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Research paper

Encountering the extreme environment through tourism: The Arctic design approach

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ABSTRACT

This article signifies a new phase of constructive interest among designers in environmental and cultural issues relating to the development of tourism to remote regions with severe climatic conditions, namely Arctic/Northern territories. It draws from two educational experiments of designing would-be tourist destinations in the Russian North. We propose the Arctic design approach as a conceptual lens through which to consider the notion of tourist destination and to frame an extended argument for what it takes to be a human in severe conditions and for the environment of the destination currently considered remote, extreme and inhospitable. Within this framing, the Arctic is presented as a source of inspiration and a testing ground for innovative solutions to comfortable (short-term) living in the challenging conditions of Polar regions, Outer Space, etc. Finally, we discuss the potential of the Arctic design approach for combining a memorable tourist experience with site protection and appreciation as well as imparting a new quality to the very idea of co-development in the field of tourism.

1. Introduction

While acknowledged as an act of seeking authentic experiences (Cohen, 1988; MacCannell, 1973), tourism has gradually become one of the most prominent, yet rapidly changing domains of contemporary life (Cohen, 2008). Today, given the increasing concern with the effects of global environmental changes and related societal and cultural consequences, the tourism industry can potentially contribute to rebalancing the human-environment relationship through creating and consuming geographically bound experiences. However, a mere business-oriented approach does not seem to be enough in terms of managing ethically and responsibly the bearing capacity of existing tourist destinations as well as reaching out into new ones, i.e. remote (and previously inaccessible) corners of the world. As an example of the latter, public interests have recently turned towards the polar regions, especially the Arctic,[1] being attracted by the notions of pristine/unspoiled wilderness, vast and empty expanses, melting icebergs and glaciers, vanishing indigenous cultures, endangered mega-fauna, etc.

On a practical scale, current interest in the Arctic stems from demand for energy resources, such as on- and offshore oil and gas (Schenk, 2012); new routes for international trade (Arctic Council, 2009); environmental and social consequences of global warming (Harriss, 2012); and potential national boundary disputes (Johnston, 2012). Although many of the site-specific discussions and concerns – especially those about resources and boundaries – have been mostly exaggerated (Claes, 2017; Young, 2009), the current growth in particular industries, such as resource extraction and military developments along with environmental considerations, has already profoundly affected tourism development. In this light, the Arctic has been promoted as an open 'melting' space for 'masculinist fantasy and adventure' such as 'nostalgic frontier expeditions' (Dittmer, Moisio, Ingram, & Dodds, 2011, p. 202; Veijola & Strauss-Mazzullo, 2019, p. 63).

In the framework of tourism, any place turns into a tourist destination, understood as 'a set of institutions and actors located in a physical or a virtual space where marketing-related transactions and activities take place challenging the traditional production-

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[1] In this instance, we adopted a combined definition of the Arctic: starting with the first Arctic Human Development Report (Stefansson Arctic Institute, 2004, pp. 17–18), we add the middle part of Western Siberia, i.e. Khanty-Mansi autonomous okrug, based on the geo-economic concept of the Russian Far North given by the Soviet geographer S.V. Slavin (1962). Throughout the article, we put definitions based on science aside and depart from the philosophical concept of 'nordicity' (Beaulé & De Conink, 2018; Hamelin, 1978) that puts forward the remoteness not only in a geographical but also cultural and human perspective.

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consumption dichotomy' (Saraniemi & Kylänen, 2011, p. 133). As a particular case, the Arctic destinations pose a substantial problem in both natural and social sense: as being remote and difficult to access; as beset by human capital issues (e.g. lack of trained staff or even a population large enough to handle practical tasks); and as being set in fragile natural and cultural localities (Maher et al., 2014; Müller & Grenier, 2011). Thus, the challenge of creating just and sustainable tourism is, perhaps, nowhere better represented than in the Arctic (Grimwood, 2015).

This research investigates the domain of Arctic/Northern tourism through the so-called *Arctic design approach* proposed as a conceptual lens on the notion of tourist destination. The main goal is to reveal the tourist potential of the environment currently considered remote, extreme, and inhospitable as well as to redesign the very process of human interaction with such an environment and turn it into a part of a conscious tourism consumption process. To this end, we link together relevant concepts and approaches from tourism and design studies with our empirical data from the field and the studio.

The article is structured as follows: First, we separately discuss the emerging fields of Arctic/Northern tourism and Arctic design. Second, after briefly reviewing the cross-disciplinary connections between tourism and design in general, we identify the potential of the Arctic design approach as applied to tourism destination development. Third, after describing the methodology and data, we illustrate the Arctic design approach to tourism with two connected case studies. Then, we discuss the main findings as connected back to the provided theoretical foundation along with some limitations of the study. We conclude by outlining the implications and potential directions for further research.

1.1. Literature review

1.1.1. Arctic tourism

Over the past decade, research into the specific sector of Arctic/polar tourism has gained momentum, resulting in a plethora of publications and reports of significant activities undertaken by professional associations, such as the International Polar Tourism Research Network (IPTRN; see http://iptrn.rmf.is), the University of the Arctic's Thematic Network on Northern Tourism, and the Association of Arctic Expedition Cruise Operators (AECO; see http://www.aeco.no) (Maher et al., 2014). Throughout the particular topics of interest within this sector, e.g. cruise tourism (Lück, Maher, & Stewart, 2010), tourism in geographical peripheries (Müller & Jansson, 2007), indigenous tourism (A. Johnston, 2000; Hillmer-Pegram, 2016; Pashkevich & Keskitalo, 2017), etc., there are similar calls for further investigation into the motivations attracting tourists to travel to the Arctic areas (Müller, Lundmark, & Lemelin, 2013, pp. 1–17). These calls, in turn, illuminate the relevance of design methods for the observation and production of tourism products and services. While design has no subject matter of its own and its scope is potentially universal (Buchanan, 1992, p. 16) – varying from tangible things to interactions or relationships between various actors, human-centered design approaches offer a most powerful perspective (Maguire, 2001, p. 4).

1.1.2. Arctic Design

The concept of Arctic Design officially introduced in 2012 at the University of Lapland in its in-house publication (Tahkokallio, 2012) is an 'open source' definition based on caring about physical and socio-cultural well-being of humans as part of the vulnerable ecosystem of the circumpolar world. The community of Arctic designers has to date embraced a continually growing number of design professionals, indigenous representatives, and business and public stakeholders (Tahkokallio, 2012).

In recent years, Finland has been leading and initiating international reflections about the role of design in the Arctic regions. Furthermore, Arctic Design advocates for integrating this idea into the National Arctic Development Plan of Finland ('Finland's strategy for the Arctic Region', 2013), giving a backbone to strategic thinkers and designers to further develop this idea and its methods (Beaulé & De Conink, 2018).

