

Study Of Functional Features Of Furniture And Equipment In The Design Of Recreation Of Children's Polyclinics

A V Ekaterinushkina¹, N S Zhdanova², Ju I Mishukovskaya³

¹Ekaterinushkina Anna Vladimirovna candidate of pedagogical Sciences, associate Professor of design Department, Institute of construction, architecture and art, Nosov Magnitogorsk State Technical University, Russia, Magnitogorsk

²Zhdanova Nadezhda Sergeevna candidate of pedagogical Sciences, Professor of design Department, Institute of construction, architecture and art, Nosov Magnitogorsk State Technical University, Russia, Magnitogorsk

³Mishukovskaya Julia Ivanovna candidate of pedagogical Sciences, associate Professor of the Department of design and operation of metallurgical machinery and equipment, Institute of metallurgy, mechanical engineering and material processing, Nosov Magnitogorsk State Technical University, Russia, Magnitogorsk

E-mail: designmasu@mail.ru

Abstract. The results of experimental study of functional features of furniture and equipment are given in the article. These results can be used in designing recreation floors in state polyclinics for children. The object-and-spatial environment of state medical institutions for children in the Chelyabinsk Region was examined during the experiment. Research methods are based on the complex study of theoretical and designing materials carrying out of the linear experiment.

During the analysis of the premises it was discovered that floors are the most frequently visited places but less organized from the point of functional, ergonomic and aesthetic requirements. Floors sooner became out-of date: monotony in interior decoration, a chaotic style of choice of various types of furniture as seats and shelves. Discomfort is increasing when waiting for medical care, influencing physical, psychological and psychiatric condition of visitors.

During the research functional features of furniture and equipment of recreation floors in child polyclinics were discovered. Paying attention to these features in designing is to resolve contradictions between the present- day floors and processes proceeding there and to ensure visitors' comfort. The results of the experiment are recommendations for designers for subsequent designing of state child polyclinics.

1.Introduction

The declared subject is relevant to general problems of organizing object-and-spatial environment in public buildings. The development of principles of organizing interior decoration in public buildings of various types differs. Design theorists have paid less attention to public medical institutions. Designing medical institutions was carried out according to general recommendations without application of results of scarce applied research.

The actuality of the work is based on the necessity of quality maintenance of polyclinics and the lack of appropriate conditions of using object-and-spatial environment, thus leading to visitors' discomfort. Furthermore, general theoretical principles lack concrete proposals of reveal conditions and their realization in designing floors in child polyclinics or the proposals are introduced in the context of other problems.

Nowadays a continuous development of diagnostics and treatment methods and new medical equipment is carried out. The application of new forms of organization and service leads to the change of the profile of medical institutions. Undoubtedly, changes require an inevitable adaptation, reorganization or modernization of object-and-spatial environment. Functional zoning of premises in most of the polyclinics is united with corridors and floors in departments are an integral element of interior premises where visitors and patients spend the most of the time, waiting for doctors' consultations. Nowadays floors in a child polyclinic are spontaneously organized waiting halls with a



monotonous decoration and an arbitrary choice of objects that lead to discomfort of children and adults.

During the research the following contradictions were revealed: the discrepancy between modern requirements of maintenance and of premises in the polyclinic and their obsolescence; lack of correspondence of furniture and equipment of floors interior with modern tendencies and technology and psychology of perception. The revealed conditions allow to propose the following hypothesis: if furniture and equipment in floors is in correspondence to the processes in floors, it will ensure visitors' comfort in the polyclinic.

Hence the aim of our research became discovering functional features of furniture and equipment of floors in child polyclinics, ensuring effective designing of comfortable object-and-spatial environment.

2. Materials and methods

Our work is based on the applied functional and ergonomic research that allows to obtain reliable and demonstrative information about processes, phenomena and a choice of objects in the institution (i.e. a child polyclinic).

Experimental work is carried out in some stages that determined methods of confirmation of the research hypothesis (table 1).

Table1. Procedure of experimental work

Stage1: theoretical	Stage2: linear experiment
Determining information sources, the methods of experimental work	Implementation of methods of the experiment, hypothesis confirmation, research results and conclusion
Research methods	
– Analysis	– Observation
– Synthesis	– Calculation and analytical methods
– Classification	– Somatographia and modeling
– Generalization	– Designing and graphical modeling

Stage1: theoretical. Various information sources were studied and the methods of experimental work were determined, i.e. the whole complex of the research methods, the necessary amount of material, sources, methods of collection, processing and generalization of information.

Stage 2: empirical. During the experiment the hypothesis was confirmed as a result of application of various empirical methods. The experimental part of the research is supported by the data received during the experiment. A linear experiment is a research foundation, as its logical structure is the most appropriate.

