ISSN 2415-3974. Економічний вісник Державного вищого навчального закладу "Український державний хіміко-технологічний університет", 2023, № 2, С. 6-16

UDC 658.8:004.942
JEL Classification: M 31, D 12, L 86, I 11

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FEATURES OF CONSUMER BEHAVIOUR AMONG ZOOMERS IN THE HEALTH, FITNESS AND SPORTS MOBILE APPLICATION MARKET

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The article highlights the features and modern trends of the market of mobile applications for health, physical activity and sports. It also looks into some theoretical models, which are applicable for the study of this market. When developing theoretical models and scales, several models were selected that are most appropriate for use in a specific market, namely: Technology Acceptance Model (TAM), Expectancy and Confirmation Theory (ECT) and Information Technology Post-Adoption Model (PAM-ISC). To assess the effectiveness of mobile fitness applications, some scales were selected, in particular MARS and ABACUS. The focus of the study of these theories and scales was to determine their benefits for the study of consumer behavior in this market and in the development of new products. While studying the current trends of the market of mobile applications for health and sports, conclusions were drawn regarding its prospects and future growth, in particular in Ukraine. Furthermore, we highlighted the main factors that influenced the positive trends of market growth in the last few years. In addition, we have analyzed existing research on user behavior in the market of mobile fitness applications in order to identify patterns regarding the reasons to start using or stop using them. Factors which could potentially motivate customers to use the applications continuously and the main reasons for discontinuing the use were also studied. In order to obtain relevant information about the consumer habits of the generation Z in this market, a study was conducted among students of the Kyiv-Mohyla Academy. As a result, we have outlined the main behavioral characteristics of Generation Z consumers of mobile fitness applications, which explain their intentions and habits of use.

Keywords: consumer behavior, health apps, zoomers, fitness apps, user research.

DOI: 10.32434/2415-3974-2023-18-2-6-16

Introduction and statement of the problem

According to 2022 statistics [1], 95.8% of Internet users own smartphones, making them the most popular electronic devices today. With this in mind, the popularity of various mobile applications is growing, especially in the field of fitness. Therefore, it is expected that fitness applications will expand at a compound annual growth rate (CAGR) of 17.6% from 2023 to 2030 [2].

In addition, it should be noted that the market of mobile fitness applications is at the stage of active growth, attracting more and more new users who are interested in convenient and affordable way to take care of their health and physical condition. The outbreak of the COVID-19 pandemic has further accelerated the adoption of fitness apps by users in an effort to increase their level of physical activity despite the prohibition to leave homes. Thus, in 2020 compared to 2019, there was a significant increase in the number of downloads of fitness applications: from

488 million downloads in the first quarter of 2019 to 656 million downloads in the second quarter of 2020 (Fig. 1).

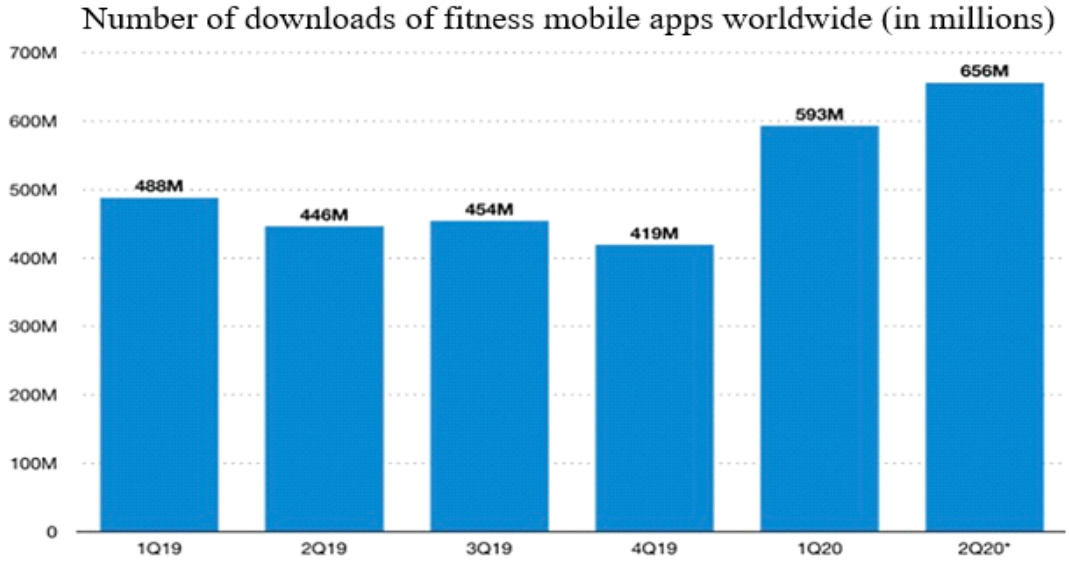

Fig. 1. Changes in the number of downloads of mobile applications from 2019 to 2020 (Q-quarter)