Today, the tourism industry in Finland and Scandinavian countries – particularly the well-established sector of Arctic tourism – constitutes a significant share of the demand for Arctic design projects. These projects vary from 'arctification' of specific products and services to small-scale works, i.e. custom-made one-off souvenir items made by indigenous designers and artisans. Examples include:

- development of specialized tourist products for a comfortable and unforgettable holiday experience in the Arctic (Arctic Snow Hotel, 2012; Haahti & Komppula, 2006)
- reinterpretation of samples of the traditional material culture of indigenous people, where design methods become an instrument of integration into new market conditions (examples: art and design practices of Gunvor Guttorm (Sweden/Norway), Peteri Laiti (Finland), Frank and Regine Juhls (Norway), etc.).

But even before the above-outlined Western understanding of Arctic design emerged, there had existed an intellectual and educational tradition, now 40 years old, that originated and developed in the 'other' part of the world, i.e. in Russia, which possesses almost 2/3 of the Arctic territory; yet this tradition was inaccessible due to the historical isolation of the Soviet/Russian research and creative community (Azrikan, 1999). We refer to the Arctic Design School (ADS), currently an autonomous research unit within the Department of Industrial Design, Ural State University of Architecture and Art, which conducts projects focusing on human adaptation and wellbeing in the extreme natural conditions of the Arctic regions. The program 'Design for the Arctic/Far North' dating back to the 1980s stemmed from the enthusiastic student works inspired by a series of self-initiated field trips to the Arctic and Siberian wilderness.

Within the concept of Arctic design, design is understood as a professional area that tangibly facilitates non-biological human adaptation and wellbeing. In this framework, the Arctic/North ceases to exist as a mere geographical concept but becomes instead a useful and inspirational metaphor pointing to remote, sparsely populated and relatively isolated areas with a lack of urban industry and infrastructure and, most importantly, with a harsh, challenging and yet fragile environment. This setting provides an alternative sensibility to the established concepts and approaches in the design domain and yields fruitful insights into tacit issues of human-nature-technology interactions that are usually concealed in the milder climates and more 'civilized' environments.

1.1.3. Arctic Design for arctic tourism

In the general literature on tourism research, the concept of tourism destination design is undergoing a constant evolution: in the recent decades, the focus has shifted from product to process – from merely visiting a tourist destination towards customizing a product by means of experiential and service design, i.e. through active participation and integration of tangible and intangible elements to transform destinations as spatial units into materially expressed stories, and eventually treating a user/tourist as a co-author of the trip and co-creator of value (Miettinen & Koivisto, 2009; Pine & Gilmore, 1999; Tarssanen & Kylänen, 2006; Trischler & Zehrer, 2012; Tussyadiah, 2014).

In this article, the discussion on the potential of design research and education for contributing to the sector of Polar/Arctic tourism studies (Usenyuk & Gostyaeva, 2017) is extended to include the idea of tourism as a form of encounter with the extreme environment. In this instance, we suggest complementing the theoretical framework for the practice of experience design in tourism (Haahti & Komppula, 2006; Tussyadiah, 2014) with the design approach developed and tested in the Artic Design School, by giving attention to the concepts of *adaptation* and *life-support module*.

Adaptation embodied in the form of a *Life*-support *module* revokes the image of astronauts and Outer Space missions. As designers, we consider tourists as individuals on short-term 'Arctic missions', i.e. temporarily located in environments and situations entirely different from their usual settings. Our goal is to introduce them to a new setting gently as well as keeping them safe and sound during the trip. Thus, pieces of clothing/housing/transportation should be designed as parts of a bigger system; yet every piece should be a system by itself enabling autonomous use and facilitating a tourist in biological, psychological and cultural ways.

In a further perspective, the system of such modules and practice of their use may constitute the materiality of a New Culture, i.e. a deliberately created/designed set of norms, principles, and artifacts for comfortable living and working in an extreme environment. It would be a culture aimed at facilitating emerging communities of newcomers – people who come to the Arctic (temporarily or permanently) from milder climates, and for whom the Arctic is initially unfamiliar and disturbing.

Thus, in order to establish the very idea of tourism in extreme environments, we propose a new understanding of *tourist destination*: it is a 'laboratory' where innovative solutions to short-term existence in an extreme environment are generated and shaped in collaboration with tourists and local inhabitants. As global warming advances, these solutions, we believe, could be further applied to appropriate severe conditions and used for developing new lifestyles for longer-term visitors and non-indigenous settlers across the Arctic.

The theoretical foundation for the Arctic Design and Arctic tourism relationship lies within the widely acknowledged postcolonial framework that provides valuable insights into currently important topics of participation, empowerment, community and cultural identity (Irani, Vertesi, Dourish, Philip, & Grinter, 2010; Muller & Druin, 2012; Naum, 2012) in the context of tourist encounter in the era of globalization (Deutschlander & Miller, 2008; Minca & Oakes, 2006). Through practice-based inquiry into Arctic design, we embark on a dialog with influential postcolonial scholars and their concepts, namely Homi Bhabha's 'third/hybrid space' and Mary Louise Pratt's 'contact zone'. The designerly contribution is a conceptual and yet practical solution bridging the overlapping domains in the described region: that of tourism including visitors themselves as well as business and administrative actors and that of 'others', i.e. local commoners, usually non-involved. As Irani et al. assert, 'the ways, projects we engage in for "others" often tell us more about ourselves' (Irani et al., 2010, p. 1312). Indeed, in case of tourism development, the Arctic design approach at its best is aimed not at indigenous population but at non-indigenous temporary visitors. As designers, we formulate our goal as provision of decision-makers with ethically and esthetically appropriate, visually convincing concepts that would support non-indigenous individuals on short-term 'Arctic missions', and, at the same time, would not disturb (or even empower) local dwellers.

Thus, departing from the 'in-between space' (Bhabha, 1996) where 'cultures meet, clash, and grapple with each other, often in contexts of highly asymmetrical relations of power' (Pratt, 2002, p. 4) we arrive at the concept of a mutually beneficial space of 'inventions and conventions, initiated and maintained by day-to-day situations and encounters' (Naum, 2012, p. 106) that naturally include the local community. This vague description constitutes an additional challenge for designers – to facilitate the development of such a space based on co-design principles, namely: acknowledging mutual values; defining problems and opportunities together; and caring for feedback, evaluation, and reflection.

2. Methodology and data

Considering the exploratory nature of this article and the present-day content of the research, we employed the case study approach outlined by Yin as a 'linear, but iterative process' (2009) and appearing to be especially useful when research is in its early probing stage. This approach enabled us to gain a holistic insight into the tourism potential of the area under study and the main ingredients of destination design by combining an analysis of previous studies and field reports (as detailed below) and other text-based documentation with actual immersion and experimentation both in the field and in the studio.

The development/implementation stage of the tourism-oriented design projects was informed by the so-called 'developer immersion in use' approach (Von Hippel, 1994; Heiskanen, Hyysalo, Kotro, & Repo, 2010; 'INUSE Codesign Journey Planner', n.d.). This approach positions designers as experts in the user domain so that they could draw from a rich pool of understandings about who the other users are, what needs they have, what the contexts of use are, etc. In the case of tourism development, designers act as potential tourists. Thus, they can design for themselves and their peers and have easy access to predevelopment data and then to testing solutions. In addition, a deeper immersion into the context of use can be achieved through field experience. We will elaborate on the methods used and data collected in the section below.