Results of the experiment were calculated using analytical methods. Formulating of the research results, instructions and recommendations for the subsequent designing was carried during the stage. Some methods and stages of the experiment may be found in the works of research authors [3, 4, 5, 6].

3. Discussion

Nowadays we can find some theoretical and practical approaches to organizing of object-and-spatial environment in medical institutions. Modern architectural and designing organizations suggest various types of polyclinic designing that are mostly applied in the erection of a new building and the opening of private medical centers.

As far as state hospitals and polyclinics are concerned, the problem of visitors' comfort is being partly solved changing organizational structure (registry work, doctors consultation schedule, etc.) and introducing various specialized equipment that standardizes the number of visits.

At the same time the problem of the object choice for the polyclinic premises to satisfy functional processes is not sufficiently studied. Floors overcrowding, badly organized streams of visitors, lack of

seats lead to discomfort and tiresomeness when waiting for medical care that undoubtedly influences visitors' health.

4. Literary review

From the point of service and organizing of object-and-spatial environment medical institutions have specific features. The premises structure is determined by state standards and building norms of the Soviet period. The only renovation in designing of medical institutions is dated 2014 and concerned building specific features [16]. Most of the designing solutions are based on general theoretical principles of architecture and design. The problem of organizing object-and-spatial environment is widely dealt with in the works by V. Shimko, S. Khasieva, N. Kim, N. Morgun, E. Soboleva, A. Grashin and others. Environment formation is examined from the point of typical buildings and constructions and comfort factors.

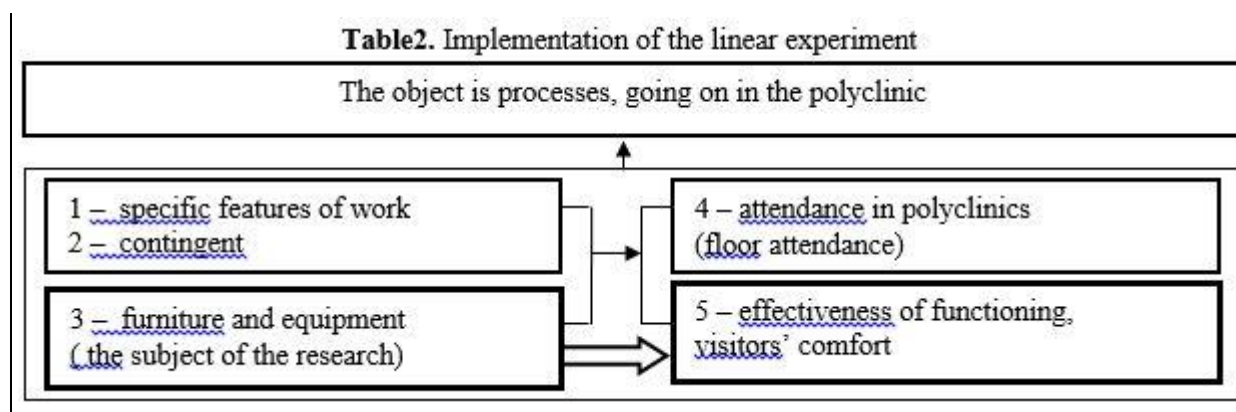
The application of ergonomic requirements that is examined in the scientific works by V. Runge, L. Chainova, T. Bogatyreva, M. Kalinicheva, M. Zakharchuk and others is important for our research. Ergonomic requirements of environment development and its object sets are marked out by the authors.

Scientists in medicine and psychology declared the main role of environment in the development of an organism and the origin of unhealthy processes. The influence of environment on psychological and social human characteristics is determined in the works by A. Stepanov, A. Ikonnikov, N. Zhdanova and others. Taking into account specific features of perception of architectonic environment by patients in spatial formation for medical and sanitary activities of medical institutions is one of the important moments in designing and especially in modernization of buildings.

The problem of organizing of object-and-spatial environment in medical institutions may concern research of designing objects similar in number of certain characteristics. Educational institutions [11, 13, 12], public interiors with corridors, halls and places for general use are examples of such objects [1, 18].

5. Research results and recommendations for the subsequent designing.

The main empirical method on functional and ergonomic research was a linear experiment aimed at the confirmation of the suggested hypothesis (Table 2).



The main criteria were applied to the experiment: 1) control criteria – specific features of the work in the polyclinic, the contingent, the attendance being relatively constant characteristics, existing in the structure and object organization, cannot be changed by the experimenter; 2) factors of changes – furniture and equipment that may be changed during the experiment and subsequent designing with regard to research conclusions; 3) predicted – functioning of floors, the extent of comfortable staying inside the building, these changes take place as a result of changes of factor criteria.