Source: [3]

However, at the same time, there are several questions about the reliability of new applications that appear on the market. If the problem of objective assessment of applications can be solved, the market will become an integral part of the fitness culture around the world.

Analysis of recent research and publications

Mobile applications for fitness in terms of evaluating their effectiveness and determining the level of benefits for the user are the subject of the publication activity of numerous researchers. For example, the work [4] analyzed the answers of 142 American students regarding their motivation to use mobile fitness applications. This study emphasized the user's interaction with the application, in particular through social functions.

In addition to the above features, the educational component, progress tracking, and motivation in the applications are discussed. Thus, one of the papers [5] defined education, goal setting, monitoring, feedback, and increasing motivation as strategies for behavior change. The authors single out education as providing the necessary knowledge to change behavior and monitoring/tracking as a record of past and current states. It has been proposed to divide the functions of mobile applications into five categories: education, tracking, social function, gamification and motivation. The work also emphasizes that most applications combine several of these functions, choosing those that, in the opinion of mobile developers, will help create the most effective combination that will best meet the needs of a certain market segment.

The long-term effectiveness of fitness apps as tools for developing the habit of physical activity is investigated in [6], which found that smartphone apps related to physical activity may be useful in promoting modest increases in physical activity in the short term, but long-term studies are needed to determine lifestyle changes. It is emphasized that in the long term, users usually prefer automatic tracking, as well as help with tracking goal achievement for various activities. Specific feedback for learning and motivation was also considered important. These results suggest a potentially beneficial role for long-term behavior change programs, but the exact results are unknown.

Another article [7] explored various approaches to evaluating health apps in order to identify current best practices and found no ideal method for evaluating mobile apps, because most approaches did not provide sufficient information. The authors hypothesized that app evaluation should include testing its functionality and user-friendliness and evaluating the potential of apps to promote behavior change.

Therefore, the part of the problem in assessing the effectiveness or accuracy of information in

applications is due to the limitations of available methods and the inconsistency of approach to research in this field. The use of smartphone apps for behavior change is a new area of research, and as a result, most current research has focused on evaluating individual apps specifically designed for a research project or a small number of top-rated apps, rather than rigorous, large-scale studies of the potential of apps that already exist in the market and are able to promote behavior change among users.

On the other hand, the current research focusing on the behavioral characteristics of the generation Z as active users of mobile applications is insufficient.

Based on all the above mentioned reasons, this article examines a number of marketing behavioral models regarding the choice of a certain product and making decisions about its repeated use, identifies the features and functions of mobile fitness applications that shape the desire of users to use them.

The objective of the article

Highlighting the main behavioral characteristics of Generation Z consumers of mobile fitness applications, which explain their habits and intentions for the development of the market of applications for health, physical activity and sports and the formation of the domestic fitness culture.

Main material

Theoretical tools for researching consumer behavior in the market of mobile fitness applications. Based on the analysis of behavioral models [8], [9], [10], [11], [12], the authors selected those that should be used when considering consumer behavior in the market of mobile fitness applications:

a) Expectation-Confirmation Theory (ECT);

b) Technology Acceptance Model (TAM);

c) Post-Acceptance Model of Information Systems Continuance (PAM-ISC).

It should be mentioned that the models listed above take into account the features of information products, in particular mobile applications, so they allow to objectively predict user satisfaction and the intention to continue using the product.

Also, we have considered two scales, used to evaluate the quality of mobile applications to determine the functional components of the impact on the general appearance and operation of applications:

– mobile app rating scale (Mobile App Rating Scale, MARS);

– a scale for measuring the potential impact of applications on user behavior (App Behavior Change Scale, ABACUS).

These scales offer a number of the most useful indicators for assessing the quality of applications, so they act as a practical tool for application developers, as well as a useful educational material for studying consumer behavior in the mobile application market in general.

Table 1 illustrates behavioral models of consumers in the information technology market, study and evaluation of mobile fitness applications selected.

