The exercise world of otaku: extended body techniques, alternative body projects, and controllable social architecture

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Abstract

Why do some people opt for exergames like Ring Fit Adventure (RFA) over traditional exercise venues such as gyms? Focusing on the case of RFA, this study examines the social factors that contribute to this preference and explores the potential of video games to create alternative social contexts of physical exercise. Our findings indicate that that RFA constructs a distinct social context that aligns more closely with the body conceptions of the players, assisting them in partially breaking away from dominant norms of body presentation. Notably, RFA acknowledges and extends players' body techniques related to video games, allowing them to acquire various exercise skills and helping them form alternative body projects and exercise practices through narrative design and game mechanics. The players' utilization of multiple social media tools constructs a more controllable and individual-centric social architecture that enhances the autonomy of their body presentations.

Keywords: Exergame, Body technique, Body project, Social architecture

Introduction

Over the past 20 years, exergames have gone through rapid development and emerged as a prominent trend in the realms of exercise and health. Besides their prevalence in domestic space, these video games have been widely introduced to public places, such as communities, hospitals, and schools (Schiesel 2007) in order to facilitate physical activities. As early as 2007, Nintendo's exergame Wii Fit achieved notable commercial success, with cumulative sales of 22.67 million pieces (Nintendo 2022). It was also recommended by professionals to be integrated into rehabilitation programs in medical institutions, such as the "Wiilab", and have demonstrated favourable therapeutic outcomes (Sato et al. 2021).

 "Exergame" is a portmanteau word combining "exercise" and "game". It refers to video games that require players to interact through physically movements (Yang et al. 2009) with the purpose of developing their strength, balance, or flexibility (Oh and Yang 2010). These games are not mere substitutes for reals sports. In fact, they have started to affect people's exercise habits, resulting significant changes in choices of exercise venues. This paper asks the question why some people prefer exergames to traditional modes

of exercises in gyms or outdoor settings and explores the factors that contribute to this choice.

In examining the effectiveness of exergames, previous studies have proposed two potential explanations. One suggests that gamification enhances the enjoyment and attractiveness of sports activities, assisting individuals lacking sports experience and habits to acquire skills and adapt to regular exercise (Barnett et al. 2011; Maddison et al. 2007). The other explanation highlights the low-cost professional guidance and favourable exercise outcomes provided by exergames. Scholars have demonstrated that exergames provide exercise of low to moderate intensity (Peng et al. 2013) that result positive effects on weight loss (Unnithan et al. 2006), rehabilitation (Maziah et al. 2017), and pain management (Sato et al. 2021).

However, people's choices are not always based on rational considerations of efficacy but are also influenced by social and cultural factors. The body is both a personal resource and a social symbol. Shaping and managing one's body are often intertwined with self-identification and self-presentation. Subscribing to ideal body images promoted by the society, people persistently dedicate themselves to exercises that may help improve their physical appearances, but such process is often fraught with anxiety (Shilling 2012). While concerns about self-presentation, such as being perceived as overweight, uncoordinated, or unhealthy (Culos-Reed et al. 2002; Kruger et al. 2008) may serve as motivations for some individuals to engage in physical activities, they also cause self-awareness, or even sense of shame, for their bodily presence in exercise venues. This apprehension regarding one's body under the scrutiny of self-presentation is known as social physique anxiety (Hart et al. 1989). Whereas in exergames, as some studies have shown, avatars can help alleviate players' concerns and anxiety about their real bodies when co-presenting with others, thus improving the exercise experience. This is considered one of the reasons why some individuals tend to choose exergames (Song et al. 2011). Other studies have explored the Proteus effect of exergames. The Proteus effect refers to the phenomenon in which identity cues conveyed by avatars can influence players' in-game performance as individuals align their behaviours with the expectations and stereotypes associated with their avatars' identities (Yee and Bailenson 2007). An avatar with a fit body image can foster greater confidence in the player, which, in turn, improves exercise outcomes (Peña et al. 2016).