For the first of our case studies, we immersed ourselves into the envisioned context of the trip under development by investigating both the historical materials and the first-hand data obtained during fieldwork. We began with publicly available sources, such as collections and in-house publications/catalogs of the Center of Traditional Folk Culture of the Middle Urals, Ekaterinburg, and the Museum of Man and Nature, Khanty-Mansiysk. These sources gave us rich visual data on the indigenous material culture and provided initial insights into the complexities of human-environment interactions within the traditional culture of the Northern/Arctic inhabitants. A further understanding of the subject and inspiration for the ideation stage came from collaborative engagement with the researchers from the Department of Ethnohistory, the Ural Branch of the Russian Academy of Sciences (RAS). The first case study is largely predicated on the field data collected during several trips to the Middle, Northern and Polar Urals in the late 1980s – early 1990s and later in 2006–2010 by ADS students and researchers. The data set includes personal narratives of eight students both in the field and in the studio, unstructured interviews and informal conversations with local inhabitants (6) and representatives of local tourism companies (2) recorded in written form, and visual ethnographic data, such as photos, videos, and freehand drawings and paintings. We supplemented these materials with the field notes and reflections of professional anthropologists specialized in the same and/or neighboring regions, such as Western Siberia. We read, stored, tagged and analyzed written accounts and field reports to find information about the land and its people (historical and present) as well as about how these trips had been organized and conducted.

It is important to note, in the first case, the official involvement of indigenous representatives and other stakeholders in the co-development process was not possible because of the narrow educational focus (the project was initially framed as a 'classroom exercise') and limited access to the site, local authorities, decision-makers and business community. However, informal discussions with local people encountered during the expeditions (and further contacts via social networks) demonstrated conclusively that the engagement of local communities was essential for identifying specific gaps and optimizing design proposals. For this purpose, students approached six individuals of different age (varying from 15 to 54) using an unstructured technique and documenting the main points of discussions in their field diaries. Then we used thematic analysis to reveal patterns and themes within the entire body of ethnographic data and, next, brought together the data sets and results of analysis by creating overview narratives on different aspects of the data (such as environmental conditions, available infrastructure and transport, local myths and legends, traditional arts and crafts, etc.).

The second case study was centered around the workshop method as established in participatory design practice (Bødker, Kensing, & Simonsen, 2009; Greenbaum & Kyng, 1991; Hyysalo et al., 2014). In

this instance, a workshop represents a 'hybrid or third space, in which diverse parties communicate in a mutuality of unfamiliarity and must create shared knowledges and even the procedures for developing those shared knowledges' (Muller & Druin, 2012, p. 20).

The workshop was hosted by the public environmental organization 'Green Arctic' in the real setting of a camp, i.e. a future tourist destination. The participants of the workshop included, besides the design team (2 males 26 and 45 y.o., 4 females 23, 24, 28 and 32 y.o.), the head of 'Green Arctic' and the expedition organizer (male, 32 y.o.), environmental experts (2 males, 19 and 30 y.o.), a medical professional (female, 21 y.o.), a psychologist (male, 30 y.o.), a youth teacher (male, 30 y.o.), a public activist (female, 37 y.o.), representatives of tourism industry (1 male 36 y.o., 1 female 35 y.o.), local facilities specialists/trainers/rescuers (3 males, 29 and 30 y.o.), and representatives of mass media – journalists and videographers (2 females of 21 and 27 y.o., 1 male of 30 y.o.). All of the participants would be among primary users of the space developed. Further details of the workshop and its context are explained in section 'CS 2: The Spirit of Transpolarity'.

The workshop space was arranged so as to yield several types of data: audio and video recordings of all discussions and activities inside and outside the camp (about 10 h in total); and still images (photos and drawings/sketches, 180 in total) made before, during and after the workshop. In addition, each of the members of the design team made fieldnotes to record their experiences, workshop outcomes, and post-workshop reflections. The data analysis proceeded in several steps: tagging and analyzing transcripts, visual materials and fieldnotes, and then creating generalized thematic narratives (5) and mood boards (3).

At the next stage, ideation, the concept of a *living lab* (Ballon, Pierson, & Delaere, 2005; Bergvall-Kareborn, Hoist, & Stahlbrost, 2009; Hakkarainen, 2017; Leminen, Westerlund, & Nyström, 2012) brought into focus the crucial and inspiring role of users as co-creators of value and the importance of a real context of use.

The basic definition of the living lab approach we rely on stems from the user innovation studies and means *engaging users in the co-creative process of new services, products and societal infrastructures in real-life settings* (European Commission, 2010, p. 7). While lacking specificity, this definition gives certain flexibility in understanding and implementing the approach depending on the actors (users), products, and context. Concerning our research on Arctic tourism, the living lab approach enabled the involvement of a broad variety of stakeholders (including local communities besides hosts and visitors) in the destination development process. This involvement, in turn, was expected to minimize risks in the introduction of a new tourist destination and to enable mutual shaping of ideas and expectations, behaviors and needs of the represented groups. In the light of 'classroom exercise' limitations, this concept served as a model of 'as must be the case'.

At the stage of design outputs, the future-oriented approach was a conscious choice fueled by students' aspiration to visualize ideal scenarios of human existence in the extreme environment, leaving aside the current economic and administrative realities of regional development. At the beginning of this stage, there were three scenarios proposed and evaluated by other participants of the primary workshop (via informal chats in social networks). Finally, one was selected for the final presentation.

3. Results

In this section, we present the experiments of design students and researchers to imagine future possibilities of tourism development in two environmentally and culturally fragile localities of the Northern and Polar Urals. Both sites are genuinely outstanding tourist attractions: in terms of marketing, they are promoted as 'pearls of ecological tourism' for adventurous thrill-seekers (local advertising, Yekaterinburg, May 2010). Moreover, both of them are located in hard-to-reach areas that do not provide for direct access. However, as Grenier pointed out, less accessible places provide an extra challenge, but certainly offer 'an original, distant, and remote location visited by few' (Müller & Grenier, 2011, p. 8). Indeed, there is a particular spirit of adventure in being far away from the control of any authority, which has been widely exploited in the marketing promises of several tourism entrepreneurs in the area (Pashkevich, 2013). This, in turn, has entailed some rather unwanted consequences, such as competition among various entities for control and access to the natural resources and, as a result, frequent violations of the rights of the indigenous communities in the territory (Pashkevich, 2013). The outcome is that the Russian Arctic, in general, is becoming a site of conflicts with indigenous people, local non-indigenous inhabitants, state-owned and private monopolies, and even tourists (Pashkevich, 2013). The cases below suggest possible ways towards developing relevant tourist products/services in order to turn the threats of unorganized tourism into opportunities for the local nature and culture.

3.1. CS 1: A journey to the Stone Idols

We begin with the case drawn from the degree project of three Master of Design students conducted in 2009–2010. The project explored the issue of protecting a unique natural and cultural landscape through ethical and sustainable tourism. The site under study was the plateau Man-Pupu-Nyor/Manpupuner (in the language of the indigenous inhabitants, Mansi, 'a small mountain of idols') on the western slope of the Ural Mountain Range in the Pechora-Ilych Reserve between the Ilych and Pechora rivers (Fig. 1).