Therefore, each of the above models has the potential to be used in the market of mobile fitness applications. The ECT theory is able to shape the marketing strategy of applications by influencing user expectations, while the PAM-ISC model fills the gaps between expectations and actual functions. TAM is particularly useful during the beta testing phase of a product, as it can demonstrate the level of user acceptance of a technology based on just two simple variables (Benefits and user-friendliness). MARS benefits development by providing comprehensive information on product potential. ABACUS focuses on the quality of the user experience in the long term.

Current market structure of mobile applications for health, physical activity and sports. Based on the 2023 marketing analytical report on current trends and expected trends of the coming years in the market of mobile fitness applications, conducted by the company "Grand View Research" [2], the authors found out the main prerequisites for the development of the market of applications for health, physical activity and sports in the coming years:

– the global market for mobile applications in the industry of fitness will grow by an average of 17.6% annually in 2023-2030;

– online workouts are driving a significant increase in fitness and health app downloads, which are estimated to grow by 46.0% from 2016 to 2021;

– the impact of the COVID-19 pandemic has increased health awareness; a significant increase in demand for mobile fitness apps occurred in 2020, increasing active users of fitness apps by 24.0%;

– smartphone penetration, expected to reach 77.0% by 2025, and the popularity of smartwatches will further drive the market growth;

– innovative features and interactive capabilities of apps increase user satisfaction, and investment in fitness apps grows due to effective technology;

– the exercise and weight loss segment is the most profitable, accounting for over 54.6% in 2022, driven by convenience and personalized workout plans;

– the prevalence of activity tracking in apps will grow at the fastest rate at 18.7% annually;

– the leaders of the fitness monitoring market are Jawbone, Fitbit and Nike, followed by LG, Pebble,

Table 1

Research models of consumer behavior in the market of mobile fitness applications

The name of the model or scale	Author(s)	The essence and application of the tool
Expectation-Confirmation Theory	Richard Oliver [8]	Consumers form initial expectations of a product before purchasing it, using their experience. After buying the product, the consumer evaluates it according to the expectations. Confirmation or non-confirmation of expectations determines the level of satisfaction. Positive non-confirmation (exceeding expectations) contributes to satisfaction, and negative non-confirmation reduces it. A high level of satisfaction can lead to repeat purchases, and a low level of satisfaction can lead to product discontinuation
PAM-ISC (Post-acceptance model of information systems continuance)	Anol Bhattacherjee [9]	This model focuses on the post-use stages of a product rather than pre-purchase perceptions. It emphasizes "post-use utility," which reflects a long-term belief based on prior perceptions. It also notes that post-consumption expectations are more important because of their variability over time. The PAM model replaces the ECT expectation construct with "perceived post-use utility" and renames the re-purchase intention as "continuation intention." The process of continuing to use a product, in theory, includes the formation of a perception of post-use utility, comparing it with the actual functioning of the product, forming satisfaction, and determining the intention to continue using it
Technology Acceptance Model	Fred Davis [10]	The basic idea is that consumers who perceive a product as valuable and easy to use are more likely to adopt it. The process of technology adoption includes determining the usefulness of a product, perceived ease of use, and the formation of usage intent, which determines the actual use of the product
Mobile App Rating Scale	Stoyanov, Hides, Kavanagh, Zelenko, Tjondronegoro, Mani [11]	The MARS is a quality rating tool for fitness apps developed in 2015. The assessment consists of 19 items divided into four dimensions: engagement, functionality, aesthetics, and information quality. It rates each item on a 5-point scale. The MARS is an easy-to-use, objective, and reliable tool for assessing the quality of an app developed by experts. Using average scores from different dimensions helps to identify the strengths and weaknesses of the program
The App Behavior Change Scale	McKay, Slykerman, Dunn [12]	The ABACUS scale (created in 2019) measures the potential change in the behavior of mobile app users. 21 elements assess behavior change. The elements are divided into 4 categories: knowledge and information, goals and planning, feedback and monitoring, and actions. This scale helps to explore the behavior change potential of apps quickly

Source: developed by the authors

Samsung and other companies which have introduced this function in smart watches;

– smartwatches may overtake fitness trackers in popularity, but according to Fitbit, fitness trackers will also remain popular;

– the largest share of revenue falls on the iOS segment, which in 2022 was more than 52.4%; Android is growing at a high rate and revenue from the platform is expected to grow by 18.6%;

– smartphone adoption will drive market growth

from 65% in 2019 to 75% in 2022, replacing traditional fitness methods;

– North America (37.1%) and Asia-Pacific (18.9%) account for the largest shares of revenue in 2022;

– in India, downloads of health and fitness apps grew by 157%, attracting 58 million new users.