Focusing on social expectations and self-presentation pressure in exercise settings, previous studies have examined how avatars in exergames modify individuals' perceptions of their own bodies, and thereby alleviate social physique anxiety and result better exercise experience. However, social expectations of the body are not shared universally, but conditioned by specific social context. Previous studies appear to have assumed that individuals face the same social body expectations in exergames as they do in other exercise contexts, and thus focused on how individuals fill or ignore the gap between self–body perceptions and social expectations. Yet, this overlooks the possibility that social body anxiety may also be reduced when individuals' body project and body image are supported in a specific social context. Therefore, this study explores how the social contexts established by exergames may differ from those in other exercise venues. Do players perceive the social expectations of their bodies differently in these contexts? How does this difference influence their preferences for exercise styles and body practices?

Literature review

Body concept and exercise settings

Gym and fitness venues, often regarded as spaces for fostering physical wellness, serve as arenas where societal expectations and norms surrounding body image and self-concept are incessantly reinforced and propagated (Andreasson & Johansson 2014; Bladh 2022; Fisher et al. 2018). These venues inadvertently contribute to the perpetuation of certain body standards, consequently leading to a climate that may feel more inclusive for some individuals while inadvertently excluding others (Bladh 2022). As indicated by previous studies, the gym and fitness industry has capitalized on the promotion of health through certain images, linking the notion of health closely with aesthetics. Consequently, the physical appearance of being fit is equated with being healthy (LeBesco 2012). However, this paradigm poses significant challenges for individuals who do not conform to these physical ideals, often resulting in the marginalization of those with obesity (Lupton 2018). Some empirical studies have also demonstrated that gyms or some areas within them are dominated by hegemonic masculinity, discouraging individuals who do not conform to this idealized image, including not only women but also certain men (Coen et al. 2020; Fisher et al. 2018).

The body concepts embedded within exercise settings are often conveyed to individuals through spatial design. Some studies suggest that fitness centres cultivate an environment where bodies are prominently displayed, with a strong emphasis on weight loss and ideal body standards. Individuals in these settings frequently encounter numerous mirrors, posters depicting the desired physique, and images of others' bodies for comparison (Prichard and Tiggemann 2008). This could potentially exacerbate body image concerns and self-objectification among individuals, as heightened surveillance of their own bodies becomes more prevalent (Prichard and Tiggemann 2005). Furthermore, the body concepts reinforced within exercise settings often manifest in concrete fitness course or training programs that are tailored to specific goals. Participants in these programs are often encouraged to strive towards achieving these goals, reinforcing the notion that certain body types or abilities are more desirable than others (Sassatelli 1999).

The pervasive presence of these body concepts within fitness venues carries substantial implications, as it directly impacts the inclusivity and accessibility of these environments for a broad spectrum of individuals (Bladh 2022). The ideal body images showcased in these venues not only shape the atmosphere but also dictate who would feel welcomed and empowered to engage in physical activities. It has been demonstrated that Individuals who have experienced weight stigma trauma may opt to exclude themselves from sports and exercise settings due to self-discrimination and fear of stigma (Salvy et al. 2012; Vartanian and Novak 2011). They employ a range of strategies to navigate these challenges, such as selectively avoiding certain settings, exercising in "safe" spaces like their homes, or managing their social interactions to minimize stigmatizing reactions (Myre et al. 2021; Vartanian and Novak 2011). However, it's worth noting that not all self-exclusion strategies result in decreased physical activity levels. (Thedinga et al. 2021) People may also choose exercise venues that they perceive as friendly or accommodating.

Video game, alternative lifestyle and positive escapism

Video games are considered distinct from traditional forms of entertainment media in their ability to create digital environments. They do not only "display mediated environments in which characters perform", but also "enable and invite users to act by themselves in the environment" and to become an integral part of it. (Klimmt et al. 2009) Beyond their entertaining roles, video games are now being harnessed for numerous serious purposes, including education, work, interpersonal communication and physical exercise (Laamarti et al. 2014; Susi et al. 2007). Giddings (2014) argues that digital media like video games facilitate the "layering or multiplication of everyday life". There has been a notable shift towards conducting a variety of daily activities within the immersive environments crafted by video games.

