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MOBILE SPORTS EXERCISE APPLICATIONS IN THE CONTEXT OF PERSUASION TECHNOLOGIES

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ABSTRACT

With people's growing desire for sports and the distance to gyms, the adoption of mobile sports exercise apps has expanded dramatically, particularly after the pandemic phase began. As a result of this development, the total number of downloads of mobile sports exercise applications reached 786 million in 2022, with 1.2 billion expected by the end of 2025. The primary goal of utilizing mobile sports workout apps is to improve and track their performance. The purpose of this research is to uncover and examine the persuasive methods of mobile sports activities that millions of consumers download to their smart devices. A case study was undertaken to expose the persuasive tactics, and the Nike Training Club, Freeletics, and Adidas Training by Runtastic programs were chosen using the purposive sample approach, Esgin's; Cialdini's six persuasion principles were examined by applying them to the Behavioral Coding Model Table, which he categorised using Fogg's behavioral model. As a consequence, when investigated in the context of persuasive technology, all six different persuasion principles were observed to be applied. Based on the number of active users, it was determined that Freeletics is the most effective program for using persuasive codes.

Keywords: Persuasion technologies, Mobile application, Sports and exercise.

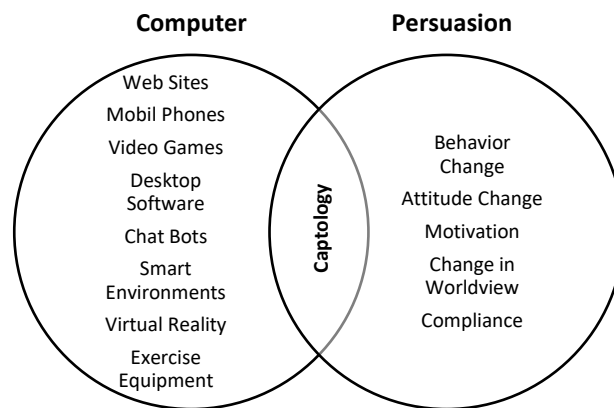
INTRODUCTION

Computers, tablets, phones, and other significant products of quickly evolving technology. Although the items were not originally designed for persuasion, this condition has become required as societies' social structures evolve and grow. Persuasion is defined as influencing the behavior of a group or an individual using diverse cognitive tactics (Severin & Tankard, 1994; Bilgin, 2003). Persuasion is characterized in the literature as a behavior shaper that incorporates the individual's behavior modification (Dillard & Pfau, 2002). People shape the notion of persuasion for various objectives in all domains of human existence. Although researchers have presented persuasion from their unique perspectives, it is widely defined as a process in which one person's words or thoughts influence the conduct and thinking of another. Aristotle's book *Rhetoric* is the earliest and most extensive piece on the subject of persuasion. The exact definition of rhetoric is the capacity to persuade the other party using the available techniques of persuasion in a given context (Sorabji, 2015: 19). From this perspective, it is common to notice and employ persuasive techniques in every rhetorical context.

The notion of information society has entered human existence with the advancement of societies in political, cultural, economic, and technical domains. People who begin to spend a large amount of time online are always attempting to present themselves. This makes it simpler for people to exhibit particular behaviors by being convinced in the online contexts in which they participate. With all of these advancements, the techniques utilized in the notion of persuasion have also been reinvented and transformed by technology. Persuasive technology is defined as the design, study, and analysis of goods with the intention of changing people's behavior and/or attitudes, or both. With this development in the persuasion process, some changes have occurred in persuasion types. When we look at the literature, three persuasion processes are suggested as human-human interaction (interpersonal persuasion), human-computer (persuasion via computer) and computer-assisted-human (persuasion through human-computer interaction) (Oinas-Kukkonen, 2007: 312). According to Fogg (2003), persuasion technology (PTE) is defined as a mutual system design and interactive information processing system used to change people's behavior and attitudes. Being able to easily achieve desired results and change behaviors is the interactive feature of the persuasion technology tool. Because technology is often designed to draw attention to certain information to influence, shape or change what people do or think (Toscos, Faber, An & Gandhi, 2006; Salam, Yahaya & Ali, 2010, p.174). Many technological tools such as artificial intelligence products, virtual worlds, social networks, mobile applications that direct people to desired goals with the help of technology are also involved in this persuasion process. PTE is a rapidly developing and growing new field of research. Many technological systems, from mobile devices to websites, are focused on motivating and persuading users. Today, persuasion technologies are examined within the framework of a new discipline under the concept of CAPTOLOGY (Computer As Persuasive Technology) to better define this field. The notion was initially proposed in 1997, with attendees unanimously accepting it at the Conference on Human Factors in Computing Systems (CHI) in the United States. Captology is the name given to studies on computer and mobile technologies/applications (such as animation, augmented reality, application, videos, virtual reality, simulations) to change human behaviors and motivate people, and it is regarded as a science that thoroughly examines

persuasion technologies. (Fogg, (1997); Fogg, (1998); Fogg, (2009); Shearer & Guthrie, (2013). The most significant aspect of persuasive technology is that users do not feel compelled. Users are supposed to respond willingly to the persuasive process (Fogg, 1998).