Consequently, the mobile fitness app market has shown the highest growth rate in the year 2020, driven by the COVID-19 pandemic and increasing public awareness of the importance of a healthy lifestyle. The wide distribution of smartphones and smart watches has a positive effect on the market. Currently, the market generates the most revenue in the North American region, although some growth is expected in the Asia Pacific region. There is strong competition, opponents are trying to stand out thanks to innovative approaches and the introduction of new functions.

Obstacles and users' motives regarding their attitudes toward mobile fitness applications. Based on the conducted study [13], which gathered 44 smartphone users to determine their attitude toward fitness applications, the authors identified barriers and motivators that were compared with behavioral models selected for further analysis and interpretation of the results. At the same time, the focus groups had a different composition, including consumers from Generation Z and people with different socio-economic status and satisfactory health status who have never used medical programs.

Therefore, the barriers and motivating factors for using mobile fitness applications are listed in Tables 2-3.

The results of the study can be combined with the behavioral models and scales described in the Table 1. For example, TAM (Technology Acceptance Model) defines the perception of user-friendliness of a certain technology as one of the key factors predicting whether the user will accept this technology. The study confirmed that people's fear of the complexity of mobile fitness apps prevents them from starting to use them. Also, we see confirmation of the PAM (Post-Acceptance Model) theory. As the model predicts, users form an initial idea about the benefits of the product for them. In this study, the interviewees did not see the need for fitness apps, as they used other tools or had already developed fitness habits. On the other hand, these people believed that they saw the benefits of such a program for other groups of persons. Finally, the results of the study confirm the relevance of the previously discussed scales for evaluating applications, namely MARS and ABACUS. The study confirmed user interest in attributes such as involvement, functionality, and information quality on the MARS scale and on all four ABACUS scale categories, namely knowledge and information, goals and planning, feedback and monitoring, and action.

The analysis of this research, as well as its comparison with theoretical models, provides valuable information regarding the future development of this market. In particular, the assumption was confirmed, that the selected models are able to act as tools for the development of higher-quality applications that will attract large groups of people. This provides the potential for the development of a fitness culture in the community as a whole.

Table 2

The main obstacles to starting and continuing to use mobile fitness applications according to research results

Barriers to adoption	Characteristics	Barriers to continued usage	Characteristics
Low awareness	Over 25% of participants did not know or were not aware of the existence of mobile fitness applications	Lack of time and effort	Manually entering information was time consuming, so ease of use was a key factor
Lack of need	Some already had healthy habits or were already using other tools, so they didn't feel the need for mobile apps	Lack of motivation	Without motivation and discipline, it was difficult to use apps
Inability to use	many participants did not know how to choose and use applications due to their variety	Additional barriers	Radiation from the phone and limited memory or battery power were causing problems
Cost	more than 77% have used free apps but would be willing to pay for unique features	Sharing personal data	information related to health (exercise, diet), etc. consumers consider private and should not be shared

Source: developed by the authors based on [13]

Table 3

Motivational factors for use and satisfaction of mobile fitness applications according to research results

Motivating factors of use	Characteristics	Motivating factors of satisfaction	Characteristics
The competition	social comparison motivates people to use apps	Information and personalization	participants were interested in receiving unique personalized information
Intangible rewards	virtual badges in the application proved to be a valuable incentive for most participants	Tracking progress	the majority of participants liked the tracking function in the programs because this type of self-monitoring increases their awareness
Tangible rewards	some apps offer monetary rewards for physical activity, which encourages use	Trust	consumers were more likely to use apps recommended by friends or family members
Gamification	game elements contributed to longer use	Setting goals	setting small daily and weekly goals helps to discipline yourself and change your behavior
Intrinsic motivation	personal desire to use the application for your purposes	Reminders	It is useful for busy people, especially those who tend to forget about the application

Source: developed by the authors based on [13]

A Study of User Attitudes toward Mobile Fitness Applications among Zoomer Consumers. In order to obtain up-to-date information and to confirm or refute the formed theses about consumer behavior, we conducted research among the youth aged 16-23, undergraduate students of various majors (economics, philology, law and other faculties), who are representatives of the Generation Z, with the aim of characterizing their behavior. The task: collecting data about the activity of using fitness applications, with the purpose to identify regularities in user habits of zoomers. The scope of the research is undergraduate students of the National University "Kyiv-Mohyla Academy". The subject of research is mobile fitness applications. The method is a structured online survey in written form. Dates – the survey was conducted during April 9-16, 2023. 58 students participated in the study. The questions related to the factors that motivate and discourage students from using mobile fitness applications. In addition, trends in willingness to pay for and awareness of apps have been identified. The list of questions and answer options are presented in the Table 4.