Many scholars and researchers suggest that video games have the potential to facilitate the construction of alternative lifestyles, offering individuals opportunities to explore diverse modes of behavior and self-concepts (Bargh et al. 2002; Turkle 1994). In Huizinga's (1944) cultural theory, the realm of play is distinct from everyday life, forming a "magic circle" established on an independent space–time and self-generated order. For him, play represents a sacred sphere separate from mundane existence, capable of "bringing temporary and limited perfection" into an imperfect world. Caillois (2001) partially agrees with Huizinga's notion of game as a heterotopia but disputes its sacredness. In his view, play is a widespread cultural phenomenon within everyday life, fulfilling specific functions within secular societies. He posits that certain types of games allow individuals to explore different social roles and behaviors, creating opportunities to challenge dominant norms and escape life's pressures, enabling people to live a temporary alternative life within a distinct space–time. Although Huizinga and Caillois' discussion focus primarily on games that are carried out in a pyscially-based social setting, video games to some extent continue this ability to create heterotopia and bear an alternative life.

Previous research has demonstrated that the challenges and difficulties encountered in the "real" world frequently prompt individuals to seek refuge in video games where their unfulfilled needs in reality can be satisfied (Bhagat et al. 2020; Liao et al. 2022). The act of escaping into games is known as game escapism (Kuo et al. 2016; Warmelink et al. 2009) Researchers often associate escapism with negative outcomes, such as depression, time wasting, negative mood, social anxiety, loneliness, and self-discrepancy (Hussain et al. 2021; Kwon et al. 2011). However, there is also evidence suggesting that escapism can generate positive effects, enhancing players' self-worth and facilitating self-expansion (Hussain et al. 2021; Liao et al. 2022).

As previously mentioned, some researchers have noted that people utilize exergames to avoid succumbing to social physique anxiety, which can be considered a manifestation of positive escapism. However, it is worth noting that individuals not only escape from the dominance of certain body concepts and social body expectations, they also explore alternative ways of exercise and self-presentation within the environment constructed by the exergames. There has been little research focusing on what body concepts are conveyed to players through exergames and how these games shape their exercise practices.

Method

In this study, we selected Ring Fit Adventure (RFA) as a case and utilized a combination of participant observation and in-depth interviews. We conducted participant observations of a group of over 400 players over a period of three months, followed by online interviews with 20 members of the group. To ensure data saturation, we also interviewed another 10 players outside the group. At the same time, we also played through the first round of RFA.

RFA, Nintendo's latest generation of exergames, was released in September 2019 and has been positively received by the market, at one point running out of stock. According to official data released by Nintendo, as of September 30 2022, 14.87 million units had been sold. We selected this game as a case for several reasons. Firstly, as the top-selling exergame of its time, RFA stands out for its significant influence and substantial player base. While it may not fully represent all exergames, its widespread popularity surpasses that of similar products. Secondly, RFA integrates Japanese role-playing games into exergames, featuring a vivid world setting and storyline. Unlike many other exergames that lack a cohesive narrative, RFA creates a more meaningful social context, making it conducive to comparison with traditional exercise contexts. Finally, unlike aerobic-based games, such as Just Dance or Fitness Boxing, RFA offers a wider range of exercise modalities, including yoga, strength training, and body flexibility exercises, which are more often compared to gym exercise on social media. This comparability may further highlight the non-utilitarian aspects of players' choices.

We located the studied gaming group on the social network QQ, and its members maintain a high level of activity. We participated in and observed players' online discussions, daily activities, and special events of the group. Many members in this group are video game enthusiasts and jokingly call themselves "fat otaku", a stereotype or stigma for video game players. The term "otaku"[1] refers to young people who are deeply immersed in computers or pop culture to the extent that it negatively affects their social skills. Obesity is often considered a consequence of this lifestyle, as reflected in the adjective 'fat' that frequently goes with 'otaku'. However, "fat otaku" is appropriated by the group members as a shared symbol of identity, used for self-deprecation with irony and as a form of resistance. Additionally, many members of this group express a preference for RFA as a form of physical exercise over traditional exercise venues like gyms. During the participant observation period, few of them engaged in exercise at such venues, while many shared records of their exergame routines.

