

Conference Paper

Universal Design as a Tool for the Humanization of Social Consciousness in Design Practice

Victoria I. Isachenko¹ and Valeriy A. Kurochkin²¹PhD in philosophy, Professor, Department of Industrial Design, Ural State University of Architecture and Art, Yekaterinburg, Russia²PhD in art history, Professor, Head of the Department of Industrial Design, Ural State University of Architecture and Art, Yekaterinburg, Russia

Abstract

This paper considers design as a socially responsible tool that can and should be used to challenge existing social and cultural conditions and facilitate the humanization of social consciousness and design activity. Providing inclusivity is undoubtedly a goal of design, and many countries today are engaged in facilitating such changes in urban environments. Universal design is one of the most important tools that can meet the challenges of creating a comfortable living environment and developing an inclusive mindset. We demonstrate the potential of universal design using examples of the design projects developed by the students of the Department of Industrial Design, Ural State University of Architecture and Art. These projects show a wide range of possible applications of the principles of universal design and demonstrate the potential of universal design to facilitate and engender new understanding of inclusive and accessible environment that can help reshape public consciousness regardless of whether or not such projects are actually put into practice.

Keywords: universal design, disabled people, humanization of social consciousness, humanization of design activity, inclusive mindset.

1. Introduction

Today the problems of humanisation of public consciousness and design process, especially within the context of striving for inclusivity, are particularly important. Inclusion is a key condition for welfare and quality of life that expands development opportunities for all individuals. Inclusion is on the agenda of many international organizations, as a fundamental category of social policy and public life. Many countries introduce national strategies for social inclusion and monitor their effectiveness. Major social institutions (education, healthcare, culture, social protection, law, business etc.) explore possibilities of social inclusion through specialized mechanisms and design solutions for the problem of changing values and norms in developing inclusion policy, culture, diverse inclusive practices in all spheres both for children and for adults.

Corresponding Author:

Victoria I. Isachenko
isachenkovi@mail.ru

Published: 25 August 2020

Publishing services provided by
Knowledge E

© Victoria I. Isachenko and

Valeriy A. Kurochkin. This article
is distributed under the terms of
the [Creative Commons](#)[Attribution License](#), which
permits unrestricted use and
redistribution provided that the
original author and source are
credited.Selection and Peer-review under
the responsibility of the
Questions of Expertise in
Culture, Arts and Design
Conference Committee. OPEN ACCESS

An interesting approach to social inclusion in public transportation has been realised in the Netherlands. 350 thousand people with visual impairments can now freely use trains. The national railroads achieved this result in four years. The cost was 30 million euro. Now people with visual impairments can travel independently. All obstacles on their way have been eliminated. To ensure that a person with visual impairment is not lost, each station has tactile strips whose overall length is over 90 kilometres. Tactile tiles on staircases and platforms warn about the nearby staircases or platform edges. All railings have platform numbers in Braille; all elevator signs are also duplicated in Braille. To improve passenger orientation, major stations include tactile maps that help to find a way in railway stations and transfer hubs. [1]

2. Materials and Methods

Russia began to move towards inclusivity and equal opportunity relatively late, although our country has a lot of citizens living with disabilities: according to the official statistics, as of the beginning of 2019, there are 11947 thousand people with disabilities, i.e. over 8% of the general population [2]. The *Convention on the Rights of Persons with Disabilities* was ratified by Russia only in 2012 [3]; in 2015 state program *Accessible Environment* was approved [4]. The same year saw the approval of new Federal legislation on social support for people with disabilities and accessibility of objects and services. [5] The concept of “universal design” first appeared in Russian legislation in SNiP 35-01-2001-SP 59.13330.2012 *Dostupnost' zdaniy i sooruzheniy dlya malomobilnykh grupp naseleniya* (*Accessibility of buildings and facilities for groups of citizens with low mobility*) [6]