Therefore, the survey allowed to reveal the following results.

Firstly, 74.1% of surveyed students have used or are using fitness apps, while only 25.9% have never used them.

Secondly, 93% of respondents noted that the progress tracking function is important to them. More than 50% of respondents noted the value of such functions as setting goals and providing personalized information. The rating of the most important functions for zoomers is shown in Fig. 2.

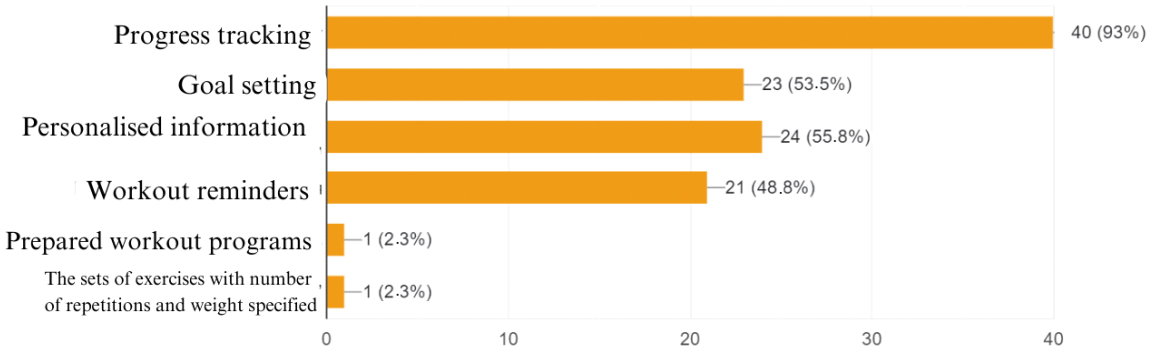

Fig. 2. Assessing the importance of features of mobile fitness applications for students

Source: developed by the authors

Table 4

A Survey Questionnaire on Student Behavior in the Mobile Fitness App Market

Questions	Answer options
Do you use or have you ever used mobile fitness apps?	yes; no
What features of fitness apps are most important to you?	tracking progress; setting goals; providing personalized information; reminders about training; other
What sources of information do you trust when choosing a fitness app?	recommendations from friends and family; online reviews; other
Are you willing to pay for using a mobile fitness app?	yes yes, but with a free trial period; no
What is your attitude about sharing personal information in the application?	positive neutral negative
What factors motivate you to use apps?	own fitness goals; rewards in the application; elements of gamification; competition; other
If you have ever stopped using the application, for what reasons?	loss of motivation; lack of time or energy; lack of self-discipline; other

Source: developed by the authors

Thirdly, choosing an application, more than 55% of respondents trust the recommendations of friends and relatives, over 60% - online reviews (Fig. 3).

Only 4.6% of surveyed students are ready to pay for the use of a mobile fitness application, 35% – only if there is a free trial period, and the vast majority do not agree at all (Fig. 4).