The 20 interviewees were actively engaged in the group, and we established contact with them during the participant observation period. The other 10 interviewees were recruited from social media platforms such as Douban, Bilibili, and VGtime. We found and contacted them through their replies to relevant posts. All respondents who expressed a preference for exercising through exergames such as RFA had prior experience with video games and self-identified as "gaming otaku" (Table 1).

Along with participant observation, we immersed ourselves in the game to gain a comprehensive understanding. Over a period of three months, we completed main content

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[1] Otaku was added to the Oxford English Dictionary in 2004, defined as "a young person who is obsessed with computers or particular aspects of popular culture to the detriment of their social skills".

Table 1 List of interviewees

Interviewee code	Gender	Age	Interviewee source
QM1	Male	23	QQ group
QM2	Male	25	QQ group
QM3	Male	31	QQ group
QM4	Male	24	QQ group
QM5	Male	22	QQ group
QM6	Male	24	QQ group
QM7	Male	28	QQ group
QM8	Male	22	QQ group
QM9	Male	26	QQ group
QF1	Female	33	QQ group
QF2	Female	22	QQ group
QF3	Female	25	QQ group
QF4	Female	21	QQ group
QF5	Female	24	QQ group
QF6	Female	28	QQ group
QF7	Female	30	QQ group
QF8	Female	24	QQ group
QF9	Female	25	QQ group
QF10	Female	23	QQ group
DM1	Male	28	Douban
DM2	Male	30	Douban
DF1	Female	26	Douban
BM1	Male	24	Bilibili
BM2	Male	22	Bilibili
BF1	Female	25	Bilibili
BF2	Female	27	Bilibili
VM1	Male	26	VGtime
VM2	Male	29	VGtime
VM3	Female	22	VGtime

of RFA, documenting and analysing its game mechanics, storyline, world-building, and dialogue. When analysing the game's narrative and dialogue, we employed the concept of *interpretive repertoire* to examine what body conceptions RFA conveys and how it constructs the meaning of exercise. The interpretive repertoire is a theoretical and analytical concept developed by Gilbert and Mulkay (1985) that refers to how different narrative versions of the same thing are achieved through discourse. Each repertoire creates a distinct social world and different kind of characters (heroes and villains), constructing different teleological myth and causal narratives for the same events.

Results

From game to exercise: extended body techniques

Mauss (1979) arrived at the concept of *techniques of the body* after observing that some embodied practices are specific to certain societies while others exhibit different styles across social groups. This concept provides a sociological perspective for understanding

body activities (Crossley 2005; Wolff 2010). Mauss (1979) defined body techniques as "ways in which from society to society men know how to use their bodies". According to this definition, the concept of *body technologies* encompasses both action and cognitive dimensions: individuals not only use their body but also "know" how to use them. This knowledge and practice of the body are not individualized but situated within specific "traditions". This implies that body techniques are rooted in socio-cultural contexts and shared by specific groups. In addition to their practical effects, body techniques hold specific symbolic meanings and are bound by social norms (Crossley 2007). Practices that conform to group norms are "rationalized" and become legitimate forms of body techniques, while others deemed ineffective or inappropriate are restricted or marginalized. In this regard, body techniques are also related to group identity, as they determine an individual's ability to acquire the competence necessary for membership in a particular group (Mauss 2021). As acquired skills, body techniques possess a degree of transferability. On the one hand, they spread across groups, requiring individuals to acquire new body techniques when moving from one social context to another. On the other hand, some body techniques can undergo transformation and remain functional.

Mauss's thoughts on body techniques provide a theoretical framework for studying exergame players. Many observed players had prior experience with other video games before trying exergames, which helped them develop a set of body techniques related to video games. These body techniques include how to interact with different types of controllers, how to react and enter appropriate commands at the right time, as well as how to formulate and implement strategies in response to game challenges and available resources. These experiences and associated body techniques are also fully applicable in RFA. Players primarily perceive RFA as a video game rather than a gamified exercise program. Many players emphasize that Ring Fit Adventure (RFA) is a bona fide role-playing game, characterized by character development, item collection, and quest mechanics that rival those found in conventional role-playing games. As articulated by QM2, "RFA is a true game, akin to games like Dragon Quest.[2]" Moreover, RFA integrates elements of platform games[3] into its level design and exercise challenges. Players are required to time their jumps appropriately akin to gameplay mechanics reminiscent of Super Mario, as described by QM8.

