

Anthropological Design of Inclusive Clothing as a Factor in Improving the Quality of Human Capital

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Abstract. The article highlights the issue of improving the quality of human capital using the principles of the anthropological design of inclusive clothing and levelling the differences between relatively healthy people and those with health restrictions. The possibility and necessity of using the basic provisions of anthropological design for the design of inclusive clothing for people with heightened needs are substantiated. Within the framework of the anthropological design of inclusive clothing's newly formed paradigm, a conceptual model that includes two interconnected and interacting clusters has been developed: fashion design and NBIC technology. The proposed concept allowed developing the principles of the anthropological design of inclusive clothing: manageability, utility, ergonomics, versatility, transformability, aesthetics, innovation, targeting, and sociality. The obtained research results were tested by creating specific models of inclusive clothing, including for people with increased needs.

1. Introduction

One of the trends in the development of human capital in modern Russia is a sharp decline in the number of the working-age population [1]. In 2016, the President of the Russian Federation, V.V. Putin, in a message to the Federal Assembly, declared the necessity in "saving the people and increasing human capital as the main wealth of the country" [2].

One of the effective ways to preserve the quantitative parameters of human capital in Russia is the active involvement of people with disabilities or "people with heightened needs" in labor activity. A serious reason for the exclusion of people with heightened needs from the labor process today is the unreadiness of a significant part of the modern Russian society, for several reasons of different nature, to view a person with sensory or motor deficiencies as an equal. People with heightened needs are not psychologically ready for integration into society, that is, they are in a so-called state of social exclusion.

One of the most important factors that impedes the adaptation process is the lack of inclusive clothing, which allows people with a heightened need to feel that they are full members of society [3]. Currently, interest in the creation of inclusive clothing has increased significantly. Thus, in the implementation of large-scale projects (the FashionNet online market as part of the Strategic Initiatives Forum, the I-Inclusive show in the framework of the Mercedes-Benz Fashion Week in Moscow), special attention is paid to inclusiveness and product customization for people with increased needs. However, until now, no brand has produced inclusive clothing.

Analysis of the scientific research of Korobtseva N.A., Savelyeva N.Yu., Kharlova O.N., Prikhodchenko O.V., and others in the field of creating inclusive clothing showed that the process of its design was conducted without taking into account the inclusiveness factor and the achievements of promising technologies. This practically does not differ from traditional clothing due to the lack of consistency and the inter-relation of factors characterizing the characteristics of people with increased needs. As a result, these clothes designed to provide the greatest comfort and make life easier are increasingly contributing to isolation from society and unwittingly drawing excessive attention to problem areas.

The solution of a complex multi-criteria task, such as the experience of designing inclusive clothing items, is possible only based on a multidisciplinary systems approach. In the field of environmental design, this approach is reflected in the principles of anthropological design [4]. Scientific research using the main provisions of the anthropological design to create inclusive clothing has not yet been conducted.

2. Formulation of the problem

The aim of the study is to develop principles for the creation of inclusive clothing in the context of the paradigm of anthropological design.

Research objectives: formulate the paradigm of anthropological design in inclusive clothing, allowing improvement of the quality of human capital; develop a model of the relationship of inclusive clothing with the external environment from the standpoint of anthropological design; formulate the principles of creating inclusive clothing in the context of the paradigm of anthropological design.

3. Theoretical part

The concept of anthropological design is based on using the results of interdisciplinary research in various fields of knowledge and allows you to explore individual ways of human interaction with the external environment. This, thereby, creates an environment with already known parameters, which are focused on the specific tasks of an individual or a social group [4], and support the principle of inclusion. The basic principles of inclusive design, formulated by American architect Ronald Mans, include equality in use; flexibility, simplicity, and intuitiveness; tolerance for mistakes; adequacy of the size and space; and web accessibility.

In relation to inclusive clothing, the conceptual model of anthropological design demonstrates a systematic approach. This is represented by Fashion-design and NBIC-technology clusters, which, interacting with each other and their components, create a design product of the future that focuses on people with heightened needs (Figure 1).

