

From Play to Progress: Gamification Strategies for Supporting Long-Term Health Goals in Fitness Apps



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Abstract: Fitness apps in China show low user stickiness compared to other mHealth applications. Young Chinese adults often face body dissatisfaction, low physical activity, and disordered eating, while existing app features rarely support sustainable healthy lifestyles. This highlights the need to improve user experience (UX) to better motivate users and encourage long-term behaviour change. This study employs case studies and interviews to explore how gamification can motivate user engagement and support skill development. The findings suggest that: (1) tasks should accommodate users' capacity for gradual growth, (2) digital rewards need to align with users' interests, and (3) tasks and rewards should be designed to accompany users throughout their fitness journey. These insights offer practical gamification strategies for enhancing motivation and integrating meaningful engagement into fitness app design.

Keywords: User Experience; Fitness Apps; Motivation; Gamification; China; Young Adults

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1 Introduction

1.1 Chinese Online Fitness Market

Since the early 2010s, the health and fitness market in China has experienced remarkable growth [14]. Within this domain, fitness apps are designed to encourage exercise, monitor progress, and provide users with structured routines to support long-term wellbeing [22]. In China, fitness apps are performing exceptionally well in the Chinese online fitness market, collectively generating a revenue of almost RMB 800 million (approximately AUD \$ 169 million) as of 2023 [20].

However, despite their popularity, fitness apps in China face a notable challenge: they show lower user stickiness compared to other types of mHealth apps [12]. According to Localytics [17], 80% of users stop engaging with their fitness apps within just 30 days of downloading them. This low retention rate is especially concerning among young

Chinese adults, a group that often struggles with body dissatisfaction, insufficient physical activity, and disordered eating behaviours [11]. Current app designs tend to rely heavily on basic tracking functions, social communities, or influencer livestreams, yet these features rarely succeed in sustaining motivation or fostering a balanced, long-term healthy lifestyle [24, 25]. These limitations point to the need for more effective strategies to improve the user experience (UX) of fitness apps and engage users in motivating, sustainable ways.

1.2 Research Aim and Question

One promising approach to addressing this gap is gamification, a design strategy that applies game elements and mechanics in non-game contexts to enhance user engagement [6, 9, 10]. We chose this approach because young

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adults, our target group, are highly familiar with games and often enjoy them, which may foster stronger and more sustainable motivation [6, 9, 26]. Moreover, a learning or mastery approach to interaction design—from initial adoption to long-term retention—can further improve user engagement [10, 16]. The central objective is not only to motivate users to participate in specific behaviours but also to guide them toward mastering those behaviours over time [15].

We conducted a focus group with twelve young Chinese fitness participants, drawing on their insights from frequently used fitness apps and case study analysis. The study is to address the research question: *How can gamification strategies be designed to improve user experience (UX) in fitness apps in China, in order to motivate young adults to adopt and sustain healthier behaviours?*

2 Literature Review

2.1 Tasks and Rewards

The term "gamification" originally emerged in 2008 and

was later broadly used as a popular strategy both in commercial culture and the field of influencing behaviours [9]. Its objective is to use technology to motivate users to participate in specific behaviours and guide them toward mastering those behaviours [15].

Gamification involves implementing game design elements and mechanics into non-game settings. There are two definitions:

- 1). The use of game design elements in non-game contexts;
- 2). The process of game-thinking and game mechanics to engage users and solve problems.

Both definitions are applied in the design of fitness app motivation. For example, game elements include setting up competitions, providing different levels of play, narrative challenge modes, etc. Gamification involves setting up fun tasks to earn rewards. As shown in Table 1, Lister [16] conducted a large-scale quantitative analysis of 132 health and fitness apps for effective game elements. Among them, 67% contained at least one element of gamification. The highly used features were social competition, game elements to reinforce feedback, and digital rewards.

Table 1 Descriptive statistics for gamification elements

Measuring rubrics	Feature or strategies	Num of apps	Score	Total %
Game elements	Self-representation with avatars	68	3.80 of 13	29.23
	3D environments	8		
	Narrative context	8		
	Feedback from game (before or during)	45		
	Feedback, reinforcement (after)	76		
	Leaderboards	43		
	Ranks of achievements	39		
	Different levels of play	28		
	Marketplaces and economies	19		
	Competition	42		
	Teams (multi-player modes)	19		
	Parallel communication systems	64		
	Time pressure	43		
Gamification	Leaderboards	43	2.29 of 6	38.16
	Levels of achievement or rank	34		
	Digital rewards	73		
	Real word prizes	24		
	Competitions or challenges	51		
	Social or peer pressure	78		

Note. The table demonstrates Lister [16]'s study sample of 132 health and fitness apps. Some of the apps contained at least three or more gamification elements.