Specific features of work, the contingent and the choice of objects inside the building influences the attendance and functional processes in the city child polyclinics. According to the invariable control criteria (Table 2: criteria -1-, -2-), changing functional characteristics of furniture and equipment (criterion -3-) ensures effectiveness of functional processes (criterion -5-) and rising of the extent of comfortable staying in floors.

During the research functional specific characteristics of furniture and equipment in floors in child polyclinics were discovered and designing recommendations were formulated:

1. According to the organizational requirements furniture and equipment must be designed and replenished, taking into account the elimination of floor overcrowding and rational streams of people (table 3). Functional and spatial structure of floors depends on streams of people. Despite artistic and image solution the following facts make up the foundation of designing conception: the possibility of free orientation of visitors in floors that rises confidence and reduces the level of stress; a rational distribution of number of visitors to exclude overcrowding in floors thus intensifying their functional purposes.

2. According to ergonomic requirements formation of furniture and equipment must correspond to anthropometric standards, specific features of environment perception; age group psychology (table 4). When designing it is necessary to determine age groups and calculate anthropometric criteria. Taking into account the environmental perception of children - attention to details, the imitation of familiar to children furniture; available elements of the game - ensures flexible zoning gives children an opportunity to do separately various activities.

Table 3. Changes of functional processes in floors of child polyclinics

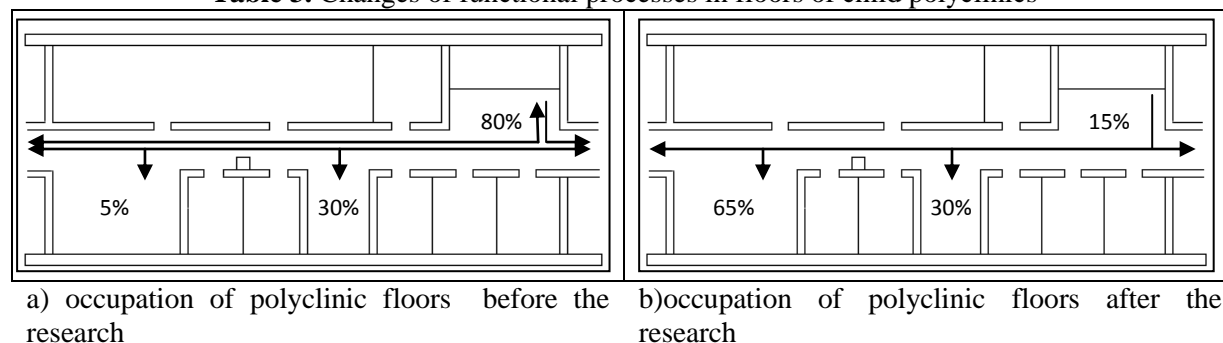
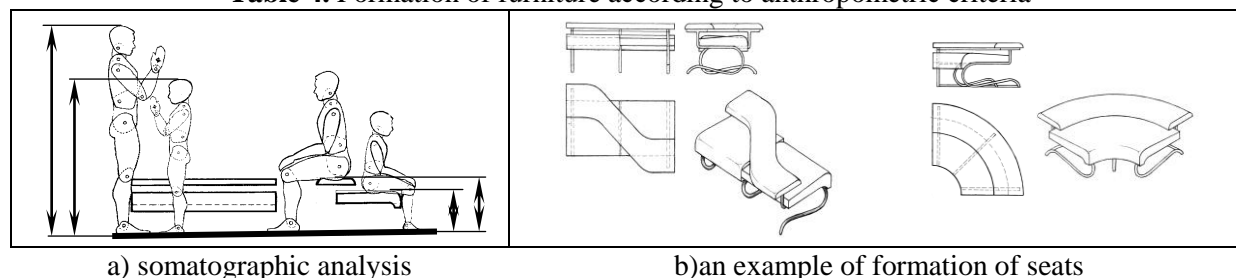


Table 4. Formation of furniture according to anthropometric criteria



Achieving the designing aim it is necessary to take into account that sanitary and organizational conditions in medical institutions are determined by standards and polyclinic management and cannot be changed. Nevertheless, they are to determine functional and ergonomic conditions that reveal specific features of object choice in floors in child polyclinics. Consideration of the fact will allow to formulate conceptual principles of artistic and image solution. The result will be displayed in changes of object-and-spatial environment to ensure effectiveness of its functional use and visitors' comfort in the polyclinic leading to improvement of health.

6. Gratitude

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7. References

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