The site features a unique natural monument – Seven Strong Men Rock Formations ('Manpupuner rock formations', 2018) (Fig. 2). In terms of geomorphology, these fantastic landforms are ancient mountains gradually eroded by rain, snow, wind, frost, and heat. The height of the stone pillars varies between 29 and 42 m. Declared one of the Seven Wonders of Russia in 2008, Manpupuner became a widely known popular tourist attraction in Russia not yet spoiled by tourism due to their remote location accessible only on foot or by helicopter (Leontiev, 2008).

According to Russian legislation, the status of a natural reserve does not allow for free roaming: tourists must obtain a special permit before visiting it. In practice, the procedure is very complicated, and therefore the majority of tourism companies/tour organizers do not even bother to obtain such permits: the price of such tours is already inclusive of the penalty (anonymous tourism manager, personal communication, Ekaterinburg, September 2009). Moreover, the tourist operators' nature-based practices are not controlled or certified (Pashkevich, 2013). Also, crowds of 'wild' (meaning 'unorganized' in Russian) tourists are attracted here by breathtaking images and videos on the Internet. Overall, these kinds of visitors – while thinking about conquering the impressive natural site – do not care about the site itself.

Digging to the roots: apart from being the unique natural attraction, this site is a native land of the Mansi people (obsoletely known as the Voguls). Historically, their traditional economy was based mainly on fishing, hunting, and reindeer herding. In the 20th century, the Mansi, along with other northern peoples of the vast area of the former Russian Empire, had to pass through several waves of dramatic changes in their economy, culture and living environment. The advent of the Soviet power in the 1920s accompanied by great promises and expectations turned out to be devastating for the indigenous communities: sedentarization and collectivization policies, attacks on traditional beliefs and languages, encroachment of industry on ancestral lands, habitat depletion and pollution (Sokolova, 2009). Over the recent decades, the Mansi's way of living has been changing so much that a lot of them have abandoned their semi-nomadic lifestyle losing their reindeer herds. Furthermore, the aggressive advancement of the industry has resulted in forced evacuation/relocation of most of the Mansis to urban areas and in great difficulties of adapting to the changing environment (Sokolova, 2009).

Today, the economic and social conditions put the Mansi at risk of

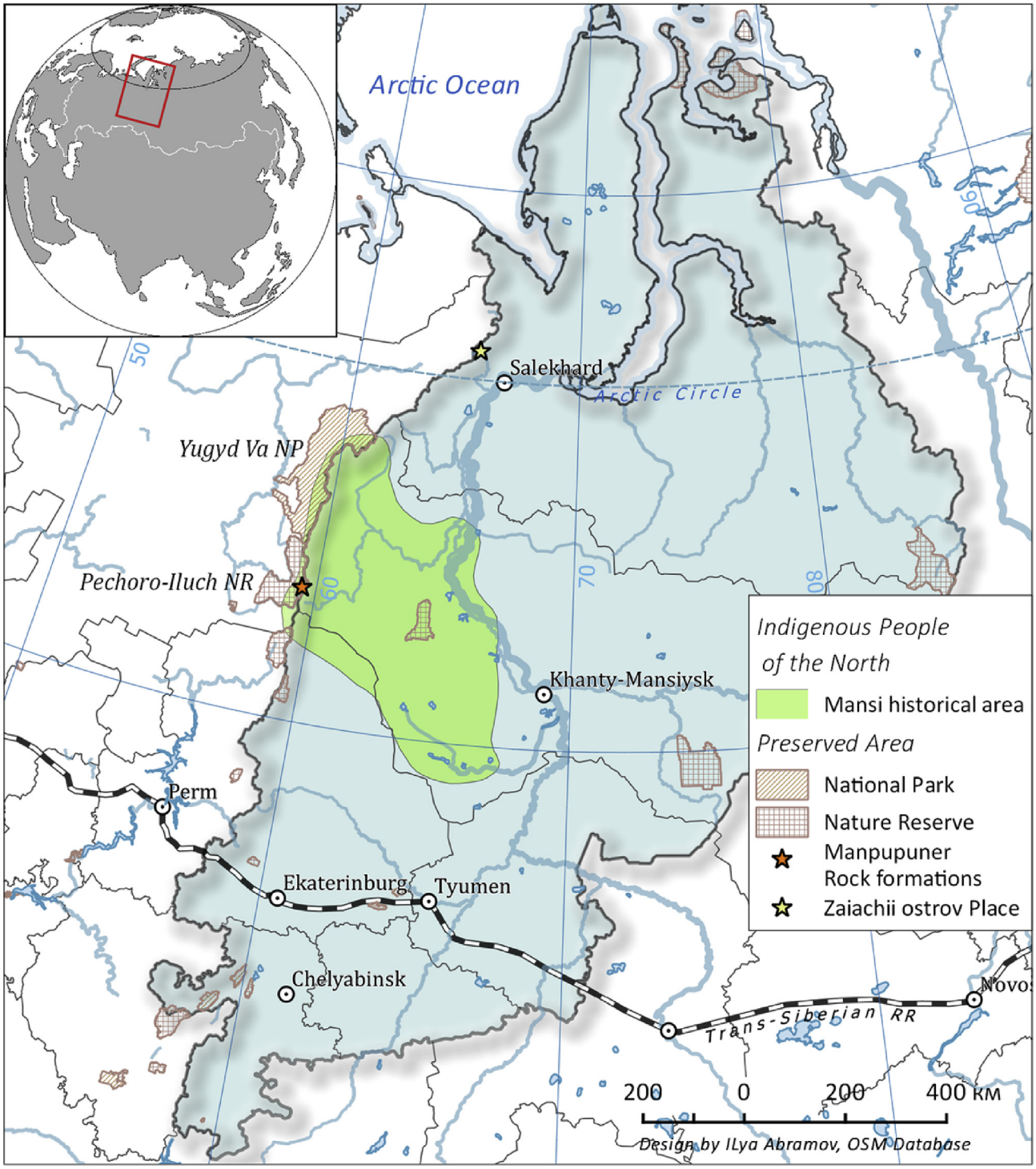

Fig. 1. The geographical location of the case studies: Manpupuner (Case Study 1) and Zayachii Ostrov (Case Study 2). Map by Ilya Abramov, the Ural Branch of RAS, project team member, 2019.

extinction as a nation: despite the stable growth of the population in the Soviet and Post-Soviet era from 6311 in 1926 (Census 1926, 1927) to 12,269 in 2010 ('All-Russian census 2010', n.d.), there was a significant decrease in Mansi-speakers and in people involved in traditional employments.[2] The culture-centered statistical fluctuations are coupled with poor health indicators, such as increasing alcohol consumption and suicide rates (Pushkarev & Goryachenko, 1996; Ruttkay-Miklián, 2001; 'All-Russian census 2010', n.d.; authors' field observations

[2] Whereas in 1989 there were 3184 Mansi-speaking people in Russia (Boldyrev, 1990), the 2010 Census reports only 938 native speakers left, of whom only 682 still reside in the Khanty-Mansi Autonomous Area ('All-Russian census 2010', n.d.). Moreover, in the next 20 years, as Kharamzin and Kharamzin (2013) envision, there will be only a handful of people speaking Mansi, and within 30–40 years from now the Mansi language will disappear from use.