PTe makes it easy to understand the concept of captology, which emerges at the intersection of computer and persuasion.



Resource: Fogg, 1998; Fogg, 2002

Figure 1. Definition of Captology

Captology, in particular, investigates how engagement using persuasion devices influences individuals to modify their behavior more than interaction without them. In other words, captology asserts that the source in the persuasion process is not only the substance of the targeted message, time, language, gestures, and mimics, but that technology applications may also be successful.

Mobile Applications

Mobile apps are pieces of software that are meant to run on devices like PCs, tablets, and smartphones (Nah, Siau & Sheng, 2005). As a result of constantly expanding demand, these programs broaden their usage area by improving their features and capabilities. Mobile applications for devices are a significant tool for users to modify their lives, adopt new habits, socialize, and carry out tasks (Liu & Law, 2013; Ouzzani et al., 2016). Furthermore, mobile applications provide a unique viewpoint to persons working in many industries who use computer devices such as mobile phones (smartphones) and tablets. Leading mobile application online shops, such as the Apple Store and Google Play Store, which feature millions of program possibilities, serve to suit customer demands by diversifying directly based on smartphone operating systems. Furthermore, mobile devices provide various services other than chatting and messaging (Avçılar & Alkevli, 2017: 106). To make it easier for consumers, mobile applications in the Google Play Store and Apple App Store are organized into categories. It offers these areas in a variety of sectors ranging from entertainment to education, news to literature, and music to sports. Furthermore, quicker and simpler access to mobile apps is favored (Siuhi & Mwakalonge, 2016: 582). For

example, there are 615 million credit card accounts registered to the Google Play Store and more than 1 billion applications downloaded and activated from the online store (Law, Chan&Wang, 2018; Yuan&Cheng, 2022). Among these applications, there are also applications from the world's second largest industry, the sports sector. With the practicality of the applications, the rate of use of sports exercise mobile applications has increased in Turkey as well as in the world. According to Adjust, a mobile measuring business that aggregates usage rates of sports exercise mobile applications, the number of individuals using sports exercise mobile applications in April 2022 will be over 548 million. In the fourth quarter of 2025, this figure is predicted to reach about 715 million (Adjust, 2022). The primary goal of sports activity is to promote mental and physical wellness. The secondary goal is to urge the user to engage in the workout sessions, begin a new training process, and so continue to use the program.

Based on all these situations, the aim of this study is to reveal the persuasion strategies of mobile sports exercise applications users within the scope of Fogg's Behavior Model (FBM) and Cialdini's Persuasion Strategies.

METHOD

Model of the Study

The qualitative research technique, the general purpose (overall intent), interpretative, and evaluative case study design were employed in this study. Case study, according to Chimiliara (2010: 75), is a methodology that gives an in-depth description of an active system using regularly gathered data in order to understand how it works. Case study, on the other hand, is a qualitative technique in which data (observation, interview, interpretation, document, auditory, etc.) is analyzed relatively among a limited number of examples, according to Creswell and Tashakkori (2007). In this study, a comparative scenario analysis was performed, and content analysis was used to understand the findings. Content analysis is used to connect ideas like related texts, patterns, and often appearing terms within the context of certain topics (Straus&Corbin, 1990). It is a method utilized on the data reviewed on the subject, reliable results connected to the content, and systematic assessment in content analysis.

Table 1. Behavior Coding Model in Persuasion Technologies

Coding Category	Trigger	Motivation	Easiness
	<i>Rarity</i>	<i>Motivation</i>	<i>Consistency</i>
Analaysis Codes	<i>Reciprocate</i>	<i>Authority</i>	
	<i>Social Proof</i>		

It was first customized by making an account in the Nike Training Club, Freeletics, and Adidas Training by Runtastic mobile applications. The notification issued throughout a one-month period, as well as the published textual contents, were recorded and examined, and then categorized according to Cialdini's six different persuasion principles. It was finally classified using B. J. Fogg's Persuasion Technologies Behavior Model.