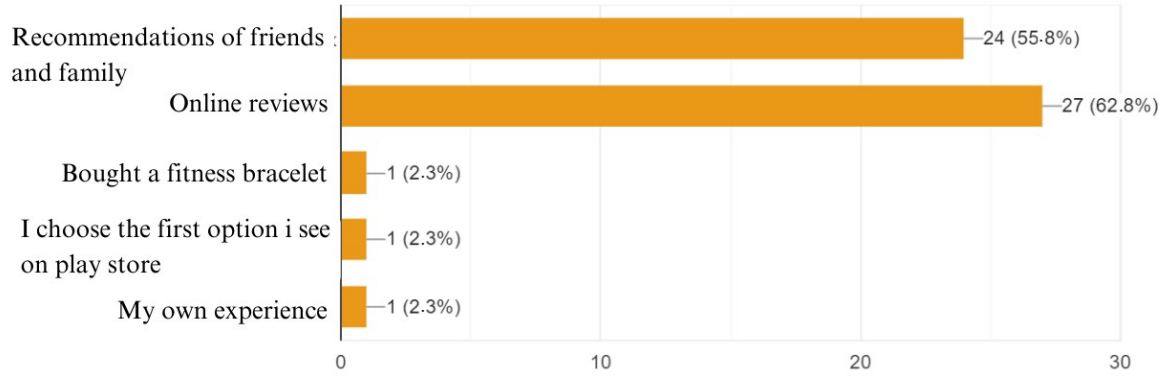

Fig. 3. Choice of the source of information about mobile fitness applications

Source: developed by the authors

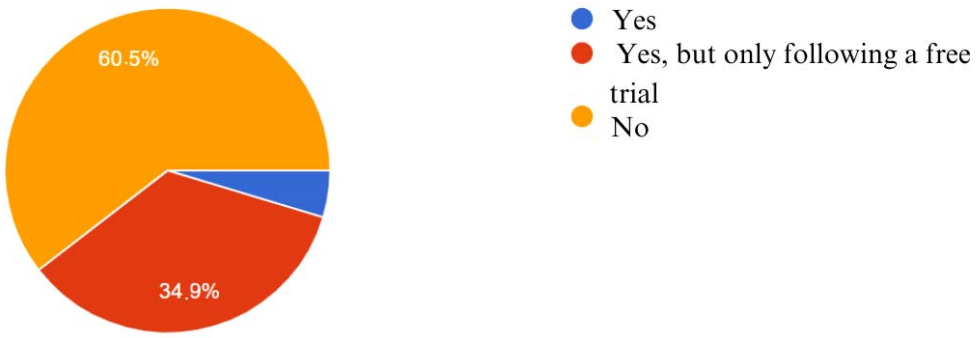

Fig. 4. Willingness of students to pay for using mobile fitness applications

Source: developed by the authors

74.4% of students are neutral about the need to share personal information in the program, 16.3% are negative, and 9.3% are positive.

Fourthly, the interviewees identified their own fitness goals as the main motivator for use (more than 90%), gamification (32.6%), competition (20.9%) and rewards in the application (18.6%) were also important (Fig. 5); and the main demotivators are loss of motivation, lack of time and energy, and lack of self-discipline (about 60% for each item) (Fig. 6).

Fifthly, 86.6% of users who do not use mobile fitness applications indicated that they do not consider these applications useful for their purposes (Fig. 7).

From the results of the study, it can be concluded that Generation Z students (people aged 17-25) are active users of mobile fitness applications. For them, a high rating of the application online, as well as positive feedback from acquaintances, is important. The most attractive feature for the surveyed group is the effective progress tracking.