While the regulatory support has been established, humanization of public consciousness is a more difficult task. Although people in Russia traditionally show compassion to those who has health issues, live with disability or need help, still both state and society need time to develop a national strategy for social inclusion. For a long time, this problem was not discussed in Russia: people with disabilities studied in closed specialized schools of various levels, their healthcare and social support were distributed through special programs, citizens with disabilities tried to lead a separate lifestyle, etc. This problem is exacerbated by contradictions in Russian society: on the one hand, the cultural level of inclusive consciousness is rather weak, on the other – the quality of life is low. That is, aesthetic and functional organization of the environment are not adapted to the goals of social inclusivity for people with disabilities. Solutions for these problems require not only an overall approach to the development of comfortable human environment for people with various disabilities, but also conditions for the

development of inclusive consciousness. The most important tool in solving these tasks is a “universal design” whose principles should apply to the design of all objects, services, information and communication media.

Even though the concept of universal design appeared in Russia only recently, Russian researchers are widely discussing this topic. Serious research into the issues of social adaptation of people with disabilities, influence of socio-political, socio-economic and socio-psychological factors on the adaptation process, challenges faced by people with disabilities within the workforce on in social interaction, can be found in works by T.A.Dobrovolskaya [7], N.B.Shabalina [8], N.A.Demidova [9], N.F.Demytyeva [10], T.I.Petrakova [11], P.S.Kuznetsov [12], M.M.Ayshervud [13]. In her practical guide, E.G.Leontyeva analysed existing regulatory framework regarding inclusive environment accompanying them with detailed commentary and explanations. [14] Among other Russian works that focus on the humanisation of public transportation through universal design are the works by: N.Yu.Uvarov [15], V.S.Seleznev [16], E.A.Stepanova, A.A.Dalsky, L.V.Mochalova [17], I.S.Bychkova, E.Yu.Khalitova [18], A.Yu.Albagachiyev, I.Yu.Mamedov, M.L.Sokolov [19], N.E.Melchakov [20], K.S.Ivshin [21], A.V.Polozov [22], E.A.Martemyanov [23]. These works explore the place of inclusive design in post-industrial society; “universal design” as a tool for creating equal opportunities for people with disabilities; problems of emotional humanization of urban spaces through the design of individual transportation means; socio-psychological techniques for changing public consciousness through universal design; the role of “universal design” in shaping human life and communicative environment. However, there is still not enough research on the opportunities and role of “universal design” in the humanization of public consciousness and design process.

3. Discussion

Over the past decades, “universal design” has become one of the leading design areas in the Transportation Design master’s studio at the Chair of Industrial Design (Ural State Academy of Arts and Architecture). The authors of the present article supervise master’s projects by the students specializing in this studio. The choice of this research and design field is based on the substantial differences between design conditions in Russia, in Europe and in other countries. Here, a different order of design projects is required. Russian designers are faced with a lot of factors that influence specific design goals: climate, large territory, long road length, specifics of transport infrastructure and urban spaces, environmental problems, cultural features, traditions, public consciousness and

many others. Therefore we, as supervisors, encourage our students to propose solutions for the humanization of transportation, public consciousness and design process, urging them to work for real inclusivity, for the creation of comfortable living environment for everybody, based on the wealth of international design practice and taking into account Russian specifics. This approach allows the students to create original and sometimes unique and unparalleled design projects. For example, in 2018–2019 the students of the Transportation Design studio chose for their master's thesis a topic of humanizing public transportation in Russia. The key issue here is complete lack of inclusivity in public transportation. This lack of inclusivity shows in the difficulty of embarking and disembarking, lack of enough private space onboard, poor opportunities for manoeuvring, cramped conditions, constant shaking, vibrations, noise, dirt, dust etc. Design solutions proposed by the students demonstrate serious potential of “universal design” in the solution of this difficult problems at the level or projects, thus seriously influencing public consciousness.