Lister [16]'s findings align with other empirical studies, showing that social and progress challenges are two important types of gamification commonly and effectively

used in fitness apps [1-3]. Social challenge gamification often relies on team support, collaboration, and competition,

as seen in apps such as *Fitbit* and *Fitocracy*. Progress challenge gamification, used in apps like *MyFitnessPal*, *RunKeeper*, and *Strava*, typically involves setting a fitness challenge task and then providing rewards upon completion.

2.2 Tasks and Abilities

Csikszentmihalyi and Larson [4] hypothesise a state of flow and define the role of tasks in gamification. When a task is too difficult, it causes people to feel anxious, while a task that is too easy leads to boredom. However, when the task is appropriately challenging, individuals experience heightened focus and immersion. The behaviour change model also mentions that people's motivation varies according to their ability to grow. This suggests that in gamification, tasks should be set at the right level of difficulty to match people's skills.

However, setting gamified challenge tasks, ranging from easy to difficult, are more likely to serve as behavioural triggers, failing to address the capabilities of various users. This approach potentially overlooks individual abilities and may only offer temporary motivation without achieving long-term behavioural change [19].

3 Methodology

We conducted practice-led research through case studies

and participant interviews. We recruited twelve young Chinese adults between the ages of eighteen and thirty-five. This approach helped us reflect on aspects that current fitness apps may have overlooked and allowed us to gain a deeper understanding of participants' motivation.

4 Case Study and Findings

4.1 Tasks Need to Consider the User's Ability to Grow

Ring Fit Adventure is a popular fitness game developed by Nintendo for the Switch console, widely used across Asia. The game combines role-playing elements with exercise, guiding players through a narrative adventure while requiring physical movements to progress. It primarily relies on progress challenges, where users complete fitness tasks and receive rewards as they advance through levels.

We selected *Ring Fit Adventure* as a case study because it illustrates how gamified tasks are designed in relation to users' abilities, and most participants expressed interest in it. By examining this relationship, the study aims to explore whether task difficulty appropriately matches users' skills and supports sustained motivation.



Figure 1 *Ring Fit Adventure* forces the player to cheat his body

Czerwonka, Alvarez and McArthur [5] conducted an analysis of *Ring Fit Adventure*. It serves as a good example of the implementation of flow theory. However, the game experience still has some issues to address. *Ring Fit Adventure* employs an idealised body image to motivate

users. However, it fails to fully accommodate the diverse range of player body types. Players may feel further disappointed by the avatar representation on the screen, perceiving it as misrepresentative. As shown in Figure 1, players encountered difficulties during the setup process,

as the game failed to recognise their readiness. Despite standing, their height was not accurately registered by the system. To overcome this issue, players had to resort to lowering the leg strap below their knees to deceive the setup system successfully. Furthermore, the yoga exercises feature an idealised female body shape, and the standardised movements do not accommodate some overweight women, leading to difficulty in performing exercises correctly or causing injuries.

Jiang and Tham [13] conducted a case study on *Ring Fit Adventure* and noted that one movement should be adaptable to different abilities. *Ring Fit Adventure* often instructs movements within a limited time frame, causing frustration for some users. For example, a reviewer expressed exhaustion from attempting to keep up with the rapidly changing instructions on the screen before even starting the game.

Upon reaching the end of the warm-up screen, the player felt upset by the avatar's representation, sarcastically remarking on the disparity between himself and the character. As shown in Figure 2, due to improper gestures while holding the Ring-Con, the screen consistently failed to register the completion of the "Hold" instruction. The user was unaware that their improper operation was the reason they could not proceed to the next step.

Ring Fit Adventure completes all tasks through its narrative story mode. Once users experience the entire story, they achieve a sense of accomplishment. However, this accomplishment is purely the sense of completing the game's mission, and has little connection to the fitness habit itself. As a result, many users abandon *Ring Fit Adventure* after completing the story [13].



Figure 2 *Ring Fit Adventure* using time continuing into a "Hold" instruction

In an ideal state, designing tasks for fitness users can involve gradually increasing difficulty levels as users' skills improve. However, users' body shapes, abilities, endurance, and sense of accomplishment inadvertently add complexity to the task-setting process in fitness products.