Study Group of the Research

The study's goal is to uncover and compare the performance of sports and fitness apps that millions of users download to their mobile smart devices on a daily basis in the context of persuasive methods. Three sports and fitness applications were chosen as a sample for the study. The study includes applications such as Nike Training Club, Freeletics, and Adidas Training by Runtastic. Related to Applications, Esgin (2018) presents the fundamentals of six alternative persuasion tactics pioneered by Cialdini and B.J. It was investigated by adapting it to the "Behavioral Coding Model in Persuasion Technologies" table, which was categorised based on Fogg's behavioral model (Esgin, 2018: 133).

Data Collection Tool

Nike Training Club, Freeletics, and Adidas Training by Runtastic programs were used as the study's sample. According to SensorTower, an application analysis business, these selected applications are the three most downloaded applications in the globe among sports exercise applications in 2022 (SensorTower, 2022). The first-place Freeletics app has 46 million downloads worldwide, while the second-place Nike Training Club app has 7 million downloads. Last but not least, the Adidas Training by Runtastic app has been downloaded 3 million times. Turkish is an option in all apps.

FINDINGS

The codes identified for the content and incoming alerts in the mobile sports exercise applications are presented in this part, which contains the conclusions derived from the analysis of the data acquired from the applications. The Nike Training Clup program assists the user in a variety of sports activities, including yoga, sports exercises, abdominal and whole-body training, strength training, bodyweight training, high-intensity training, and cardio intervals, among others. Furthermore, the program is available in 17 different languages.

Table 2. Nike Training Club Persuasion Codes

C.C.	Trigger	Motivation	Easiness
Analysis Codes	Rarity * <i>"Active Time"</i> * <i>"Exercise of the day"</i>	Friendship/Love * <i>"Hello Volkan"</i> * <i>"How about competing with your frineds"?</i> * <i>"Are you looking for more ? So go for running"</i> * <i>"Calm your mind with moves"</i>	Consistency * <i>"Energize your day"</i> * <i>"Accelerate blood flow for a low-intensity workout, whatever your situation."</i> * <i>"Earn badges and trophies with your workout frequency, workouts you complete, or weekly/monthly back-to-back series."</i>
	Reciprocation * <i>"Free use"</i> * <i>"Giving the target information that is desired to be reached by creating the record of personal information."</i>	Authority * <i>"Workout of the day"</i> * <i>"Goals to be achieved."</i> * <i>"Digital rewards"</i> * <i>"Honor your energy"</i> * <i>"Need more movement to match how you feel?"</i> * <i>"...make the most of the day's run."</i>	
	Social Proof		

**Total 7 million downloads.*

** "Helps you continue your fitness journey with the best at-home fitness and healthy habits tips" in Google Play searches.*

**90% of the participants stated that both their muscles and their minds got stronger.*

In the Nike Training Club application, the "friendship/love and authority" proof codes, which are defined as the most used "motivation" element among the persuasion techniques, are frequently used. When you log in to the application, "Hello Volkan" is displayed next to the personalized messages "Are you ready to compete with your friends?" competitive notifications are also received. Looking at the principle of authority, in practice, "Do you need more action to match what you feel?" or "Goals to be achieved." It offers messages like As Cialdini (2019: 281) states, human beings are believed from the moment they are born that it is right to obey a proper authority and it is wrong not to obey. In addition, it offers notifications such as "honor your energy", "workout of the day" and "digital rewards".

Another "triggering" factor used among persuasion techniques in the application is the "scarcity, reciprocity and social proof" codes. Social proof method was frequently used in the process of persuading membership. The app "7 million downloads in total", "helps you continue your fitness journey with the best home fitness conditions and healthy habits tips in Google Play searches." The phrase; "90% of the participants stated that both the muscles and the mental structure got stronger". In general, an individual is correct if many people do the same thing, and we tend to make fewer mistakes by acting according to social proof than we would counter (Cialdini, 2019: 163). After the user installs the application, "Free use.", "Giving the target information to be reached by creating the record of personal information." exposure to such notifications gives the message that they will receive a free service. As a rule, reciprocity is obliged to repay what someone else has given us, or something similar (Cialdini, 2019: 45). This will be the behavior of responding to the free benefits that people will receive and the goal to be achieved as a result of receiving personal information. In accordance with the principle of scarcity, "Active time.", "Training of the day." phrases such as This content complies with the scarcity principle of Cialdini. According to Cialdini (2019: 312), it is more effective for people to know how much they will gain rather than how much they will lose, so the effect of the benefit to be gained through exercise will be effective in doing the exercise.

The "consistency" code, which is defined as a convenience factor, sends the following notifications and messages to the user; "Energize your day," "Get your blood flowing for a low-intensity workout, whatever your situation." "Earn badges and trophies with your workout frequency, workouts you complete, or weekly/monthly back-to-back series."

