

# Use of digital technologies in creating psychological and pedagogical conditions for healthy lifestyle formation

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**Abstract.** The article outlines the psychological and pedagogical aspects of forming a healthy lifestyle of a contemporary man. It has been established that the modern rhythm of life has a negative impact on a person's emotional and physical state. In particular, this is connected with a sedentary-style professional activity, job-related stress, etc. To promote due health and form healthy habits, an instrument is required that would create personalised recommendations on how to perform different types of exercises and provide access to reference or motivation resources. The article presents the concept of a software product capable of forming an effective complex of exercises in real-time mode depending on the user's activity, preferences and inner state. The developed software product can be used by any adult regardless of professional activity form and health features.

**Keywords:** digitalisation, health, habits, intelligent system, big data, pedagogy

## 1 Introduction

A healthy lifestyle is conditioned by due organisation of industrial, mundane and cultural life activities that allow one to realise his/her creative potential, preserve and improve one's health [1]. According to the experts, human health depends 50-55% on lifestyle, 20% on the environment, 18-20% on genetic predisposition and 8-10% on public health services [2, 3]. The psychological and pedagogical approach to studying healthy lifestyle determines this mode of life through the prism of consciousness, human psychology and motivation [4]. Keeping to a healthy lifestyle, a person can achieve active longevity and fully perform social functions for active participation in labour, social, family, domestic and leisure forms of life activity [1, 3].

Formation of a healthy lifestyle is the main tool of primary prophylaxis, as concerns the promotion of public health through changes in one's lifestyle and tenor as well as people's

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invigoration through the use of hygienic knowledge combating bad habits and overcoming unfavourable aspects of life situations [5].

The modern stage of social development involves the active digitalisation of all forms of human activity. When performing job duties, any specialist uses specialised hardware and software; when at home, a person uses “smart” applications that allow him/her to control household appliances and monitor the physical state of the organism. All kinds of communications are effectuated now through messengers, conferences, etc. [6-9]. The main task of such facilities is to become a tool in human hands towards relieving one from performing routine operations and serving as an assistant when making decisions or complying with certain targets.

Thus, the creation of a digital product able to monitor human life activity and, depending on man’s condition (both physical and psychological), form a list of recommendations for maintaining and improving his lifestyle is a relevant target. Therefore, the aim of the research is to develop a concept of forming a healthy image with regard for a person’s psychological and general pedagogical aspects. For this purpose, it was necessary to establish the key characteristics of processes that ensure man’s healthy lifestyle and create a formal model suitable for digital transformation.

*The theoretical significance of the research* lies in the systematisation of human life processes towards creating a digital model that would provide an individual approach to the formation of a healthy lifestyle.

*The practical significance of the research* lies in the creation of a tool capable of forming a set of exercises or recommendations towards maintaining a person’s due physical and psychological state.

## **2 Materials and methods**

The work involved the method of structural analysis to outline the characteristics of the problem area. To clarify the obtained results, a research method was used to explore the literary sources specifying the parameters of a healthy lifestyle, as well as the methodological recommendations for physical exercise, rest and alternation of activities.

The obtained results became the basis for a formal model defining the functional capabilities of the required software product. For this purpose, the information modelling method was used. It helped to specify the main users of the system and their functional capabilities.

## **3 Results**

The concept of forming a healthy lifestyle through the use of a specialised software product focuses on the systematic performance of certain tasks by every user. The list of assignments is formed on the basis of the user’s current physical condition, activity over a certain period and the goals he/she wants to achieve.

The access to the functional capabilities and resources of the digital system should be personalised. The user makes the basic settings, for example, enters his/her age, height, weight, occupation, hobbies and the goals he/she would like to achieve in the short and long term. Based on this, the system automatically forms a set of recommendations which include the following sections: motivation, physical aspect, professional and competence-based aspects.

*The motivation-related section* contains recommendations for forming, improving and maintaining a positive attitude towards oneself and others. This can include short-term breathing exercises, watching motivational videos, etc. Task completion confirmation or

grounds of withdrawal from assignment are set by the user. When the user takes such an action the system may ask him/her to fill in a feedback form in order to establish and fix the user's current psychological state, attitude to the exercise as well as the difficulties he/she had in performing it, etc. Such data are necessary to adjust the subsequent recommendations in the corresponding section.

*The physical section of the recommendations* comprises exercises aimed at maintaining physical fitness, muscle group loading and relaxation training. The exercise load can be of the following types: aerobic, anaerobic, intervallic and hypoxic. The user monitors his/her own condition and records the exercising results. If additional technical facilities are available (e.g. fitness trackers), the user's parameters can be obtained by the system in the background (e.g. heart rate, blood oxygen level, etc.). Based on the monitoring results, the system will adjust the current and subsequent exercises in the background mode.

*The professional section* is realised by the system by selecting invigorating exercises depending on the type of professional activity of the user. The main purpose of such exercises is to prevent fatigue and restore mental efficiency. They improve blood circulation, relieve muscle tension and nervous system fatigue, activate intellection processes and give rise to positive emotions.

*The competence section* forms the user's useful habits related to a careful attitude towards nature, natural resources, digital hygiene, consumer culture, ethics of communication, etc. It is realised through systematic recommendations to the user as to viewing relevant content, installation and use of thematic mobile applications, offering reference information about events and activities on relevant subjects, etc. The user marks manually the information of interest and the attended events. Based on his/her preferences, a list of further recommendations is formed. At the same time, the system continues, though less insistently, to recommend activity in other thematic areas. This approach will provide full-value unobtrusive access to broad information and thereby generate interest in a certain area or form a due habit.

To realise this concept, a specific client-server architecture system is to be developed. The client will be represented by a mobile application which should take the functions of providing access to the system functionality, display query results and serve as a means of collecting data from the user's devices (e.g. a fitness tracker). The server can be represented by at least two parts: a database server and an application server. The database server provides data storage and user query processing. The application server stores the business logic instruments responsible for the operation of the system algorithms according to the developed model.

## **4 Discussion**

The analysis of the obtained results can be evaluated from several points of view: technical and psycho-pedagogical.

From the technical point of view, the concept in question can be realised using standard methodologies for the design and development of information or intelligent systems. The data processed by the system match the methods for modelling the problem area objects. Such models make it possible to forecast changes in the characteristics of the monitored objects. A similar approach is used in different sectors of the economy, in particular, for developing efficient management decisions [10-12] and rational use of resources [13-16].

From the psychological and pedagogical points of view, the chosen approach to the formation of a healthy lifestyle is implemented in stages, with regard for the general scientific specificity. Such specificity involves the conceptualisation of the categories "health", "health development", "healthy lifestyle", "health culture" as a cognitive component, development and formation of attitudes to the above categories as an emotional

component; the formation of value orientations and conscious evaluation of work results; the ability to reflexive value-based target-setting [1, 3, 17]. The presented description of the information system concept in terms of functional capabilities is in line with this approach.

## 5 Conclusion

Modern man, regardless of the sphere of his interests or professional activity, needs to preserve and strengthen his health. For this purpose, due conditions should be created to activate the system of internal motivation forces that promote a person's systematic compliance with the healthy lifestyle requirements in one's life activity.

Motivating a person requires the use of accessible and understandable means. It is difficult to imagine a modern man without electronic gadgets used by him actively in everyday life and professional activity. The creation of a software product capable of monitoring the user's activity and, based on its results, forming a system of recommendations is a reasonable measure. It can draw the attention of a large number of people to health problems and the ways to improve it.

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