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Research and practice of personalized fitness plans based on Hmove platform

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ABSTRACT

On June 20, 1995, the State Council promulgated the "Outline of the National Fitness Plan". Its promulgation is a major decision for the country to develop social undertakings. It is a national leadership and national participation, with purpose, tasks and measures. The fitness plan is a feat of "contributing to the present and benefiting the future". It is a social system project supporting the goal of realizing socialist modernization. Based on this goal and based on the needs of the majority of citizens in the current economic and social economy, my team and I proposed to develop the Hmove fitness and entertainment platform. This study aims to explore the effectiveness and practicality of personalized fitness plans based on the Hmove platform. The Hmove platform, as an innovative fitness platform, integrates advanced data analysis and user feedback mechanisms to provide powerful technical support for the formulation of personalized fitness plans. The research collects users' basic information, fitness goals and preferences, and uses data mining and machine learning technology to customize fitness plans for users. During the experiment, we used questionnaires to interview users who frequently use fitness APPs, continuously tracked their fitness progress and collected feedback. The results showed that participants' physical fitness and health status were significantly improved under the guidance of personalized fitness plans. At the same time, most participants were highly satisfied with the fitness program and felt that the program met their needs and expectations. However, the study also found that some users encountered some challenges in the execution of the plan, such as difficulties in time management and insufficient flexibility in plan adjustment. These questions remind us that we need to take more into consideration the actual situation and dynamic needs of users in the formulation of future personalized fitness plans. Looking to the future, we recommend in-depth research on how to combine real-time feedback and data from users to further optimize the personalized fitness plan algorithm and improve the adaptability and flexibility of the plan, thereby improving user experience and fitness effects.

KEYWORDS

Fitness; APP; Data; Entertainment mode; Personalise

1. INTRODUCTION

With the accelerated pace of life and increasing work pressure, health has become an issue of increasing concern to modern people. Against this background, the fitness industry has ushered in unprecedented development opportunities. Hmove platform, as an emerging fitness service platform, will emerge in the fitness field with its intelligent and personalized features. A personalized fitness plan is a tailor-made exercise program based on an individual's physical condition, exercise experience and fitness goals. It can not only improve exercise effects, but also effectively prevent sports injuries and help individuals find a fitness path that suits them in their busy lives. The emergence of personalized fitness plans marks the beginning of the fitness industry's shift from the

traditional "one size fits all" model to a more refined and humanized service approach. This research and practice will focus on personalized fitness plans on the Hmove platform. By collecting users' health data, exercise preferences and fitness goals, and using advanced algorithm models to generate personalized fitness guidance programs for users. We aim to explore the effectiveness of this solution in practical applications and how it can be further optimized to improve user experience and exercise results. This research and practice is not only practical, but also takes an important step in the innovation of fitness services. National fitness is of great significance to society. It not only contributes to individual physical health, but also has a positive impact on all levels of society. For example, to promote a healthy lifestyle, national fitness encourages people to participate in physical exercise and promote a healthy lifestyle; to reduce the medical burden, a healthy body means fewer medical problems, thus reducing the pressure on the medical system, and national fitness can reduce the risk of illness. rates and medical expenses, providing greater flexibility for the country's allocation of medical resources; improving labor productivity. A healthy body means higher work efficiency and better labor ability. Through national fitness, society can improve the quality of workers. productivity and creativity, promote sustainable economic development, and more. Through scientific analysis and empirical evidence, we hope to bring new perspectives and methods to the fitness industry, promote the popularization and development of personalized fitness, and ultimately contribute to improving public health.

2. LITERATURE REVIEW

2.1. Hmove Platform And Its Application Background In Personalized Fitness Plans

National fitness is beneficial to the physical and mental health of the people, but currently fitness has not been popularized on a large scale and cannot become a trend. Fundamentally, traditional fitness methods lack appeal to ordinary people. In order to support national fitness, we will innovate traditional fitness models to make fitness more interesting and attractive, and accelerate the formation of a national "fitness trend". In recent years, fitness and entertainment APPs have received widespread attention in the fitness field at home and abroad. Based on this, the Hmove platform developed in this study is a fitness service platform that integrates advanced data analysis and user feedback mechanisms. The platform collects users' physical data, exercise habits and fitness goals, and uses algorithms to develop personalized fitness plans for users. Plan to meet the unique needs of different users. With the improvement of health awareness and the advancement of technology, personalized fitness plans have become a new trend in the development of the fitness industry.