The Freeletics application serves the user in the field of sports exercises in many categories: HIIT bodyweight training, exercise, warm-up and cool-down session, audio session, sprint and running tracking, training statistics, training points, etc. Besides, the application serves in 10 different languages.

Table 3. Freeletics Persuasion Codes

C.C.	Trigger	Motivation	Easiness
Analysis Codes	Rrarity * <i>"Don't miss out on limited group workouts."</i>	Friendship/Love * <i>"Has Freeletics had an impact on your life? Share your story with us for a chance to win!"</i> * <i>"Tell us your story: How did you become unstoppable?"</i>	Consistency * <i>"Freeletics is not just an app. It is a lifestyle supported by one of the most passionate and dedicated communities in the world."</i> * <i>"Continue training without leaving any gaps in the week."</i>
	Reciprocation * <i>"A free 7-day trial period"</i> * <i>"Age, weight, height, gender personal information."</i> * <i>"We determine our three important goals. These are goals like building muscle, staying healthy, losing weight and relieving stress."</i> * <i>"We can't wait to hear your wonderful story."</i>	Authority * <i>"How active are you during the day, Volkan."</i> * <i>"Your goals, our guidance."</i> * <i>"Your coach analyzes your fitness and goals and prepares your individual path to success."</i> * <i>"Welcome to the center of power."</i>	
	Social Proof * <i>"A total of 46 million users"</i> * <i>"97% of all users say they experience dramatic improvement after 12 weeks"</i> * <i>"Digital coaching trusted by 54 million"</i>		

"Total 46 million users.", "97% of all users say they have experienced dramatic improvement after 12 weeks.", "Digital coaching trusted by 54 million." numerical data such as However, in accordance with the trigger category, "A free 7-day trial period.", "Age, weight, height, gender personal information.", "We determine our three important goals. These are goals like building muscle, staying healthy, losing weight and de-stressing.", "We can't wait to hear your great story." data are presented in accordance with Cialdini's social proof code. In practice, expressions such as "Missing the limited number of group exercisers" were encountered for the minority principle.

Two types of persuasion codes were used in Freeletics in accordance with the "motivation" element, which he defined as another important issue required for persuasion to take place. In accordance with the authority code, notifications such as "How active are you during the day Volkan", "Your goals, our guidance", "Your coach prepares your individual path to success by analyzing your condition and goals", "Welcome to the center of power" are received. It is advantageous that a multi-layered and widely accepted authority system emphasizes the sense of being able to achieve together on society (Cialdini, 2019: 283). In accordance with the friendship/love code, "Did Freeletics have an impact on your life?", Share your story with us for a chance to win!", "Tell us your story: How did you become unstoppable?" It speeds up the persuasion process by asking questions and instilling interest in the user.

According to the consistency principle in the coding category of the convenience factor, "Freeletics is not just an application. This is a lifestyle supported by one of the most passionate and dedicated communities in the world."

The adidas Training by Runtastic application serves the user in the field of sports exercises in many categories: Running, walking, cycling, yoga, abdominal muscles, body weight training, high-intensity training and cardio intervals, etc. Moreover, the application serves in 15 different languages.

Table 4. Adidas Training by Runtastic Persuasion Codes

C.C.	Trigger	Motivation	Easiness
Analysis Codes	Rarity <i>*"Don't miss the best opportunity of the year"</i>	Friendship/Love <i>*"Join our community and be on the same platform with millions of Fitness enthusiasts around the world." *"Share your achievements with your friends."</i>	Consistency <i>*"Easy to read thanks to the simple look and find tips and information during exercise." *"You have one account and the freedom to travel the whole world."</i>
	Reciprocation <i>*"In the first place, you need to enter information about your training history, condition, body weight and height" warning. *"14 days free use</i>	Authority <i>*"Athletes will now feel part of a global brand and community with benefits and rewards." *"Are you up for new goals and challenges?" *"It is very important for us that you can reach your goals. Let's make your dream body come true together now!" *"Muscle building, healthy living, running tips take your mind to the next level"</i>	
	Social Proof <i>*"Total 3 million downloads *"It's a really great app on a continuum. There is no need to go to the salons during the pandemic period.</i>		

When the Adidas Training by Runtastic application is examined in the context of persuasive technologies, it is seen that all persuasion strategies are used. The most used persuasion method in the persuasion process of the application is the "authority" codes from the "motivation" category. "You will now feel that you are a part of a global brand and community with advantages and rewards.", "Are you ready for new goals and challenges?", "It is very important for us that you can reach your goals. Let's make your dream body come true together now!" It is normal to hope that there is a good reason for motivation when faced with a power and/or power that motivates human behavior in practice (Cialdini, 2019: 281). In addition, it regularly offers training opportunities with experts and well-known people in the field ("Muscle building, healthy living, running tips take your mind to the next level"). Looking at the "friendship/love" ikana codes in another motivation category, "Join our community and be on the same platform with millions of Fitness enthusiasts from all over the world. "Share your achievements with your friends" notifications are an example of a friendship/love code.