As the interviewees highlighted, RFA demands players draw upon their previous gaming experiences, utilizing their understanding of game mechanics and a range of operational skills to complete fitness activities. While these inputs previously relied on sharp reactions and precise finger button controls, in RFA, these body techniques extend to various parts of the body. Players in RFA leverage and transform the body techniques accumulated from past gaming experiences. Moreover, the transferred body techniques encompass not only mastery of physical actions but also understanding of the game world and formulation of game strategies. Players achieve success and enjoyment in the game by applying their skills and knowledge, as well as by keenly perceiving hidden elements within the game.

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[2] Platform games are a subgenre of action video games in which the core objective is to move the player character between points in an environment.

[3] The ring-con is a circular input device for RFA that senses pressure and actions.

Each level offers a plethora of elements and hidden Easter eggs to collect—for example, when you squeeze the ring-con[4] to fire an air cannon to hit road signs or light beads, you get gold coins, and there are several branch routes, but only one hidden gold badge. You see some clues in the scene. If you're a "Nintendolt",[5] you'll know that Nintendo has a surprise prepared for you here. (QM8)

By incorporating physical activities into role-playing games, platforms, and other forms of video games, RFA creates a liminal space that enables the migration and extension of body techniques developed in past video game experiences into exercise techniques. The concept of liminality is derived from van Gannep's (2013) and Turner's (1979) anthropological studies of ritual processes and refers to the state of being betwixt and between. When participants are in a liminal state in a ritual, they are between a previous way of structuring their identities, time, or community, waiting to complete the transition. In RFA, players' experience lies between game and exercise. As the game advances, the existing game experience and related body techniques are transformed into exercise techniques. In this respect, the main line of the game functions as a transitional ritual, although this process does not follow Turner's template of achieving a separation of the before and after states at the end but rather constructs a continuity between the two body techniques and body experiences.

This transition is not only in terms of physical practice but also carries symbolic significance. In RFA body techniques derived from video gaming are acknowledged, with game designers actively encouraging players to employ these techniques, thus granting them legitimacy. Conversely, in traditional gym settings, these body techniques are often disregarded or even dismissed. "Body experts" in such environments consistently assess what constitutes a normative and legitimate body form and technique, determining what requires correction (Shilling 2012). Participants frequently recount feeling implicitly or explicitly pressured to abandon previous unhealthy lifestyles and unscientific exercise habits, in favour of acquiring new skills and embarking on a fresh start.

The trainer would inquire about your previous lifestyle and then offer a bunch of tips to help you fix your bad habits, especially for someone overweight like me. When he noticed my poor physical condition, he suggested that I cut back on gaming and hit the gym more frequently. (QM6)

These normative discourses are not confined to exercise venues such as gyms but are based on a dominant body knowledge that also permeates other everyday contexts and operates in social relationships. In the exercise contexts created by RFA, players have the opportunity to negotiate normative discourses about body techniques with others. This allows them to acknowledge and affirm game-related body techniques, liberating them from the constraints of dominant conceptions.

RFA not only infuses the enjoyment of video games into fitness with its gamified design but also enables a coherent transition between the two sets of body techniques on

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[4] Originally a stigma for Nintendo loyalists, "Nintendolt" implied imbecile people who played Nintendo games, but it was also appropriated by Nintendo fans as a symbol of group identity.

[5] Dragon Quest is a revered role-playing video game series developed by Square Enix (formerly Enix). Originally released in 1986, Dragon Quest quickly became one of the pioneering franchises in the RPG genre.

a practical and discursive level. In the exercise process, it encourages players to invoke the body techniques developed in video games, symbolically validating and legitimizing them. This facilitates the transition and extension of their body techniques, helping players immerse themselves in their own exercise worlds.