2.2. Current Research Status At Home And Abroad

Research on fitness and entertainment APPs at home and abroad is showing an active trend. Domestic research mainly focuses on user experience optimization, functional innovation and intelligent applications, such as providing users with personalized fitness plans through big data analysis. Foreign research focuses more on the scientific evaluation of fitness effects and the integration of health management, often using advanced sensor technology and algorithms to improve the practicality and accuracy of APPs. The common trend of domestic and foreign research is the pursuit of personalized and intelligent services, but foreign research is more in-depth in data-driven health management. This difference may stem from foreign countries’ emphasis on health data and earlier accumulation of related technologies. For example, a domestic fitness APP provides users with customized training plans through algorithms, while a well-known foreign fitness APP provides more accurate health advice by tracking user data over a long period of time. Overall, domestic and foreign research complement each other and jointly promote the development of fitness and entertainment APPs.

2.3. Introduction To Hmove Platform And Related Technologies

The personalized fitness plan of the Hmove platform is favored by users for its high degree of personalization and scientific nature. The platform can provide customized fitness programs based on the individual differences of users, effectively improving exercise effects and preventing sports injuries. In the technology development stage, we adopted advanced sensing technology and network interaction mode to achieve real-time monitoring and feedback of motion data. We have also made many optimizations to the platform's interface and operating procedures to ensure that users can easily get started and enjoy a smooth experience. Specifically, it includes the following parts:

Entertainment area: Use virtual mapping technology to transform boring fitness into real-life games. The user can customize the virtual image of the character he likes (commonly known as face pinching), and map the user's real-life activities to the virtual character in the software through related accessories. Control virtual characters to participate in related sports games and gain entertainment and fitness experience.

Cloud Mall: Through big data analysis, a good product recommendation list is established to recommend high-quality fitness products with the most positive reviews and the most repurchases for fitness professionals.

Coaching area: You can watch free open classes from different coaches and follow them, or you can purchase paid professional training classes from any coach you like.

Social area: Users can share their fitness plans and experiences and upload notes for communication and discussion among users. Users in the same city can make friends and meet for fitness.

3. RESEARCH METHODS

3.1. Data Collection

Documentation method: Through China National Knowledge Infrastructure, relevant theoretical books at home and abroad, and the Internet, the theoretical literature and related information on the development of national fitness and sports fitness APPs were reviewed as a reference.

Questionnaire survey method: A survey was conducted on the user experience of sports and fitness APPs and users' suggestions and opinions on future development trends. A total of 200 questionnaires were distributed and 196 valid questionnaires were recovered.

Interview method: Investigate the usage and opinions of user groups at all levels on sports and fitness APPs through direct interviews. Select representative figures from each age group and interview them, mainly asking about the use of representative APPs in sports and fitness APPs, their level of satisfaction, and issues that need improvement.

3.2. Data Analysis

Table 1. Approximately how many times do you use sports and fitness APPs per week? [Single choice question]

Options (times)	Subtotal	Proportion
5-7	37	16.09%
3-4	70	30.43%
1-2	89	38.7%
0	34	14.78%

Regarding the number of times users use sports and fitness APPs per week, 38.7% of users choose 1-2 times, accounting for the highest proportion, while users who use 5-7 times account for 16.09%, indicating that although most users use APPs, the frequency is not Considered high. For the Hmove platform, increasing users' frequency of use and increasing user stickiness are the focus of the next step.