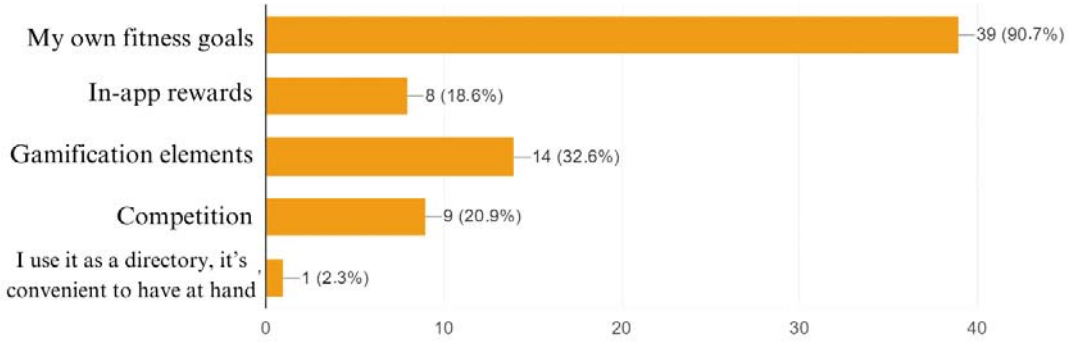

Fig. 5. Motivating factors for using mobile fitness applications

Source: developed by the authors

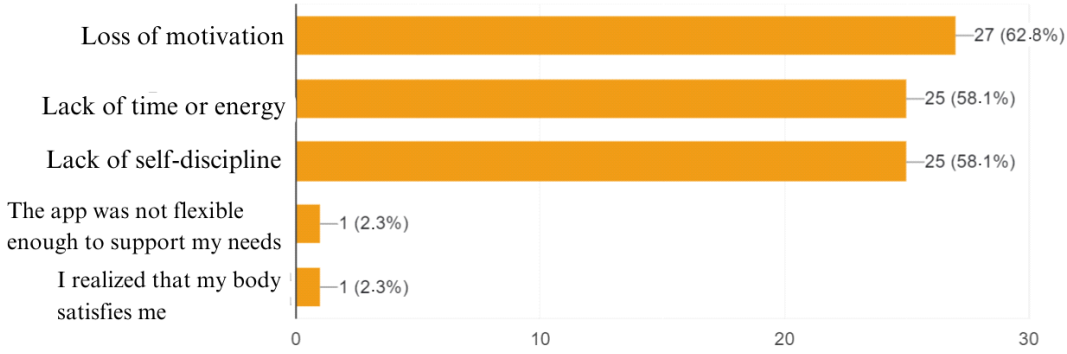

Fig. 6. Reasons for discontinuing the usage of fitness applications

Source: developed by the authors

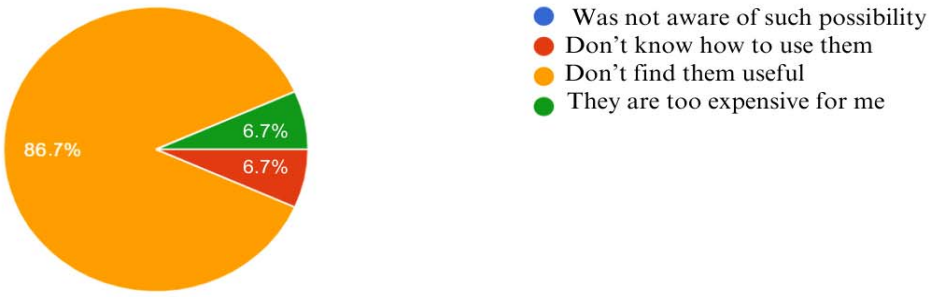

Fig. 7. Reasons why students do not use mobile fitness applications
Source: developed by the authors

Given the low willingness of the interviewees to pay for using the application, it is impractical to use a subscription system with periodic payment, and for paid resources, the incentive to use is the presence of a free trial period. The most important task for marketers in driving the use of fitness apps is communicating, first of all, the value of the app.

Conclusions

Therefore, consumer behavior in the market of mobile applications for health, physical activity and sports (for example, fitness applications) has certain features. In particular, when studying specific theories that are used in marketing to describe consumer behavior, for this market it is more appropriate to apply those that directly relate to information technologies (Post-Acceptance Model of Information Systems Continuance, which arose from Expectation-Confirmation Theory). Considering the innovative aspect of the market, the Technology acceptance model is also a relevant tool, which allows predicting the level of technology acceptance by users and demonstrates cause-and-effect relationships between expectations and results. In addition, the ABACUS and MARS mobile application performance evaluation scales can be considered a generalization of researchers' knowledge about consumer preferences, which offer a number of the most useful indicators for evaluating the quality of applications.

The work proves the practical benefits of the considered models, theories and rating scales based on the comparison of the results of a study conducted with several focus groups. It also highlights various obstacles to the initial desire to use fitness and health applications, obstacles to continued use of fitness applications, motivators and user attitudes towards important functional aspects of applications. Research findings overlapped significantly with elements of theories and models, particularly in aspects such as perceived user-friendliness, initial perceptions of product benefits, and user interest in elements of involvement, functionality, information quality, goal setting, and feedback and monitoring.

The authors have clarified the main prerequisites for the development of the market of applications for health, physical activity and sports in the coming years. In the market analysis, we have outlined the main trends regarding such features of users as geographic location, choice of device and platform for use, and growth in demand for certain functions, which allows us to draw conclusions about the prospects of the market and its rapid growth.

Based on the analysis of behavioral studies, as well as a survey conducted among students, the attitude of Zoomer users towards fitness applications was revealed and the features that consumers prefer were highlighted. Thus, the fact that the respondents were unaware of the existence of fitness applications, inability to use them, and high cost are the main reasons for not using fitness applications. A lack of time and energy or a lack of motivation and discipline motivates consumers to stop using fitness apps, while competition, rewards, gamification, and personal goals motivate them to continue. The features of tracking progress, setting goals, providing personalized information and reminders are of most interest to users; reminders from applications in some cases are perceived as unwanted "machine instructions" that cause negative emotions, and the distribution of personal information causes distrust. When choosing an app, recommendations from friends or loved ones are the most trusted, and it is important to be able to get a trial period before buying the app, because the vast majority are not ready to pay for installing and using fitness apps at all.