In his master's thesis *Humanization of Passenger Railway Transport. High-Speed Electrical Train* Alexander Kaygorodov researched the possibilities of Russian passenger railway transportation in organizing comfortable movement of passengers in high-speed long-distance trains. This research highlighted key issues faced by the railway transportation system on all levels of use, analysed specifics and logistics of transportation infrastructure and the industry-specific organization issues, and also strove to find an innovative design solution. As a result, the author proposed a new concept of high-speed electrical train based on “universal design” principles. The concept of Snegir (Bullfinch) high-speed electrical train for the high-speed Moscow–Beijing railway envisions speed up to 400 km/h thanks to the train's aerodynamic shape; it is fully equipped for passenger and crew comfort, including passengers with disabilities. The colour scheme and image of train exterior is based on the attractive image of a bullfinch and matches well the official symbols of Russian railway system. The main exterior colours are black, grey, light grey, red and bright orange. The exterior features active graphics that accentuate dynamics, impetus and highspeed of the transportation.

The train can transport up to 500 passengers simultaneously, has 2 head carriages with traction equipment, as well as two-story passenger carriages with traction carts. Passengers can choose between the carriages of two types: with sits (up to 48 places) and compartment style (up to 18 places). The carriages are equipped with lifts for passengers in wheelchairs, ramps and two-bathroom facilities. All passages and corridors have a 1000 mm. width, allowing passengers in wheelchairs to move everywhere unimpeded

and easily overcome encounters with countermoving passengers. All visual signs are duplicated in Braille, while obstacles and non-horizontal parts of the floor are marked by tactile strips. Emergency sound alerts are installed around the carriages' perimeter and in bathroom facilities.

A special feature of this project is a non-standard internal arrangement of the carriages: compartments and seats are placed diagonally; seats are rotating and can be turned to comfortably face a neighbour. The diagonally arranged compartments provide advantage by allowing longer walls and, as a result, longer sleeping places and more comfortable access to upper level. The resulting corners have additional functionality as storage space for clothing, purses, baby food backpacks, umbrellas or other necessary items. Compartment carriages include only two places for people with limited mobility and other disabilities. Each compartment is equipped with an individual bathroom facility; every table can be transformed into an additional side shelf; and a lower sleeping place can be extended to double size. Undoubtedly this project could motivate Russian producers to create modern Russian high-speed trains of a new generation in terms of comfort and inclusivity.

In her master's thesis *Environmental and Humanistic Aspects of Airship Design. Cruise Airship*, Anastasiya Sukhoguzova researched opportunities of comfortable long-distance tourist transportation with the possibility of visiting dangerous or protected environments, as well as the expansion of education opportunities for various population groups, including people with disabilities. Her research demonstrated that the exponential growth of technical and scientific information, increased productivity, quickening life rhythm, deteriorating environmental conditions and the growing stress factors negatively influence people's capacity for work and society's psychological and material conditions in general. Cruise travel is an underdeveloped national resource in Russia. It allows to explore natural phenomena, ethnic traditions, historical monuments and unique natural objects helping to restore people's vitality, help them achieve emotional harmonization, develop new social contacts etc. Cruise travel is one of the important methods of rehabilitation for people with disabilities, since it facilitates the development of skills and competences, as well as social integration.

The research proposes a new type of tourist transport: an airship that would allow the tourists to move freely between places of interest and architectural monuments, as well as visit dangerous, difficult to reach places and protected territories. This design project envisions realization of an accessible barrier-free environment reflected in the positioning of all common spaces at the same level. A large atrium is equipped with playing and educational facilities, restaurant, spa, study room, children's room

and fitness zone. An open deck has navigational facilities, allows for safe movement, ease of embarkment and disembarkment using specialized elevator that carries the passengers from the waiting zone of the station. Residential areas are equipped with accessible office appliances; all sanitary areas, staircases and technical facilities have rails and barriers installed, aimed to prevent any instances of accident or trauma. An educational centre contains a space for lectures, training sessions and workshops that would supplement visual exploration with all necessary information. This space is equipped with interactive objects and robot guides. An image of a sea turtle was used as an inspiration for the airship outlook: its silhouette is formed by flowing lines that create a bionic aerodynamic object, while grey and blue colour scheme resonates with the idea of air travel, safety and reliability. Neutral colour scheme and soft interior lighting aim to create an atmosphere of relaxation, peace and serenity; the interior style rhymes with the exterior one and is based on soft flowing bionic shapes. We believe that this design project is one of the promising trends in the modernisation of transportation system of Russian cruise tourism.