Table 2. In what sports do you usually use sports and fitness APPs? [Multiple choice questions]

Options	Subtotal	Proportion
Recorded exercise such as walking	118	51.3%
Basketball and other ball sports	150	65.22%
Exercises in the gym	145	63.04%
Aerobic exercise	136	59.13%
Tai Chi and other traditional national sports	171	74.35%
other	79	34.35%

In terms of usage scenarios, traditional national sports such as Tai Chi and Health Qigong accounted for the highest proportion, reaching 74.35%, followed by football, basketball, volleyball and other ball sports, accounting for 65.22%. This shows the user's demand for diverse sports. In terms of common functions, functions such as health and sports data recording, exercise guidance and assistance, and diet and nutrition planning are favored by users. The Hmove platform should provide more diversified sports projects and functional services in response to these needs.

Table 3. What are the common functions of the sports and fitness APP you are currently using? [Multiple choice questions]

Options	Subtotal	Proportion
Physical assessment and physical fitness monitoring	62	26.96%
Health and exercise data recording	97	42.17%
Exercise Guidance and Help	100	43.48%
Training courses and plans	97	42.17%
Selling sports equipment and other peripherals	64	27.83%
diet nutrition planning	115	50%
other	29	12.61%

In terms of the functions that users value most, personalized training plans and social interaction functions ranked in the top two, accounting for 62.61% and 62.17% respectively. This shows that users have high demand for personalized customization and social interaction. The Hmove platform should further optimize the formulation of personalized training plans, while strengthening social interaction functions to enhance user experience.

4. EXPERIMENTAL RESULT ANALYSIS AND IMPROVEMENT SUGGESTIONS

4.1. Analysis of Experimental Results

After investigating the usage of current fitness and entertainment apps, it was found that the Hmove platform has great room for improvement in terms of user stickiness, personalized services, social interaction and paid services. The platform strengthens the analysis of user behavior, deeply understands user needs, further optimizes the formulation and execution of personalized fitness plans, and at the same time enhances the social interaction experience to attract more users to participate.

4.1.1. Social interaction function

In response to the current situation where the frequency of use of fitness and entertainment apps is not high, the Hmove platform has added social interaction functions to allow users to communicate, share experiences and encourage each other with other fitness enthusiasts. The Hmove platform provides users with a space for social interaction. They can post their own fitness updates, share exercise experiences and communicate with other users. This social attribute not only increases the stickiness of the platform, but also helps users establish a healthy lifestyle and create a good sports atmosphere. The specific implementation steps are as follows: First, establish a community and set up a fitness community within the APP so that users can post updates, comments and likes; secondly, organize activities and regularly hold online or offline activities, such as fitness challenges, knowledge sharing meetings, etc. , attract users to participate; finally, invite well-known figures in the fitness field to join the APP, share experiences, publish tutorials, and increase user stickiness. Through social interaction, users' sense of belonging and participation are enhanced, and users' frequency of use is increased.

4.1.2. Gamified fitness model

Based on the current usage preferences of fitness and entertainment apps, we innovatively integrate gamification elements into fitness training on the basis of existing functions. Users can obtain rewards and upgrades by completing exercise tasks, thereby stimulating their enthusiasm for exercise. By introducing virtual characters and a growth system, a variety of virtual characters are designed for users to choose from, and different skills and growth paths are set for each character. Users can improve their character's abilities and levels by completing fitness tasks and challenges, thereby increasing the user's sense of participation and accomplishment. In addition, set up a variety of challenge tasks: design challenge tasks of different difficulties and types, such as time-limited challenges, continuous challenges, team challenges, etc., to stimulate users' desire to compete and challenge spirit. Finally, social competitive elements are introduced: setting up rankings and PK functions, allowing users to compare results and rankings with other users, thus increasing competitiveness and interactivity. This mode not only increases the fun of fitness, but also helps users better track their exercise progress and results. This model not only improves user participation and stickiness, increases user frequency and duration, but also improves user satisfaction and loyalty, and reduces user churn. It is conducive to expanding the user base, attracting more potential users to try and use the fitness APP, increasing brand awareness and reputation, and laying the foundation for the long-term development of the APP.

4.1.3. Rich exercise courses

In response to users' functional preferences and functional expectations for fitness and entertainment APPs under current economic conditions, the Hmove platform combines its own advantages and the diverse needs of users to provide a variety of exercise courses to meet the needs of different users. All courses are designed and guided by professional fitness coaches to ensure that users can perform scientific and effective exercises.