Further research within the framework of the analysis of consumer behavior in the market of mobile applications for health, physical activity and sports can be aimed at spreading the survey among other categories of consumers and developing, on this basis, appropriate recommendations regarding marketing tools for incentives, pricing, etc.

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Received 09.10.2023.
Revised 16.10.2023.
Accepted 18.10.2023.
Published 25.12.2023.

ОСОБЛИВОСТІ ПОВЕДІНКИ СПОЖИВАЧІВ-ЗУМЕРІВ НА РИНКУ МОБІЛЬНИХ ЗАСТОСУНКІВ ДЛЯ ЗДОРОВ'Я, ФІЗИЧНОЇ АКТИВНОСТІ ТА СПОРТУ

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У статті виділено особливості і сучасні тенденції ринку мобільних застосунків для здоров'я, фізичної активності та спорту; досліджено теоретичні моделі, які доцільно застосовувати для вивчення цього ринку. При опрацюванні теоретичних моделей і шкал було виділено кілька найдоцільніших до використання моделей на конкретному ринку, а саме: Модель прийняття технологій (TAM), Теорія очікування та підтвердження (ECT) та Модель постприйняття інформаційних технологій (PAM-ISC). Було обрано для аналізу також шкали оцінювання ефективності мобільних фітнес застосунків, зокрема MARS та ABACUS. У фокусі дослідження цих теорій і шкал було визначення їх корисності в ході вивчення поведінки споживача на даному ринку, а також при розробці нових продуктів. У ході опрацювання сучасних тенденцій ринку мобільних застосунків для здоров'я та спорту було зроблено висновки щодо його перспективності та майбутнього зростання, зокрема в Україні, а також виділено основні фактори, які вплинули на позитивні тенденції зростання ринку в останні кілька років. Були опрацьовані наявні дослідження щодо поведінки користувачів на ринку мобільних фітнес-застосунків з метою виділення закономірностей щодо причин початку використання або відмови від використання мобільних фітнес-застосунків. Опрацьовано також фактори мотивації продовжити використання та основні причини припинення використання. З метою отримання актуальної інформації про споживацькі звички покоління зумерів на цьому ринку, було здійснене власне дослідження серед студентів університету Києво-Могилянської академії. Виділено основні поведінкові ознаки зумерів-споживачів мобільних фітнес-застосунків, що пояснюють їх наміри та звички використання.

Ключові слова: поведінка споживача, застосунки для здоров'я, зумери, фітнес-застосунки, дослідження користувачів.

Features of Consumer Behaviour among Zoomers in the Health, Fitness and Sports Mobile Application Market

FEATURES OF CONSUMER BEHAVIOUR AMONG ZOOMERS IN THE HEALTH, FITNESS AND SPORTS MOBILE APPLICATION MARKET

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The article highlights the features and modern trends of the market of mobile applications for health, physical activity and sports. It also looks into some theoretical models, which are applicable for the study of this market. When developing theoretical models and scales, several models were selected that are most appropriate for use in a specific market, namely: Technology Acceptance Model (TAM), Expectancy and Confirmation Theory (ECT) and Information Technology Post-Adoption Model (PAM-ISC). To assess the effectiveness of mobile fitness applications, some scales were selected, in particular MARS and ABACUS. The focus of the study of these theories and scales was to determine their benefits for the study of consumer behavior in this market and in the development of new products. While studying the current trends of the market of mobile applications for health and sports, conclusions were drawn regarding its prospects and future growth, in particular in Ukraine. Furthermore, we highlighted the main factors that influenced the positive trends of market growth in the last few years. In addition, we have analyzed existing research on user behavior in the market of mobile fitness applications in order to identify patterns regarding the reasons to start using or stop using them. Factors which could potentially motivate customers to use the applications continuously and the main reasons for discontinuing the use were also studied. In order to obtain relevant information about the consumer habits of the generation Z in this market, a study was conducted among students of the Kyiv-Mohyla Academy. As a result, we have outlined the main behavioral characteristics of Generation Z consumers of mobile fitness applications, which explain their intentions and habits of use.

Keywords: consumer behavior, health apps, zoomers, fitness apps, user research.

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