Fig. 2. The Manpupuner Rock Formations. Image credits: Kasimys, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=40588616.

2006–2015). While these issues are not a matter of this work, they constitute the context and vector for design and tourism development.

Historically, the Mansis treated the rock formations with great respect and reverence and regarded climbing them as a sin (Kemmerikh, 1969). Although the sacred status of the site was not recognized at official/administrative level, it influenced all of the human-environment interaction. Even today, non-indigenous locals and visitors still hold to superstitions based on numerous stories about people who were unable to reach or escape from the sacred mountains – they would either fail to land because of a sudden rush of nonflying weather or lose their way back.[3] These stories could be interpreted as a clear message to future newcomers: treat the place as the natives do, i.e. 'respect it and do not disturb the spirits'.

Design development began with an analysis of the economic and political context: there were governmental plans for massive industrialization of the area, including several ambitious construction projects. One of those involved construction of approximately 700 km of longitudinal railway along the Northern and Polar Urals.[4] In fact, it was of particular relevance for designers: by serving the extractive industries, this railway line was supposed to deliver supplies to and meet the mobility needs of remote communities but also encourage the establishment and growth of tourism hubs. Increasing tourism, however, could entail some unwanted consequences for both the nature and culture: the vulnerable natural reserve and the sacred Stone Idols could become easily accessible for the broad public. Thus, the challenge identified for the designers was to protect the site through advanced ideation and development of fully determined tourist routes and supporting infrastructure.

During the ideation process, the students immersed themselves in the ancient past, i.e. in the world of spirits and shamans, giants and warriors, talking trees, stones, and animals. The exploration of the existing cultural 'capital' was coupled with a thorough analysis of what part of that 'capital' could be made available for tourists. In collaboration with the Department of History and Anthropology at the Ural Branch of RAS, ASD students and researchers developed a practitioners' ethical code based on what was and was not allowed to be shown in a particular community of Arctic natives. For example, many natural sites are sacred, many of the rites and ceremonies are not to be performed in front of strangers. Thus, the rituals and various forms of communication with nature learned from the Arctic natives were examined and then turned into ethically appropriate ways of gaining a tourist experience.

The ideation stage resulted in the concept of a tourist route as a 'necklace' of Mansi legends – one 'pearl' per day. A tourist would have an opportunity to see the surroundings through the eyes of the Mansi: the world full of natural magic where every cliff, every stone is a divine creature, and the nature reveals its secrets and welcomes the visitors warmly and generously. To guarantee full immersion in the Mansi world, the tour would include interactive 'touchpoints' to provoke tourists into learning and acquiring new skills needed for comfortable living in the extreme environment: for example, on the day devoted to the legend of the Goddess of Fire, tourists would learn how to make and keep the fire in the Mansi way.

While an 'authentic encounter' with indigenous communities was not a part of the trip scenario, every step to be made by tourists was devised to respect the locally established norms and values. At the same time, the envisioned implementation strategy was based on community involvement organized on the level of expert advice, tourist guiding, and other practicalities.

The specific outputs were as follows:

- a detailed 7-day trip scenario, in which each day is devoted to a place-connected legend, with specially designed touchpoints (Fig. 3);
- a network of light mobile dwelling units at tourist stops;
- a set of personal tourist equipment and clothing.

The last item constituted a separate project of sustainable design

[3] One of the most famous stories related to this area is the Dyatlov Pass Incident, a story of unsolved death of a group of nine ski hikers led by Igor Dyatlov in February 1959. This Incident gave a basis for the thriller movie Devil's Pass directed by Renny Harlin, 2013.

[4] This road was a part of the mega-project 'Ural Industrial – Ural Polar' initiated in 2005. The primary purpose of the project was to connect the old industrial areas located in the South and Middle parts of the Urals with newly discovered deposits of metal ores, precious materials and other mineral resources in the Northern, Sub-Polar and Polar Urals. In 2010, when this study was being conducted, the project was in its ongoing investment and development stage. However, in the next years, the budget was exceeded enormously, and the construction works were suspended. Finally, at the beginning of 2017, the project was scrapped as it was running late and over budget (https://www.nakanune.ru/news/2017/02/08/22460455/).

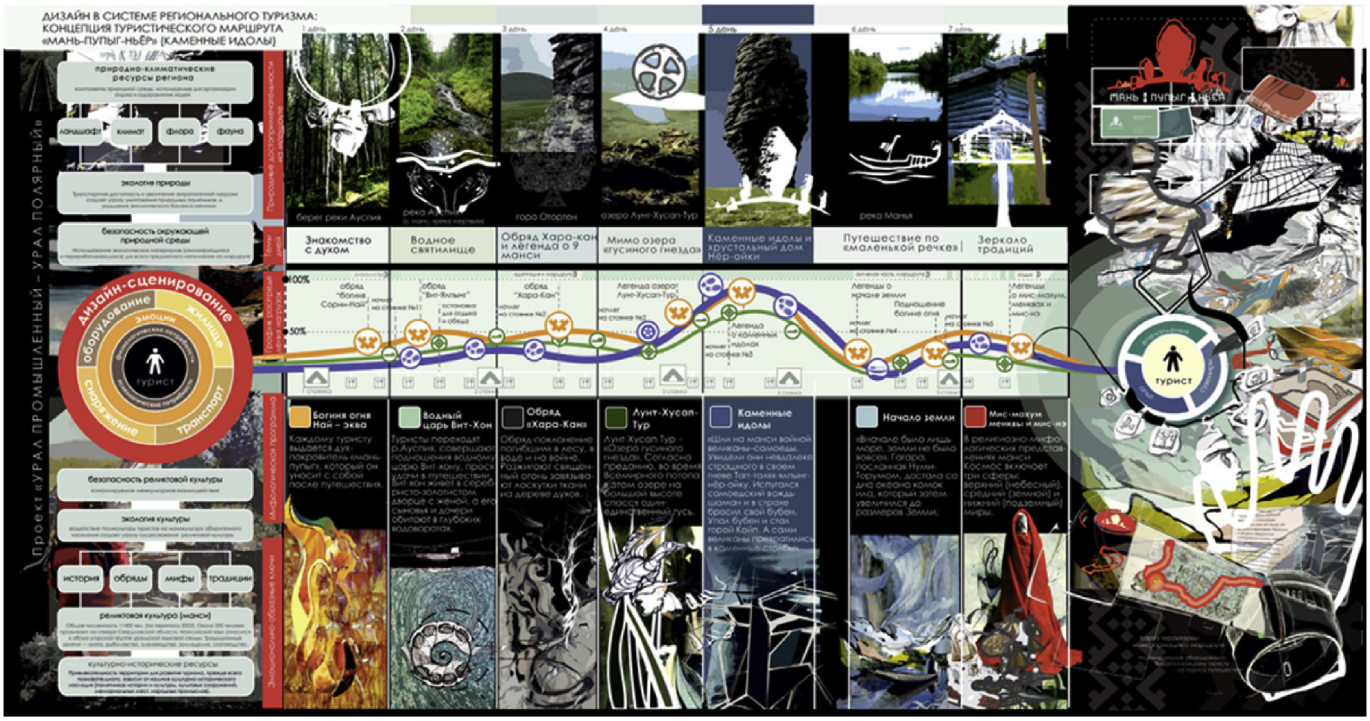

Fig. 3. Project: The tourist route to the Seven Stone Idols: the journey of immersion in local culture, 2010. Author: Kristina Zorina. Fragment of the final exhibition.