The cluster components of fashion design are:

- Social design solves certain social problems, requiring the designer to think out-side the box to develop original solutions when creating a designed product.
- Bio-design involves the use of resources and the potential of nature in the solutions of a design project, including clothing, as an integrated system with a high degree of integrity.
- Sustainable design (environmentally conscious design) implies respect for nature and people and is responsible for all stages of the life cycle of clothing – from design to recycling.
- Universal design ensures the availability of a design object for all people regard-less of age, illness or other factors without the need for changes while providing comfortable operating conditions.
- Ergonomic design allows you to optimize the design parameters by considering the biomechanical characteristics of human movements, which makes it possible to design inclusive clothing with a given level of dynamic compliance and helps to improve the convenience of the product in operation [5].

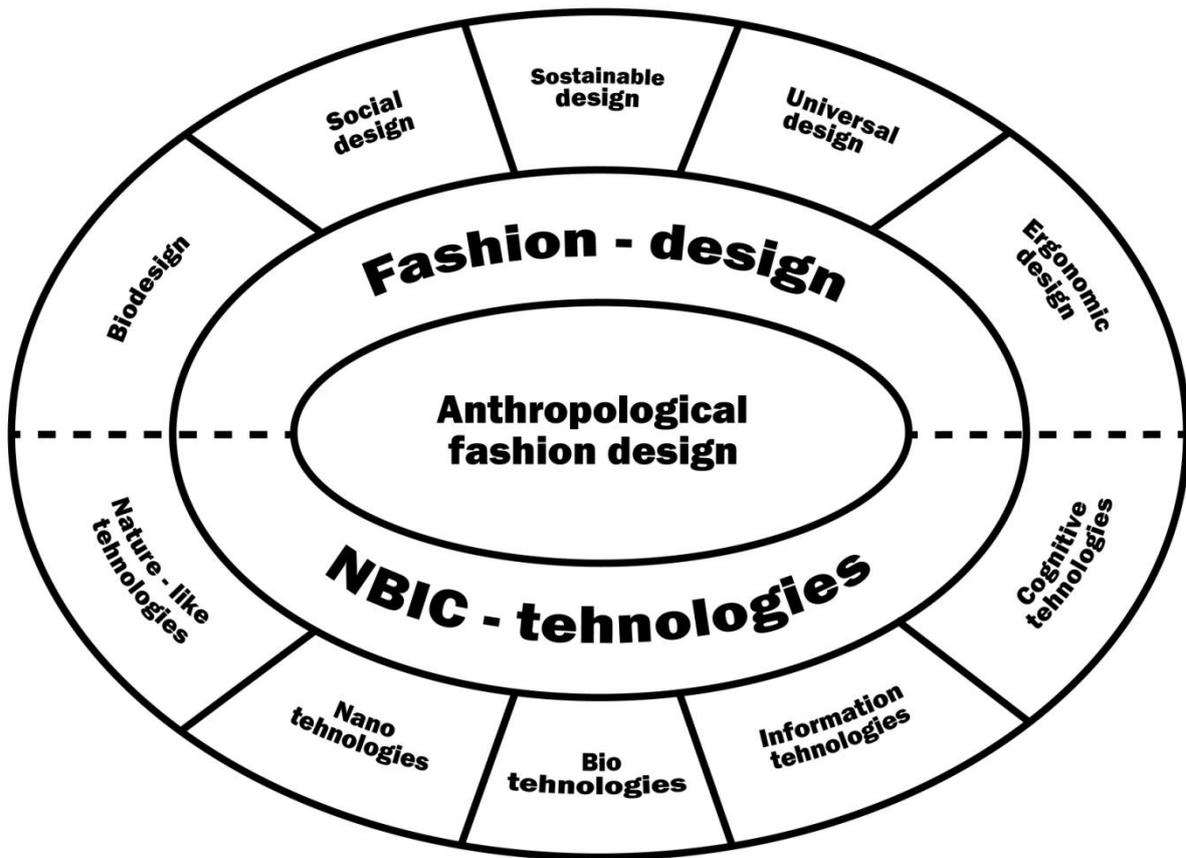


Figure 1. A conceptual model of the anthropological design of inclusive clothing based on a multidisciplinary approach.