In her master's thesis *Humanization of Urban Transportation System. Autonomous Shuttle*, Tatyana Markova explores organization of urban public transportation system and its adaptation to the needs of the residents, including people with disabilities. The proposed autonomous shuttle project shows in a new light interaction between transportation system and its users and proposes a new urban organization of public infrastructure based on the system of mobile modular electrical shuttles. An autonomous shuttle equipped with self-learning AI chooses the shortest way to the destination point and computes convenient routes, while the passengers can spend their time on the road for studying, working, relaxation etc.

The shuttle's interior could host 4 or 5 passengers; it is divided in clearly delineated zones made of friendly bio-morphic plastic and equipped with the supportive tools and mechanisms for passengers with disabilities, thereby providing optimal comfort for passengers and reducing stress, which is a common feature of transportation in a big city. The projected places for people with visual or hearing impairments, as well as for the wheelchair passengers, are equipped with the folding transformer sits, armrests with tactile panels, buttons to call an attendant and for emergency stops. The entrance is equipped with a wheelchair ramp, audio warning along the way and a tactile panel to choose stops and pay for the ride. The proposed project of smart shuttle and new urban organization of transport infrastructure could become a perfect solution for the Russian cities and form an integral part of the "smart cities".

4. Conclusions

To sum up, universal design provides a vital function: through images and expressive means it helps to solve key contradictions of technological societies and its psychological and spiritual foundation, as well as contributes to the solution of global problem, i.e. an improvement of human quality of life. “Universal design” is an instrument for humanization of entire industries and areas: public transportation, urban environment, public and private residential spaces etc. As such, it provides psychological comfort, ethics and respect, awareness of co-existence and participation in creating comfortable environment through all available means, thereby facilitating the development of inclusive consciousness in Russian society.

References

- [1] Current time. Retrieved May 25, 2019 from <https://www.facebook.com/currenttimetv/>.
- [2] Federal State Statistics Service. (2019). *Obshchaya chislennost' invalidov po gruppam invalidnosti (na 1 yanvarya 2019 g)*. Retrieved from http://www.gks.ru./wps/wcm/connect/rosstat_main/rosstat/ru/statistics/population/disabilities/#.
- [3] Federal Law dated 03.05.2012 No.46-FZ “O ratifikatsii konventsii o pravakh invalidov”.
- [4] Act of the Government of Russian Federation, December 01, 2015, No. 1297 (ed. 27.12.2018) “Ob utverzhdenii gosudarstvennoy programmy Rossiyskoy Federatsii “Dostupnaya sreda” na 2011–2020 gody”.
- [5] Decree of the President of Russian Federation, May 7, 2012, No. 597 “O meropriyatiyakh po realizatsii gosudarstvennoy sotsial'noy politiki”.
- [6] SNiP 35-01-2001-SP 59.13330.2012 “Dostupnost' zdaniy i sooruzheniy dlya malomobil'nykh grupp naseleniya”, approved by the Ministry of Russian Regions on 27.12.2011 No. 605.
- [7] Dobrovolskaya, T. A. and Shabalina, N. B. (1992). Invalidy: diskriminiruyemoye men'shinstvo? *Sotsiologicheskiye issledovaniya*, issue 5, pp. 103–106.
- [8] Dobrovolskaya, T. A. and Shabalina, N. B. (1993). Sotsial'no-psikhologicheskiye osobennosti vzaimootnosheniy invalidov i zdorovykh. *Sotsiologicheskiye issledovaniya*, issue 1, pp. 62–66.
- [9] Dobrovolskaya, T. A., Shabalina, N. B. and Demidov, N.A. (1988). Sotsial'nyye problemy invalidnosti. *Sotsiologicheskiye issledovaniya*, issue 4, pp. 79–83.