Fig. 4. Project: Sustainable design solutions for personal tourist equipment, with reference to the route to the Seven Stone Idols, 2010. Author: Anna Mukhina. Fragment of the final exhibition.

solutions for personal tourist equipment (Fig. 4). It emerged from the practical need to protect the vulnerable environment of the Northern mountain tundra from rubbish, which is usually left behind by tourists. In this instance, the designers were challenged to re-think the tourist equipment in a 'traceless' way. The author started by exploring the human-object relationship in the traditional culture of Mansi people and extracted generative metaphors for creating a new, additional meaning and value for conventional tourist equipment. The final design concept based on the principle of 'added value' was as follows: in addition to their primary functions, things gained extra qualities allowing them to communicate with users. Besides the use of sustainable/recycled materials, the project included the following proposals:

- a mascot: a piece of equipment to be worn next to tourist's body all the time; it is supposed to provide an extra quality of protecting its owner during the journey
- a ritual part: an object needed only a few times during the trip and to be burnt at a certain time
- an 'invisible thing', which would disappear without leaving any traces, e.g. it could be eaten by animals or decompose in the ground
- a '2 in 1', which combines different functions in order to reduce the general number of things carried by the tourist
- a souvenir: a single-use piece, which the tourist should take away with her/him after the trip is over.

This case revealed the distinctive property of the Arctic design approach of combining a memorable tourist experience with the protection and appreciation of the site and its cultural/spiritual content. The scenario of the trip based on the native legends was intended to provide a fullest possible range of emotions and experiences – from utter happiness to primal fear. The latter is supposed to make sure that tourists follow the proposed 'Mansi's way' of interacting with the environment.

Utilizing the indigenous ways of knowing and living as a practical foundation for short-term trips would ensure a gradual and smooth

process of adaptation to severe natural conditions. The tangible outputs of the design activity were developed to match the indigenous worldview: every artifact intended for use by tourists in the extreme environment was no longer a 'dumb' thing; it transformed into a 'living' companion – even a friend – for both the user and the environment.

The main project continued to live in numerous exhibitions and contests, including professional events for the tourism industry nationally and internationally. While recognizing and appreciating the innovative way of developing and presenting tourist products and services – through the lens of design, tourism professionals, officials and decision-makers clearly admitted they were not prepared to deal with proposals developed solely by designers. In other words, there was a call for deliberate early-stage engagements with potential stakeholders and participants. This form of collaboration became possible five years later as presented in the second case study.

3.2. CS 2: The Spirit of Transpolarity

The second case is, in fact, an ongoing project entitled 'The Spirit of Transpolarity'. It started as a collaboration between the Arctic Design School and the environmental organization 'Green Arctic' in 2017.

With the motto 'Environmental protection in action', 'Green Arctic' a.k.a. 'Arctic Volunteers' organizes and conducts cleanup operations in the Russian Arctic and, as part of this endeavor, offers comprehensive training programs to volunteers who want to participate in these environmental missions. Their activities are focused on several Russia's Arctic islands that have major volumes of metal scrap and waste inherited from the Soviet-era military and oil industry camps. The most famous campaign of 'Green Arctic' has been the massive cleanup of the Bely Island in the Kara Sea off the tip of the Yamal Peninsula.[5]

The initial idea of the project – a complex of tourist facilities and activities – emerged from a practical need for training space, a physical setting to accommodate volunteers and coaches during preparations for cleanup trips. The volunteer preparation program developed by 'Green Arctic' is a six-day immersive training event: the participants attend coaching sessions led by instructors and psychologists, who supervise their tests for endurance and ability to cope with unforeseen situations. The program also includes site-specific sports activities, such as mountain climbing, rafting, etc. Hands-on courses focus on safety and survival in extreme conditions, practical communication skills, and team building. There are further plans to organize eco-tours for Russian and international groups in addition to current cleanup missions.

Let us now turn to the context in which this training was supposed to be embedded, and the setting in which the design work was going to take place.

For this purpose, 'Green Arctic' rented for a long-term a small island, Zayachii Ostrov (literally Hare's Island), in the Sob' river in the Polar Urals, the northernmost part of the Ural Mountain Range (Fig. 1, Figs. 5–6). Although the Polar Urals is a virtually uninhabited area with almost no developed transport network, the site under study is located close to the railway. The area combines a spectacular mountainous landscape with challenging environmental conditions, on the background of a fragile alpine-tundra-river ecosystem.

The project was conducted as a 'co-design loop': it started with collaborative ideation sessions in the studio followed by testing and probing in the field/on site, and then back in the studio for post-field reflections, data analysis and visualization (sketching, 3d-modeling, and prototyping). Early engagements with potential tourists and eco-activists in the studio suggested an idea of creating a 'living lab' in the relatively isolated extreme environment as an analog of planetary missions. The central purpose of the project was defined as provision of future visitors with comfortable and safe facilities and equipment for site-specific sport and leisure activities.

The 'living lab' idea was elaborated further during the fieldwork: in the expedition, the designers imagined themselves to be tourists exposed to the harsh and ever-changing conditions of the Polar Urals; they dived into real-life situations of extreme stress and assessed the experiences and memories that potential tourists would take away with them after their trip. Besides collecting data on different categories of tourist needs ranging from observable to intimate ones, the designers organized and conducted several co-design sessions with environmental experts and representatives of the tourism industry and rescue services (Fig. 7). Combining user journeys and expectation maps with real-life calculations of the environmental load, these sessions yielded insights into the functions and spatial arrangements of the future campsite.

The post-field reflections consisted of intensive sketching/drawing sessions (Fig. 8) to come up with an artistic image of the future camp that would 'orchestrate' all tangible and intangible components of the tourist experiences in the extreme environment.

Further development of the concept resulted in specific scenarios linked to the physical infrastructure, including the architecture of the residential modules on the island and temporary shelters in the surrounding mountains, the interiors of the residential modules, and a set of personal equipment. These four parts constituted the final presentation as follows:

1) Mobile residential module 30/7, by Maksim Afanasiev (Fig. 9)

The field camp is the primary tourist residence located on the island. To reduce the anthropogenic load and preserve the natural balance of the area, the design and architectural solution was guided by the following principles: user safety, environmental friendliness, and 'tracelessness', i.e. producing the least impact on the territory.