Fun and health: alternative body project

The body faces increasing uncertainty as the capacity to intervene with it expands. Modernization processes, such as desacralization and the proliferation of individualism and consumerism, have furthered the erosion of traditional certainties (Gill et al. 2005; Shilling 2012). Along with uncertainty comes what Giddens (1991) calls "ontological insecurity" and the reflexive monitoring of one's identity and body. These trends have fostered an awareness of alternative body forms, thus undermining the constraints of traditional models of socially acceptable bodies. The body is viewed as an entity in the process of becoming and as a project that should be worked on and accomplished. In late modernity, "we have become responsible for the design of our bodies" (Giddens 1991).

However, the fact that the body has become a personal project does not mean individuals have absolute autonomy over their own body. What is considered desirable for the body is still influenced and constrained by society. Images of desirable bodies are dictated by existing social structures (Shilling 2012). Different groups compete to define their own bodies as the most valuable (Featherstone 2014), and alternative body projects are developed to challenge conceptions of the bodies. Recognizing the body as a project and acknowledging the competition between different projects can help us better understand exergame players' preferences.

RFA presents a unique narrative akin to "Dragon Quest," in which the antagonist, Dragaux, was once the Ring's ally. However, being obsessed with strength, muscles, and excessive fitness, he lost himself and eventually fell into the abyss of chaos and rage, posing a threat to the world. The player's objective is to help the Ring defeat Dragaux and liberate him from the darkness. When the mission is completed, Dragaux regains his senses and offers an explanation to the player and the Ring:

> *I was always embarrassed by my body. I hated how weak I was. The dark influence filled that void in me. It pumped up my flabby weaknesses and self-doubt. But I let it grow too strong. All that muscle went to my head. I lost myself in it ... and I almost lost everything else, too.*

Non-player characters symbolizing different exercise styles encourage Dragaux:

> *We thought that the dark influence was helping us overcome our weaknesses, but in truth, we were just running away from them. You can only find your true strength when you acknowledge your weakness. There is no reason to pursue perfection that can never be achieved.*

After this conversation, the story of the first round of RFA ends. Dragaux becomes the Ring and the player's exercise partner, and the second round of the game begins.

The story told by RFA can be seen as an "interpretive repertoire" about body projects encapsulating two contrasting conceptions of the body. To achieve a body that conforms to social expectations, Dragaux developed a secular ascetic style of body practice,

constantly imposing discipline on himself, voluntarily engaging in rigorous and arduous body work. As Featherstone (1982) points out, the rewards of ascetic physical work are no longer the salvation of the soul or better health but an improved appearance and a more marketable self. In contrast, within the story, the character played by the player is tasked with correcting Dragaux's ascetic exercise approach alongside the Ring, and forming appropriate body conceptions and body project as the game's story progresses. Through this narrative arc, RFA constructs an alternative body project and complements it with a series of technical programmes designed to empower players to break free from dominant conceptions of the body and exercise according to their own will.

Many players draw clear distinctions between the purposes of their bodily activities in different exercise settings. Some players perceive the gym primarily as a space for body-building, while they view playing RFA as a means to stay active and sustain their physical health. They also describe gyms as dull environments where individuals engage in specialised and pragmatic body work, while highlighting RFA's engaging gameplay, which transforms exercise into an enjoyable experience.

> *For people who are serious about losing weight and getting in shape, hitting the gym is the way to go. But for someone like me, stuck at a desk all day and only squeezing in the occasional exercise, it [RFA] is highly recommended. It's not as professional as the gym, but it's way more enjoyable. (QF6)*

The narrative and aesthetic design effectively convey an exercise approach focused on enjoyment. Players are immersed in a vibrant gaming world, departing from strict exercise regimens and rigid body planning, and instead emphasizing fun and health. As pointed out by one of the interviewees:

> *I've figured out where the fun is in RFA...it's the reward system. As you jog, you earn coins, and a storyline unfolds as you go. You are not just mindlessly repeating workout moves; as progress, there's always a buddy beside you cheering you on... And by buddy, I mean the Ring. He's quite chatty, accompanying you as you trek through mountains, paddle through rapids...these activities also provide a lot of positive feedback. (VM1)*

Undeniably, In the world of RFA, individuals are not completely free to utilize their body in creative ways. The game's rules and processes still confine the body in a set framework of activities. However, RFA offers a diverse range of exercises, varied play patterns, adjustable exercise intensities, and intricate branching processes, all of which provide individuals with the opportunity to actively create personalized body projects.