- [10] Dementyeva, N. F. and Ustinova, E. V. (1991). *Formy i Metody Mediko-Sotsial'noy Reabilitatsii Netrudosposobnykh Grazhdan*. Moscow: Infra.
- [11] Demenyeva, N. F. and Petrakova, T. I. (1992). K voprosu sotsial'noy adaptatsii invalidov s narusheniyami funktsiy oporno-dvigatel'nogo apparata v usloviyakh internata. *Zdravookhraneniye v RF*, issue 11, pp. 21–24.
- [12] Kuznetsov, P. S. (2000). *Sotsiologicheskaya teoriya sotsial'noy adaptatsii*. (PhD Dissertation, Saratov, 2000).
- [13] Isherwood, M. M. (1991). *Polnotsennaya zhizn' invalida*. Moscow: Pedagogika.
- [14] Leontyeva, Y. G. (2013). *Dostupnaya sreda i Universal'nyy Dizayn Glazami Invalida*. Yekaterinburg: Tatlin.
- [15] Uvarov, N. Y. (2017). Inklyuzivnyy dizayn v kontekste postindustrial'nogo obshchestva. In Vilchinskaya-Butenko, M. E. (Ed) *Trudy instituta biznes-kommunikatsiy* (vol. 2). Saint-Petersburg: SPbGUPTD.
- [16] Seleznev, V. S. (March, 2010). *Universal'nyy dizayn i dostupnost' transporta i transportnoy infrastruktury*. Retrieved May 7, 2019 from http://www.seleznev-vs.ru/content/File/5_f__1.pdf.
- [17] Stepanova, Y. A., Dalskiy, A. A., Mochalova, L. V. (2018). Razrabotka kuzova avtomobilya po printsipam universal'nogo dizayna. Presented at *Vtoraya rossiyskaya nauchno-prakticheskaya konferentsiya s mezhdunarodnym uchastiyem. Universal'nyy dizayn – ravnyye vozmozhnosti – komfortnaya sreda*. Moscow: MIREA.
- [18] Bychkova, I. S. and Khalitova, Y. Y. (2016). Sotsial'no-Psikhologicheskiye Tekhnologii Formirovaniya Obshchestvennogo Soznaniya v Voprosakh Sozdaniya Universal'nogo Dizayna – Dizayna Dlya Vsekh. In *Kolodyazhnyi S. A. (Ed). Sovremennyye Problemy i Perspektivy Razvitiya Stroitel'stva, Eksploatatsii Ob"Yektov Nedvizhivosti*. Voronezh: Voronezhskiy GASU, pp. 76–83.
- [19] Albagachiyev, A. Y., et al. (2018). Promyshlennyy dizayn i Primeneniye Printsipov Universal'nosti Pri Proyektirovanii Tekhnicheskikh Izdeliy. *Vestnik mashinostroyeniya*, issue 11, p. 84.
- [20] Sokolova, M. L., et al. (2017). Universal'nyy Dizayn Moskovskikh Avtobusov. Presented at *Informatika i tekhnologii. Innovatsionnyye tekhnologii v promyshlennosti i informatike*. MNTK FTI-2017, pp. 528–529.
- [21] Ivshin, K. S. (2011). Vysokokachestvennoye poverkhnostnoye modelirovaniye v dizayne transportnykh sredstv. *Dizayn. Teoriya i praktika*, issue 7, pp. 83–93.
- [22] Polozov, A. V. (2013). *Vybor ratsional'nykh komponovochnykh skhem malogabaritnykh transportnykh sredstv na etape dizayn-proyektirovaniya*. (PhD Dissertation,

Izhevsk State Technical University named after M. T. Kalashnikov, 2013). Retrieved May 7, 2019 from <https://www.dissercat.com/content/vybor-ratsionalnykh-komponovochnykh-skhem-malogabaritnykh-transportnykh-sredstv-na-etape-diz>.

- [23] Martemyanova, Y. A. (2016). Osobennosti dizayn – proyektirovaniya universal'nogo kresla povyshennoy komfortnosti dlya transportirovki passazhirov v usloviyakh Arktiki. *International Scientific and Practical Conference World Science*, vol. 1, issue 4 (8), pp. 50–53.