2) The interior of a mobile residential module, by Sofia Medvedeva (Fig. 10)

The work includes the interior of the module and related scenario of use. The scenario is, in fact, a training/entertaining program based on seven themes. The interior is flexible to accommodate changes depending on the theme chosen. The result is an intuitively perceived image of protection against danger, risk or unpleasant experiences, producing a feeling of peace, comfort and safety inside the residential module in contrast to the extreme natural surroundings.

3) Temporary high-mountain shelter, by Marina Fionova (Fig. 11)

The central metaphor for this part of the project was the space shuttle, i.e. a life-supporting module that contains everything necessary to meet the basic needs of tourists. It leaves no traces, which implies a careful and safe interaction with the nature, particularly in the form of a shielded yet open fireplace with a spectacular view.

4) A transformable set of personal tourist equipment, by Alexandra Raeva (Fig. 12)

The set of personal equipment includes clothing, shoes and essentials located directly on human body. It is of crucial importance for the tourist, being his/her 'protective shell' against adverse environmental factors.

This case revealed another side and potentiality of Arctic design: planning and coordination of the work done by different disciplines and stakeholders to produce a desired (including but not limited to) tangible

[5] The long-term program to clean up and examine Bely Island was initiated by the Governor of Yamal, Dmitry Kobylkin, and has been implemented since 2012. Over three years of the campaign, 35 acres of the M. Popov weather station site and the adjacent territory have been cleaned, 520 tons of scrap metal have been collected, of which 363 have already been removed from Bely. (http://www.arctic-info.ru/en/news/ekologiya/the_environmental_mission_to_bely_island_is_getting_ready_for_achievements/).

Fig. 5. Views on Zayachii Ostrov (Island). Photo by Alexandra Raeva, 2017.

Fig. 6. Views on Rai-Iz Mountain Range. Photo by Alexandra Raeva, 2017.

Fig. 7. Co-design sessions and workshops at the camp on Zayachii Island. Photo by Alexandra Raeva, 2017.

Fig. 8. A visualization session in the studio. Photo by Maria Gostyaeva, 2017.

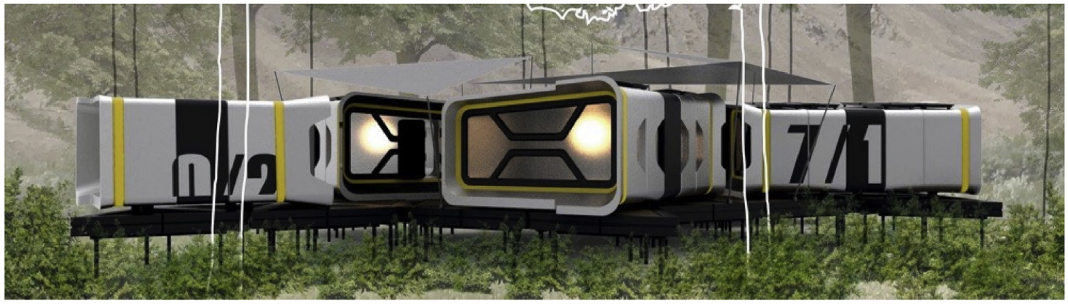

Fig. 9. Mobile residential module 30/7. Author: Maksim Afanasiev. Fragment of the final exhibition, 2018.

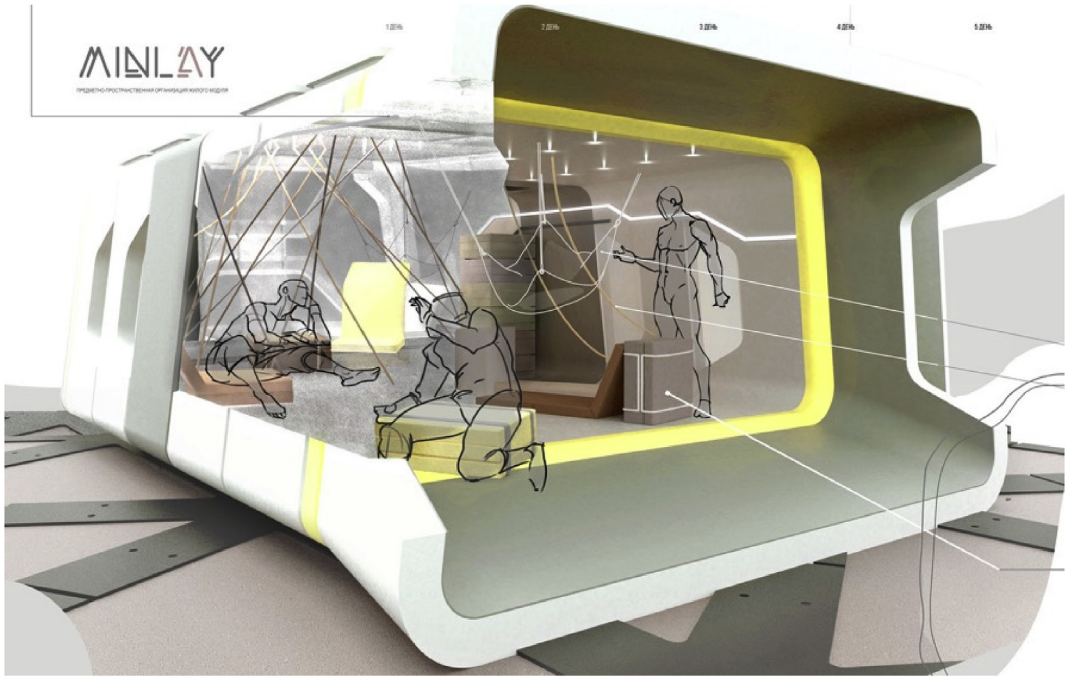

Fig. 10. The interior of the mobile residential module 30/7. Author: Sofia Medvedeva. Fragment of the final exhibition, 2018.

Fig. 11. Temporary high-mountain shelter. Author: Marina Fionova. Fragment of the final exhibition, 2018.

Fig. 12. The transformable set of personal tourist equipment. Author: Alexandra Raeva. Fragment of the final exhibition, 2018.

output. The Arctic design approach imparted a new quality to the very idea of multidisciplinary collaboration, facilitating a higher level of communication and networking between environmental experts, potential users/tourists and local tour operators based on a shared understanding of human adaptation to and survival in the extreme natural conditions. This framework of communication resulted in innovative solutions to the issue of tourist safety and functionality of the supporting infrastructure on site in contrast to the current practice of reducing the contribution of designers to idealized artistic modeling for purely academic purposes.

The above project is an ongoing endeavor, and its next stage goes beyond the educational framework: after successful presentation of Master's Degree theses by four students in July 2018, the team is about to proceed to further iterations involving feedback from potential users (eco-volunteers) and local authorities.

4. Discussion

This study has explored the potential of Arctic design as applied to tourism destination development to inform the future vision of human

existence. While it is not something new to try and integrate design methods into the tourism sector, we have emphasized the importance of such integration with a particular emphasis on human-centeredness for destination design. Through the proposed lens, tourism as both an industry and socio-cultural phenomenon has been considered as a testing ground for innovative solutions for comfortable (short-term) existence in extreme environments. We have illustrated the gradual evolution of this understanding by two cases.