4.2 Rewards Need to Be Aligned with the User's Interests

When designing gamification, collecting rewards (such

as points, coins, rewards, prizes, competitions, and challenges) is popular [18]. However, compared to goal setting and social communities, rewards solely focused on encouraging users to complete performance goals do not motivate users for long-time [9].

One study by investigated the gamification elements used among the top 50 fitness apps downloaded by iPhone users [3]. The most frequently employed gamification elements (as shown in Table 2) were goal setting and social influencers. This is because goal setting is easiest to design and implement, and social influence aligns with social

challenges gamification. However, the use of points, levels, unlockable content, and lifelines was found to be of low frequency.

Table 2 Gamification elements use in fitness apps

Gamification Feature	Description	Frequency of Use %
Goal setting	Performance-based measures and targets	25/32, 78.1
Social influences	Performance is publicly displayed or ability to communicate directly with another user	25/32, 78.1
Challenges	Time-limited goals or competitions	20/32, 62.5
Collaboration	Work together with other members to achieve a goal	15/32, 46.9
Competition	Compete with other users either head-to-head or through leaderboards	13/32, 40.6
High scores	Tracking of best attempts at goals or challenges	7/32, 21.9
Badges	Recognition earned for completing specific milestones	6/32, 18.8
Narrative	A story is used to provide context for targeting a goal	4/32, 12.53
Streaks	Recognition for consecutive goal achievement	3/32, 9.4
Points	Accumulate points that help progress through game or can be redeemed for rewards	2/32, 6.3
Levels	Progress through parts of the game (e.g., level 1 to level 2) or gradients of status (e.g., bronze level or silver level)	1/32, 3.1
Unlockable content	Access to enhanced functionality or content for accumulating experience or achieving a specific goal	1/32, 3.1
Lifelines	Ability to obtain help or gain a second chance at completing a goal	0/32, 0

Note. The table demonstrates the study on the most commonly used gamification features among 50 popular health and fitness apps [3].

Other studies also found that points, badges, and leaderboards, which are considered integral to gamification, fail to motivate users in fitness apps [20-22]. The studies [7, 8] assume that the main reason for user dissatisfaction with rewards is that they only serve for completing tasks, without any factors related to the user. Our participants shared the following insights.

Firstly, praising as a form of reward does not motivate users. It aligns Cotton and Patel [3]'s case study, the descriptions within the rewards feature are presented in a robotic manner. For example, "Your goal in this task is to complete fifteen exercises and advance to the next level." "Your aim is to achieve a certain proficiency level within a specified time limit." "You can invite other players to challenge a goal together." In Jiang and Tham [13] case study on *Ring Fit Adventure*, phrases like "You are doing great!" "Nice!" "Well done!" and "Perfect!" in English is good. However, when these expressions are translated into another language like Chinese, Chinese players laugh because such expressions in this context are unfamiliar to their culture.

Secondly, many reward mechanisms are unchanging, causing users to become accustomed to rewards and pay less attention to them. A study by Skinner [23] proposed that digital rewards should be allocated on a variable reinforcement schedule to maintain engagement. Without this, individuals might become accustomed to receiving rewards, leading to a decrease in motivation over time.

4.3 Tasks and Rewards Can Be Designed Throughout the Fitness Journey

We conducted a three-hour interview and asked 'How Might We' questions about setting tasks and gaining rewards in fitness apps. This approach could gain deeper insights into the relationship between setting appropriately challenging tasks and motivating users through sustainable rewards within gamification strategies in fitness apps. The participants' suggestions revealed some interesting insights:

- 1). The process plays a more critical role than task completion.
- 2). Well-designed situations can provide participants with challenges, excitement, and emotional value, even when difficult goals are set. The data showed that participants more engaged in the immersive experience, allowing them to forget the physical exertion.

These two insights illustrate the power of immersive environment in supporting complex tasks. The concept of immersion can be central in explorations of gamification, specifically in understandings of users' subjective feelings and flow.

The reward mechanism does not necessarily need to be established only after the completion of the workout. Participants indicated that the reward mechanism during the fitness process has not yet been fully developed.

5 Conclusion

In summary, integrating gamification strategy with fitness is considered a crucial feature and has been shown to have long-term motivational effects. However, there are some considerations to improve: (1) tasks need to account for users' ability to grow, (2) digital rewards should be aligned with users' interests, and (3) tasks and rewards can be designed to accompany users throughout their fitness journey. The findings provide practical gamification strategies for integrating motivational elements into fitness app design.

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