First, formulate diversified course types and contents. The first is to introduce a variety of exercise types: in addition to traditional aerobic exercise, strength training, etc., you can also add a variety of emerging and traditional exercise types such as yoga, Pilates, dance, Tai Chi, boxing, etc. to meet the interests and needs of different users. . The second is customized courses: customized course recommendations are provided based on the user's physical condition, fitness goals, age, gender and other factors. For example, basic introductory courses are provided for novice users and advanced challenge courses are provided for experienced users. The third is to integrate cross-border elements: combine fitness with other fields, such as music, tourism, food, etc., and launch cross-border integration courses to increase the fun and appeal of the courses.

Secondly, professionalism and interactivity have been improved. The first is to invite professional coaches to teach: cooperate with well-known fitness coaches or institutions and invite them to record course videos or conduct live teaching to ensure the professionalism and authoritativeness of the course. The second is to increase interactive links: Set up interactive links in the course, such as question and answer, discussion, voting, etc., to encourage users to participate in interaction and improve the activity and user stickiness of the course. The third is user feedback and course optimization: regularly collect user feedback on courses, adjust course content, difficulty and duration based on feedback, and continuously optimize course quality.

Third, innovate course formats and presentation methods. The first is short video courses: for busy users, short video courses are launched so that users can use their spare time to exercise. The second is live courses: cooperate with video platforms, social media, etc. to share user resources and increase the exposure and spread of the courses. For example, live streaming technology can be used to provide users with a real-time interactive course experience. Coaches can answer user questions during live broadcasts and provide real-time guidance. The third is virtual reality (VR) courses: with the help of VR technology, users can create an immersive fitness course experience, making users feel as if they are in a real sports scene.

Finally, continue to update and optimize. Regularly update courses: Based on user needs and market trends, new courses are regularly launched to keep the courses fresh and attractive. At the same time, the course classification and search functions should be optimized to facilitate users to quickly find courses that suit them. For new users, it is necessary to provide users with the opportunity to trial or experience the course, so that the user can first understand the content and quality of the course before deciding whether to purchase it. Through the comprehensive application of strategies such as diversifying course types and contents, improving professionalism and interactivity, innovating course forms and presentation methods, cooperation and resource integration, and continuous updating and optimization, the exercise courses of fitness APP can be effectively enriched to meet the needs of different users. demand and improve user satisfaction and stickiness.

4.1.4. Real-time data feedback

Through advanced sensing technology, we are able to monitor users' exercise data in real time, including heart rate, steps, calories burned, etc., and provide users with personalized exercise suggestions. This data-based management method helps users better understand their exercise status and make adjustments. On the one hand, it can display personalized data: display personalized data according to the fitness goals, physical fitness levels and preferences of different users. For example, display muscle group exercise data for users who gain muscle, and display calorie consumption data for users who lose fat. On the other hand, real-time voice feedback can be used: combined with AI technology, it can provide users with real-time voice feedback, such as giving reminders when users reach predetermined goals or need to adjust their exercise rhythm. Through targeted customization and scientific measurement, the problem of low value of platform sports data is solved. Users can adjust their own sports methods through these data. Intelligent technology and interesting areas help us understand the real needs of customers. Better allocate sports resources within the system.

4.2. Research Experience

Recently, our team has focused on the research and practice of personalized fitness plans based on the Hmove platform. This project aims to use the Hmove platform to customize exclusive fitness plans for users to achieve more efficient and scientific fitness results.

First of all, at the beginning of the research, I had an in-depth understanding of the technical architecture and functional features of the Hmove platform. This platform integrates multiple modules such as user data collection, fitness plan generation, exercise guidance and feedback, etc., and can provide users with a full range of fitness services. Through careful analysis of the platform's data processing capabilities and algorithm models, I realized that the key to personalized fitness plans lies in accurately grasping the user's needs and physical condition. At the same time, I also focus on the flexibility and sustainability of the program to ensure that users can maintain interest and motivation during the long-term fitness process.