The first case demonstrates, by integrating both tangible and intangible attributes of native culture either neglected or misused by planners and entrepreneurs, how a 'blue-sky thinking' project, while lacking real-life testing and empirical evidence, could expand the thematic horizon and bring a new focus into the vision of tourism professionals.

These findings are consistent with the proposed 'next step' of research in the established area of indigenous tourism (Butler & Hinch, 2007; Notzke, 1999; Robinson & Boniface, 1999; Ryan & Aicken, 2005), which should evolve from *invisible* and *identified* through acknowledged participation (*stakeholders*) towards, eventually, *indigenous-driven* (Nielsen & Wilson, 2012).

At a practical level, the representation of indigenous cultures is one of the most critical ethical and esthetic challenges of destination development. Concerning the Russian North, Pashkevich and Keskitalo (2017) point out the growing discrepancy between existing, mostly exaggerated and stereotyped tourist representations and the actual situation on site. They conclude that there is a real threat of converting the native cultures into exotic objects for tourist consumption. The results of this study demonstrate the potential of Arctic design – in contrast to the misuse of cultural/symbolic capital in local tourism industries – for contributing to the dialogic space between cultures. Instead of becoming a form of cultural conquest, Arctic tourism could serve a 'testbed' whereby contacts between tourists and indigenous people would reveal a range of cross-cultural problems arising. The 'testbed' concept is in line with that of 'contact zone' (Pratt, 2002) contrasting with the idea of community as a utopian homogenous entity – the concept that, in Pratt's example, refers to the field of linguistic studies and underlies 'much of the thinking about language, communication, and culture' (Pratt, 2002, p. 11). Overall, the rituals and various forms of communication with nature among the Arctic natives have been examined as a viable prototype for developing new rites and habits of a new 'hybrid' culture of Arctic visitors, i.e. a 'connective tissue between cultures' (Bhabha, 1996, p. 54).

The 'tourism direction', in turn, has inspired us as designers to reconsider our methods and practice. While design and design thinking have been generally recognized as a unique tool for organizing and conducting multidisciplinary cooperation (Cross, 2007), this study expands the literature on this topic by presenting a concrete example of this in the domain of Arctic design, with applications to the tourism context (e.g. Robbins & Devitt, 2017). As the second case suggests, the focus on human adaptation and safety in the extreme environment can provide a common ground for collaboration and co-development and, in the longer term, can shift the multiple foci of involved disciplines and stakeholders towards respecting and learning from 'extreme' realities.

Also, reconnecting with actual research on the living lab approach and its application to tourism development (Guimont & Lapointe, 2016), our findings confirm that this approach is highly sensitive to the territorial context. This sensitivity, we argue, is key to environmental and social sustainability and thus sets out a direction for general development of extreme, remote/peripheral areas.

4.1. Limitations and further research

The limitations of the current research work stem from the initial framing: the 'classroom exercise' did not allow the researchers to overcome such drawbacks as small number of participants and modest geographical scope, non-iterative character of the workshop, and lack of capacity control measures.

In this list, the first three constitute the agenda for further research through interpretive social science. The latter – carrying capacity management (particularly relevant for the first case study) – requires a creative shift from traditional management techniques such as imposing usage/visiting limits and controlling demand with variable prices (Williams & Gill, 2005, pp. 194–212), towards understanding local environmental, economic and socio-cultural conditions. By deepening practical engagement with the design domain, it should become possible to recognize the 'poly-vocal issues' of tourism destination development (Saraniemi & Kylänen, 2011) and facilitate complex relationships between distant and proximal stakeholders (producers, users/tourists, local people, and authorities). Thus, further research through design is needed to generate ideas of competitiveness enhancement and thus to encourage policy-makers and business stakeholders to utilize broader visions on the economic and protective potential of the tourism sector (Kaján, 2013; Maher, 2007; Waligo, Clarke, & Hawkins, 2013).

In addition, there is a global need to respond creatively to the environmental changes and socio-technical challenges of human existence in the Arctic regions and, thus, contribute to the cross-disciplinary research strand on revealing traditional/indigenous ways of managing human-nature and human-technology systems (Crate & Nuttall, 2009; Cruikshank, 2001; Golovnev, Garin, & Kukanov, 2016; Jørgensen & Sørlin, 2013). This emerging strand entails the need for a new kind of 'hybrid' design professionals – people trained to understand ecology, environment and means and methods of facilitating multilateral cooperation in addition to economics, politics, culture and religion. To deal with an uncertain and unfamiliar territory as a potential tourist destination and, in a broader sense, a potential human destination, designers 'should act while observing, explore through action, and make timely adjustments to [their] actions through comprehensive feedback while adjusting [their] goals' (Lou, 2018, p. 354).

In this respect, there is another serious limitation (and, thus, an opportunity for further improvement) that is characteristic of this study and of the broader area of research and development in tourism destination design: none of the designers/researchers belonged to the indigenous communities. The Arctic Design School is already working to engage indigenous students through specialized short-term courses and master's degree programs under the umbrella of the University of the Arctic/Arctic Sustainable Art and Design Network. At the time of working on this article, we are still at the stage of proposals, but they already signify that the 'ice has been broken' and we are moving towards making contemporary and actual indigenous voices expressed and be heard.

5. Conclusions and implications

The key implications of the research appear threefold. First, the Arctic Design approach can potentially advance the understanding of tourism as an adaptive form of temporary (short-term) existence in extreme and uncertain environments. The in-depth engagement with the principles and practices of Arctic design can be considered a novel approach to regional tourism development and management. In particular, we propose a reframed definition of tourist destination as a 'laboratory', where sustainable solutions and policies of short-term visits and long-term impacts on the extreme environment can be developed and analyzed in an inclusive, participatory fashion, with all actors involved on equal terms.

Second, with the aim of facilitating the emerging communities of newcomers through designing a mutually beneficial space for cultural encounters, the extended concept of tourist destination contributes to the literature on the so-called 'cultural approach' (García-Rosell, Haanpää, Kylänen, & Markuksela, 2007; Santos & Shim, 2012; Saraniemi & Kylänen, 2011). This approach suggests going beyond the merely economic viewpoint by enabling deeper, symbolic-emotional

consumption of cultures rather than just meeting user needs and making room for local people to participate in the development work of their home region (Saraniemi & Kylänen, 2011, p. 140).

Third, practical, innovative outputs, i.e. designed objects and service scenarios, can potentially inform the process of developing and inhabiting remote Arctic/Northern territories and contribute to shaping the region's future by disseminating 'best practices' or 'know-how' of sustainable living originated in the heart of the Arctic.

Overall, we hope the ideas and concepts presented in this article will be relevant to both tourism and design profession. Further research, development, and implementation of new kinds of tourist products and services will pave the way to identifying new standards of tourism ethics and sustainability in environmentally and culturally vulnerable regions.

Author contribution

Svetlana Usenyuk-Kravchuk: Conceptualization, Methodology, Writing- Original draft, Writing - Review & Editing. **Maria Gostyaeva:** Investigation, Data Curation. **Alexandra Raeva:** Investigation, Visualization. **Nikolai Garin:** Supervision.

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