-being.

As a form of reference and recommendation services, the findings from this study can support librarians and other relevant information service agencies interested in and knowledgeable about games or certain game-related librarian committees (such as American Library Association Games and Gaming Round Table) so that they may be able to provide video game recommendations to users for their mood regulation or recovery experiences supporting their mental health. In addition, this study could be helpful to more systematically identify and record games with elements to support players' mental health and well-being, which information professionals could use without the domain expertise in games. As there is increasing evidence that people rely on media to help support their mental well-being (Reinecke and Rieger 2020), it is pertinent for information professionals to find ways to identify, record, and provide relevant game information to support those needs in games or other popular media. The following sections present our suggestions for future game recommendation services based on the findings of this study.

Games that Encourage Daily Achievements

Feeling that one has control over their daily routine was one of the primary elements that helped participants feel better. Since AC:NH does not have required deadlines for any tasks in the game, participants could choose their own pace to enjoy games without feeling forced to complete certain goals at a certain pace. Enjoying some of the daily game activities, such as checking turnip prices every morning or afternoon, gave our study participants a sense of control and achievement when they felt like they did not have control over other aspects of their lives. This indicates that having the game information about 1) gameplay pace, 2) deadlines for completing specific goals (or the customization options for this), or 3) non-mandatory regular or daily accomplishments

that game players can enjoy may be helpful in finding games that can promote emotional and mental well-being.

Relating to having a sense of daily achievements or control, it may also be important to have information about the game's temporal setting. One of the unique, interesting elements of AC:NH was that the time in the game flows exactly the same as real-life time. As several participants in our study mentioned that this real-time setting helped them feel more achieved by growing together with their game progresses, being able to identify games' temporal information may be another useful element in recommending relaxing games. Potentially, this information could be organized and provided with the game's general setting information (i.e., when and where) or information about gameplay pace.

Gameplay without Competition

Study participants shared that the lack of competitive elements in the game has contributed to them feeling a sense of relaxation and allowing them to destress. While competition is one of the main appeals of many video games, for games to promote or support mental health or well-being, perhaps the void of competition could be perceived as a positive aspect, especially in terms of how it helps with relaxation. Finding games that focus on solo play or games that offer different kinds of social play options that emphasize collaboration rather than competition might be an approach to identifying games to support mental health and well-being.

Games for Expression

Participants shared how much they enjoyed designing their own outfits and environment in AC: NH. This also helped build a sense of achievement and control as participants explored the vast possibilities of expression, leading them to feel attached to and proud of their own island. Another aspect that participants found attractive was their freedom in how much they could engage in this creation process—for instance, game players could create their own designs from scratch and re-design or re-structure the whole island if they wanted to, but they could also choose to download and use someone else's design to dress up and decorate the island, or enjoy simple customization such as placing furniture and decorating their house. Players could choose their own level of expression that makes sense for them, allowing this game to appeal to a range of players with different preferences.

This suggests that the ability to identify games with measures for self-expression and varying levels of expression could be useful in terms of searching or browsing games. Specifying what can be customized could also be useful, such as avatar, clothing, or environment. Beyond the binary designation of whether customization is possible or not, it could also be helpful to note whether the player can create their design from scratch (and whether that design can be shared with others) or rearrange existing objects to create a design.

Games as Relaxing, Alternate Worlds

Participants lauded AC:NH for its cozy qualities and described it as a dreamland devoid of pandemics, politics, and social unrest. Parsing these environmental qualities into specific categories might aid in creating metadata elements for emotionally supportive video games.

Setting and atmosphere can compose the effects of alternate worlds. Participants in this study discussed how much they enjoyed the relaxing island setting with the real-time temporal aspect. Providing the game's background setting information can be helpful for people to find the games they need. Similarly, providing information about the virtual spaces inside the game, such as aquariums, museums, and scenic viewpoints,

may also be helpful, as AC:NH players tend to describe how calming those places are in the game.

Atmosphere, particularly breaking down coziness into categories, offers a new taxonomic challenge. For example, games similar to AC:NH, like *Minecraft* (Mojang Studios 2011), *Flower* (Thatgamecompany 2009), *Stardew Valley* (Barone 2016), or *Harvest Moon* (Amccus 1996), focus more on notions of an idealized pastoral home. These games embrace the aesthetics of coziness by fostering a sense of belonging by improving one's home and land (Waszkiewicz and Bakun 2020). The associated feelings of refuge may lend themselves to key search terms like "protection," "comfort," "warm," "familiarity," "ritual," and "seasons" (Short 2018). As the popularity of cozy games grows, evidenced by the Wholesome Games Twitter profile (2022), which has over 88,000 followers, greater clarity on the dimensions of this genre will benefit players searching for relaxation.

Games for Social Support

Participants did not relax alone in their digital refuges; they were surrounded by other human players as well as NPCs. To help people find social games that promote well-being, it may be necessary to first break down social dimensions into two broad categories, including 'relaxing multiplayer' and 'relaxing with NPCs.' As noted above, relaxing multiplayer may eschew competition for other collaborative gameplay. Therefore, adopting terms like "friendly community," "supportive of new players," or "build together" in the game database may help find games that promote social support.

Regarding NPCs, providing additional information about the NPC's traits can be helpful. One example might be providing characteristic terms such as "welcoming NPCs," "digital friends," "companionship," "carefree NPCs," or "cute characters." Games with narratives that closely involve supportive NPCs in the storyline, like the *Atelier* series (Gust Corporation 1997 [initial series release date]) or the *Final Fantasy* series (Square Enix 1987 [initial series release date]), may provide certain types of social gratifications to players, while more open-world simulator games with friendly NPCs like the *Rune Factory* series or *Stardew Valley* (Barone 2016) could provide the sense of virtual friendship. Whether focusing on human-to-NPC or human-to-human interactions, categorizing games for well-being requires spotlighting the game's non-transactional qualities and underlining how characterization provides feelings of home, being nurtured, and unconditional acceptance (Short 2018).

CONCLUSION

Our survey results show that AC:NH aided players in recovering from pandemic-related stress, and the game also provided opportunities for social interaction during an isolating time. Although our findings highlight gameplay during a pandemic, this study points to how particular game design elements may support mental health and well-being generally. These elements could be implemented in other games that aim to support recovery processes. These elements include 1) a relaxed atmosphere in an open world with limited goal pressures, 2) allowing players to set their own goals and pace while still providing enough scaffolding to avoid a sense of aimlessness, 3) giving varied co-play options to support social engagement, and, lastly, 4) thoughtful NPC design and interactions that provide emotional support to players.

Understanding game elements that promote emotional and mental well-being can assist in recommending games to future users. Building on our current findings, we aim to investigate a larger set of games to find common characteristics (such as visual design aspects, audio and music style, and social interaction mechanics) that aid users' mood regulation. We envision that identifying these individual game elements will help enhance reference and recommendation services and media information retrieval.

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