Secondly, innovative thinking is the key to project success. In the process of developing the Hmove platform, we constantly try new ideas and technologies, striving to break the limitations of traditional fitness platforms. For example, in the early stages of the innovation plan, we first used technologies such as GPS and gyroscopes in smartphones to record users' movement trajectories in real time, measure energy consumption and other movement data, establish a backend database, and customize personalized fitness plans based on users' personal movement data. . Utilize the smartphone's own text, picture or video functions to scientifically guide users to exercise, thereby meeting the user's needs for learning different sports skills. It can also provide more convenient one-stop services for users who love fitness. We introduced gamification elements and real-time data feedback functions. These innovations have won the favor of users for the platform. Through this project, we realized that only through continuous innovation and improvement can we stand out in the fierce market competition.

Finally, we also learned how to conduct effective market research and user needs analysis. Before the project started, we spent a lot of time and energy conducting market research and collecting user needs. These tasks not only helped us clarify the direction of the project and target user groups, but also provided strong support for subsequent product design and development. In future projects, we will continue to focus on the importance of market research and user needs analysis to ensure that our products can meet the real needs of the market and win the love of users.

5. THE REMAINING CHALLENGES AND COUNTERMEASURES OF THE HMOVE PLATFORM

During the research process of this project, although we have made certain progress, we still face some existing difficulties. These dilemmas mainly involve aspects such as the integrity of data collection, maintaining user engagement, and the accuracy of fitness plans. To ensure that the proposed strategy recommendations have broad applicability, we will take into account the needs and characteristics of various user groups.

5.1. Completeness and Accuracy Of Data Collection

To develop a personalized fitness plan, we need to understand the user's physical data, exercise habits and goals in detail. However, in reality, there are often cases where data collection is incomplete or contains errors, which directly affects the formulation and effectiveness of fitness plans. To solve this problem, we will simplify the data entry process and design an intuitive and easy-to-use data entry interface to reduce the possibility of user input errors. In addition, using multi-source data, in addition to data input by users themselves, it can also be combined with data automatically collected by smart devices (such as smart bracelets, weight scales, etc.) to improve the completeness and accuracy of the

data. We must also pay attention to user privacy protection, ensure the security and privacy of user data, and enhance user trust in data collection.

5.2. Maintaining User Engagement

Keeping users engaged is key to ensuring the effectiveness of your fitness program. However, due to various reasons (such as lack of motivation, changes in life rhythm, etc.), users often interrupt or give up using fitness APPs. To address this problem, we must first strengthen personalized incentives and provide personalized rewards and incentives based on users' fitness progress and results, such as virtual medals, coupons, etc., to stimulate users' enthusiasm. Secondly, it is necessary to strengthen community interaction, focus on establishing a fitness community, encourage users to share experiences, encourage each other, and enhance users' sense of belonging and stickiness. Finally, pay attention to regular updates, regularly update APP functions and content, and keep users fresh and interested.

5.3. Accuracy of Fitness Plan

Because everyone's physical condition and athletic abilities vary, developing an accurate, personalized fitness plan can be a challenge. Currently, our algorithmic models may not be able to fully accurately assess a user's physical ability and potential. Therefore, in this aspect, we will optimize the algorithm model, continuously collect and analyze user data, optimize the algorithm model, and improve the accuracy of fitness plans. It also introduces professional guidance, strengthens in-depth cooperation with fitness coaches or experts, and combines their professional knowledge and experience to provide users with more accurate fitness suggestions. Finally, establish a user feedback mechanism to collect users’ opinions and suggestions on the fitness plan in a timely manner for continuous improvement.

In order to ensure the broad applicability of the above strategic recommendations, we need to fully consider the needs and characteristics of different user groups. For example, for beginners and the elderly, we can provide a simpler and easier-to-understand operating interface and fitness guidance; for professionals and fitness enthusiasts, we can provide more in-depth data analysis and advanced functions. At the same time, we can also continuously adjust and optimize strategic suggestions through market research and user testing to adapt to a wider user group.

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