Players have also developed their own styles of practice in RFA. Some indulge themselves in the virtual scenery while running, while others enjoy moving with the rhythm of the music. Additionally, there are those fixated on setting speedrun[6] records. These individuals typically run with increased frequency and shorter strides, pushing their avatars to higher speeds. They often exploit software or hardware bugs to gain an advantage and achieve faster completion times.

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[6] Speedrun is a way of playing a video game with the goal of completing it as fast as possible.

Huizinga ([2014](#)) argues that rationalized sports are increasingly removing the body from the peculiarities of the natural environment, which is conducive to creativity and the expression of differences, and relocating it to the uniform geometries of the gymnasium and the running track. Within the limited options offered by RFA, some players actively opportunities to use the body in creative ways and bring sport back to its playful nature.

Exercise with others: controllable social architecture

Although RFA is a single-player game with limited online functions, the experience is far from individualized. Many players actively seek ways to interact with others. Social networking applications serve as the most common means of interaction, which players combine with various RFA features to create a unique social system. Madianou and Miller ([2013](#)) introduced the concept of *polymedia*, suggesting that each media technology has its own unique affordances and limitations. They argue that social relationships no longer rely on a single technology but on the combined use of technologies that complement each other. This concept directs our attention to the increasingly diverse forms of social interaction and enables us to examine how users combine these forms to create unique social architectures (Yee [2009](#)) that influence social relationships.

The most prevalent from of players social interaction is sharing exercise records through instant messaging applications. Within the studied group, players have established a shared album within their online group chat specifically for exercise records, where numerous members regularly upload their daily achievements. Extra wearable devices and various self-tracking technologies are also utilized to record and share their exercise experiences in RFA. Many players also use the Apple Watch's exercise recording function when playing RFA and share their records with friends. Instead of displaying the body image, these techniques document their health metrics and quantify achievements, which are then transformed into visual and symbolic forms of awards, such as badges, levels, rankings, etc. They not only help individuals gain clearer insights into their physical states and progress but also facilitate the sharing of such information with others, establishing a presentation of the body based on data and symbols.

Some players post videos of themselves playing RFA on social media or even livestream their games. Live streaming can be an empowering process through which players gain great confidence in taking challenge request by viewers and showcasing their virtuosity. It offers players the opportunity to interact with viewers, whose encouragement and feedback serve as continuous motivation, enhancing the players' focus and engagement. Moreover, players can engage with viewers, sharing gaming experiences and tips, fostering a sense of shared interest and belonging. However, compared to face-to-face social interactions, livestreaming provides players with greater flexibility as they can end the show at any time and return to solitude. This form of livestreaming not only brings the joy of social support and interaction but also meets the players' need for personal space and autonomy, thus playing a significant role in promoting sustained engagement in exergames.

Sometimes, playing RFA during live streams feels quite satisfying. Viewers provide me with encouragement, and occasionally, they point out when my moves aren't per-

fect. … There are moments when laziness creeps in, but the awareness that someone is watching keeps me going. … Compared to going to the gym, live streaming has its advantage; you can sign off anytime and return to working out alone, enjoying the peaceful feeling. (BM2)

Some players also engage in conversations and post, or request game tips in forums. While players may not be present simultaneously, they can use social networking applications to glean insights into other players' experiences as they navigating specific paths or overcoming certain challenges or journeys. In this manner, players continue to partake in a shared world, albeit in an asynchronous rather than synchronous manner. This asynchronous online model is becoming increasingly integrated into many video games, but RFA players implement it through the use of polymedia.

When checking guides or watching gameplay videos from others, you may feel like they are your companions. They understand that you might encounter difficulties at certain levels, so when creating guides, they make special notes to address these challenges. (DF1)

This leads to another potential explanation for their preferences: RFA allows them to avoid public body presentations by avoiding social interaction, thereby alleviating social physique anxiety. However, the evidence above indicates that these players do not always avoid social interaction. Instead, they participate in various forms of self-presentation through polymedia. Computer-mediated communication theory aids in elucidating this phenomenon, suggesting that non-face-to-face communication can foster relationships. One plausible reason is that users possess greater autonomy in controlling and optimizing their self-presentations (Walther 1992). Given that RFA is a single-player game, players don't have direct in-game interactions. Instead, they often turn to social media and other platforms to connect and engage with each other. This makes the social context built around RFA "public–private" (Lange 2007), enabling players to partially present themselves to others.