The greatest successes in the development of fashion design have been achieved through the use of NBIC-technologies [6]:

- Nature-like technologies do not cause damage to the surrounding world, exist in harmony with it and allow restoring the balance between the biosphere and the tech-no sphere disturbed by man [7].
- Nanotechnologies provide the ability to create and modify objects, including components with sizes less than 100 nm, in a controlled way, and to obtain fundamentally new qualities that allow them to integrate into fully functioning systems of a larger scale [8].
- Biotechnologies use the capabilities of living organisms, their systems or their metabolic products to solve technological problems [9].
- Information technologies are designed to solve problems through the effective organization of the information process, base, and rational use of modern advances in high technology [10].
- Cognitive technologies are focused on the development of human intellectual abilities. They underlie the process of designing devices that consider the human condition, follow the attention and work of the brain, and develop imaginative and associative thinking [11].

Thus, the new paradigm of anthropological design in the design of inclusive clothing is based on a multidisciplinary approach, defining the use of the latest innovations in NBIC technology in the field of fashion design, and turning the design product into a means of human comfort that has a positive impact on the quality of human capital.

4. Practical significance

As part of the paradigm of the anthropological design of inclusive clothing, the following principles are formed:

- Manageability allows the use of innovative materials or devices incorporated in-to clothing to control and regulate human condition, including through inclusive clothing.
- Utilitarianism provides comfortable conditions for the flow of physiological processes of the human body and the creation of favorable conditions for practical activities.
- Versatility ensures the satisfaction of the maximum number of people and demonstrates the lack of visual differences in clothing for healthy people and people with increased needs.
- Transformation ability implies the mobility of a structure that can transform into various types of products or substantially change their properties. Based on the principle of transformation, inclusive clothing helps to simplify or facilitate the operation of clothing; providing easy access to adjustment and maintenance sites; safe clothing design; partial or complete independence from the services of others; facilitating the action of people involved in caring for those with increased needs.
- Aesthetics provides visual correction of appearance, compliance with appearance, current fashion trends, and the category of technological processing of clothing ensures the integrity of the compositional solution.
- Targeting in relation to groups of diseases provides the degree of compliance with the limitations of the static-dynamic function, the degree of compliance with the conditions of life activity; the compliance of clothes with the size and full age group of a person; the conformity of the materials, finishes, and ornaments used for clothing.
- Socialization allows one to achieve the social status of an individual and helps with the adaptation and integration of a person with increased needs to life in society.

Today, systematic research has begun in the field of designing inclusive clothing using the principles of anthropological design. As a result, models of an innovative assortment of clothing, which can control the course of physiological processes that move the work of the organs in the right direction, have been developed [12]. Models of the comfortable, modern upper and lower body clothing with special functional and constructive elements have been patented and fitted, providing opportunity for people with increased needs to get closer to a full-fledged social life [13].

5. Findings (conclusion)

The expediency of a fundamentally new approach to the design of inclusive clothing as a factor enhancing the quality of human capital has been substantiated.

The possibility of using the basic provisions of anthropological design based on the principles of a multidisciplinary approach has been determined.

The theoretical foundations of anthropological design in clothing were developed. Within the framework of the created conceptual model, the paradigm of the anthropological design of inclusive clothing is formulated.

Principles have been established, the use of which from the position of an integrative approach allow the creation of harmonious and high-tech clothing for people with increased needs.

Patentable solutions of samples of inclusive clothing have been implemented, allowing the increase of its quality level after the comprehensive consideration of the peculiarities of the daily activity of people with increased needs.

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