The persuasion method used in the persuasion process of the Adidas Training by Runtastic application is "sparseness, reciprocity and social" evidence, depending on the "trigger" category. On the first page of the application, the information "Don't miss the best opportunity of the year" is presented, informing that the packages are limited. Afterwards, it gives people the opportunity to experience the application for free with the

phrase *"free use for 14 days"*. Again, taking the user's personal information, the warning "In the first place, you need to enter information about your training history, condition, body weight and height". Lastly, user comments came to the fore in the category of *"social proof"* in triggering persuasion strategies. *There is no need to go to the salons during the pandemic period.*" In addition to this, information on the total number of users *"Total 3 million downloads"* is also given.

The following conveniences are offered under the consistency code, one of the persuasion categories defined as "convenience" in the application; *"Easy to read thanks to its plain appearance and being able to find tips and information during exercise."* creates a desire to use the application frequently in the user. *With the tab on the interface of the application, "You have the freedom to travel the whole world with a single account."*

CONCLUSION and DISCUSSION

Each of the three sports workout apps reviewed utilised all of Cialdini's persuasive principles. However, when the programs are compared within themselves, it is clear that Freeletics is the application in which persuasive methods are utilized the most extensively. Given the amount of users, it can be claimed that persuasive technology methods were successfully applied, with 46 million users ranking top. In all applications, there were few examples of the rarity concept. Güzel and Başaran, in their study in 2019, revealed that with the spread of mobile application, more users will come together and interact. It might be argued that the apps did not favor too much material in this manner since the fear of not being able to find it again is counter to the nature of both the persuasion and incentive phenomena. The concept of FOMO (Przybylski et al. 2013), which is defined as the fear of missing out on developments and not being able to find them, reveals the scarcity principle of mobile applications (Dossey, 2014). It has been shown that in the persuading process, sports exercise programs typically apply the concept of authority in the incentive category. The fact that the motivational authority principle is high makes it easier for the changes to be applied in the relevant field to get correct results. (Jesus&Lens, 2015). In this study, it was revealed that there is a high level of relationship between teacher motivations and authority perception levels. As an authority principle, it is sought to guarantee consistency in the exercises by referring experts in the area in the powerful material that stands out to the consumers. In addition, the employment of industry experts and celebrities generates interest in all three apps (Stone&Valentine, 2007; Getz&McConnell, 2011; Behm, 2018; Yazdi, 2023). The participation of prominent and internationally successful individuals in the field increases the motivation by creating an effect of trust in the users. It was determined that the consistency principle was used in all applications in the sample. Regular exercise, as in many fields, is one of the most significant components in sports growth. As in all areas, regular exercise is one of the most important factors in development in sports branches. Regular sports exercises have a positive effect on both physical and psychological well-being of individuals (Lubas et al., 2016). It has been revealed that individuals who do regular sports exercises increase their psychological well-being, sleep duration, sleep quality and self-regulation levels due to behavioral changes (Delextrat et al., 2016; Anderson&Durstine, 2019; Ramadan, 2022). It is critical to encourage users to stay in the application regularly and continually in order to ensure progress.

All three apps in the sample employed technological persuasion codes frequently. Cialdini's persuasion principles (sparseness, social evidence, reciprocity, friendship/love, authority, and consistency) were all detected in all of the applications. The concepts of reciprocation, social proof, and authority have been identified as regularly found in the context of persuasive technology.

SUGGESTIONS

Mobile applications, which are a significant aspect of modern life, are a digital cosmos in which people spend a lot of time. There are several mobile applications in the linked industry in this area. The analysis of mobile sports exercise applications in the context of persuasive technologies was examined in this study. In future research, it is critical to do a comparative examination of captology of mobile applications from a broader sample group and diverse fields.

ETHICAL TEXT

The study follows journal writing guidelines, publishing standards, research ethics, and publication ethics. The author is responsible for any infractions relating to the article. This study does not require an ethics committee document because content analysis was employed.

"This article complies with journal writing rules, publication principles, research and publication ethics, and journal ethics. Responsibility for any violations that may arise regarding the article belongs to the author(s).

Author(s) Contribution Rate: The author's contribution to this article is 100%

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