In addition to their online social interactions, players also interact with others offline especially in the familiar home setting, where they gather with friends or family. Staying away from the scrutiny of others, players feel freer to establish unique rules of engagement and negotiate their personal interpretations of bodily engagement in a more adaptable way. This intimate environment facilitates personalized patterns of exercising that cater to their special needs and are shared exclusively among family and close friends, contributing to a sense of camaraderie and mutual support as they collectively pursue their fitness endeavours. As a typical example, QM3 regularly participates in RFA with his daughter at home, taking turns in controlling the ring-con and working together to defeat bosses. This shared gaming experience not only promotes physical activity for his daughter but also fosters a stronger bond in the parent–child relationship. For him, the purpose of exercise is not weight loss or sculpting, but rather creating a healthy and joyful family atmosphere.

Whether online or offline, RFA players gain more autonomy in their social interactions, constructing a more individual-centred social architecture and more controllable forms of self-presentation. Consequently, they are more inclined to tailor their exercise routines to meet their personal needs. In contrast, traditional exercise venues often pose

challenges on individuals, compelling them to engage with others and navigate various situations. Moreover, the cultural significance and social norms embedded within these traditional exercise venues tend to remain relatively stable and resistant to change.

Conclusion

This study provides an alternative perspective on people's preferences for exergames, emphasizing the social factors that influence people's choices over the issue of efficacy. We explore how various exercise contexts shape and reinforce different concepts of the body, rather than focusing on how exergames influence players' body perception to bridge or disregard the gap between individual self-presentation and specific societal expectations. Previous studies have often assumed that exergames are dominated by similar body conceptions. However, this study suggests that exergames such as RFA may introduce and convey alternative conceptions of the body that create different social expectations and, to some extent, help players escape from dominant body norms. Specifically, RFA allows easy transformation of body techniques acquired in other video games to enhance the players performance and overall experience. Moreover, RFA conveys different body conceptions through its design of narratives and game mechanics, rejecting overly rationalized body practices with ascetic overtones, and encouraging people to free their bodies from the imposed ideal body image. This enables them to develop personalized exercise pattens. Furthermore, players combine various social networking applications to create a more controllable and individual-centred social architecture that enhances the control of their body presentations. In contrast, traditional exercise venues like gyms often marginalize or reject game-related body techniques, prioritizing bodybuilding and hard work over enjoyment and health.

This study does not mean to diminish the value of traditional exercise venues or imply that exergames inherently liberate the body. Exergames like RFA are products of the cultural industry in a consumer society that commodifies specific lifestyles for mass consumption. Furthermore, some traditional exercise venues can also foster and endorse similar body practices based on various conceptions of the body. The distinctions between exercise contexts in this study are based on personal experiences narrated from the perspective of exergame players. Our intension is to illustrate the potential of video games to create alternative social contexts and demonstrate that some exergames, such as RFA, foster alternative conceptions of the body and enable players to engage more creatively in body practices.

In the context of late modernity, the body is increasingly seen as uncertain, constantly in the process of "becoming" (Shilling 2012). At the same time, commercial and sociocultural power also manipulate self-perceptions by defining what is a desirable body and what is a legitimate body practice. As sports become more pragmatic, the creativity of the body becomes constrained. Situationists advocate for the use of "constructed situations" to challenge and break free from dominant concepts of everyday life (Debord 1957). Video games appear to have the potential to create alternative social contexts without profoundly challenging the existing order. Through this in-depth case study, we hope to explore how these affordances empower individuals to unleash suppressed creativity in their daily body practice.

Declarations

Ethics approval consent to participate

All respondents and participants were informed of the purpose of the study and the use of the information they provided. This study followed and complied with the research ethics of Zhejiang University.

Competing interests

The authors declare that this paper has no competing interests.

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