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Cultural Influences and Visualisation: what can we tell from drawings?

Cultural Influences and Visualisation: what can we tell from drawings?[1]

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Abstract

Drawing on recent culture-psychological and cognitive studies on visual perception and processing, this article aims to show how anthropology can benefit from and make a contribution to the study of visual representations. As opposed to common approaches in anthropology, which focus on semantics and content of visual representations, the authors of this study turn the attention from content to the problem of form. The study of form(s) of visual representations provides additional, possibly new, ways how to grasp normally latent, verbally mute, and unreflected aspects of human experience. Furthermore, if culture-psychological findings are correct and the form of visual representations is an indicator of culturally induced cognitive style, and thus of self-construal in a given cultural context, then the study of form of visual representations may well lead to inquiries in how different social and cultural context influences people's visual thinking and representation. Assuming that the form of visual representations differs from one cultural context to another, the authors address the problem of how to relate the difference in cultural and social practices with the differences in cognition and visualisation. As empirical evidence serves, on the one hand, the authors' analysis of drawings made by children in Siberia, and, on the other hand, their recent quantitative pilot study that assessed the perceptual processing and the style of children drawing in the far north of Russia. The article reports on the procedure, findings, and theoretical and methodological conclusions of this study and offers some insights for further research.

Introduction

Throughout the centuries, human society has manifested the ability to produce visual representations (images) of real or imaginary objects and scenes. The practice of producing such representations is a distinctive human feature. Therefore, anthropologists have long believed that visual representations, such as drawings, carvings, etc., can represent useful clues to social practices and assumptions of societies in which they are produced. The potential value of these cues can be especially high as they might reflect those basic, habitual, and latent assumptions and practices that the members of a society rarely reflect on and, therefore, seldom refer to in ethnographic interviews.

Nevertheless, the use of visual representations in anthropological analysis has been so far hindered by the lack of sufficient understanding how exactly social practices and assumptions affect these representations and, therefore, are reflected in them. Most studies, which use visual representations as one of the sources of information, neglect this unexpectedly rich realm of social knowledge as they tend to consider no more than the content of the visual representations. These studies mostly focus on what is depicted, treating the visual images as a text and trying to decipher and interpret the symbols that compile it. Although this approach has often led to interesting results, it has its own problems, the main one being that a good deal of speculation, often quite ungrounded, is necessarily involved in certain key parts of analysis. What is in our opinion even more important, cultural and social practices are likely to influence not only the content, but also, and maybe even more pronouncedly, the form of visual representations: as any researcher of artistic styles would agree, people of different social and cultural background are likely to differ not so much in what they depict – they can well choose to depict similar things – but in how they depict it. This aspect of visual representations is often rather difficult to grasp, and yet it is here that latent practices and assumptions of society, in Bourdieu's term "structuring structure" or *habitus* (Bourdieu 1977), is arguably more likely to be reflected.

The aim of this paper is to make a small step towards rectifying these problems; in order to do that we have identified and tested several theoretical and methodological approaches, which shall enable us to study the impact of cultural and social practices and assumptions on certain aspects of visual representations. We certainly do not wish to provide an exhausting theoretical model, which would explain how society and culture are reflected in drawings. In this paper, we focus only on certain aspects of the content and form of visual representations, namely the characteristics of the objects depicted (part of the content) and the organisation of these objects in portrayed visual scenes (formal feature). In pursuing this aim we rely on recent theoretical advances in cognitive science and cross-cultural psychology, which we use both to interpret the material we collected during our past ethnographic fieldwork as well as to guide our further research.

This paper starts with a short account of research on drawings made by temporary urban migrants, in this case students, who come from indigenous communities and study at universities in Saint Petersburg city. This account illustrates how the content of visual images can be used in an anthropological analysis in a non-speculative way. Then we turn our attention from the content to the form of drawings. The second section, based on ethnographic material, shows some differences in the process of drawing and the form of the resulting visual products that can be observed between drawings from people (in our case children) from different cultures. In the third section, we discuss the theoretical approach based on recent findings in cognitive science and cross-cultural

psychology, which, in our opinion, can relate these differences to social and cultural practices. The sections 4 and 5 describe a small pilot study we have performed in order to test the validity of this approach. Finally, the last section discusses the results we have obtained as well as describes theoretical and methodological conclusions that can be reached from these outcomes. An outline of our future research is given in the closing part.

Youngsters from the North and Siberia ("severiane") in Saint Petersburg (Russia)

Several years ago, Bagdasarova (2009) performed a study to examine what kind of cultural and social transformation processes accompany temporary urban migration. In particular, the researcher examined the changes, which a migrant undergoes when influenced by a new cultural configuration. The latter can be described as a whole set of interrelated practices, beliefs, expectations, values, etc. patterned and structured in a certain way forming an internally dynamic complex; coming from one configuration and contacting, encountering, or even entering another one is accompanied with tensions and contradictions experienced on an individual basis. Dissatisfied by the disjunction present in the macro-level migration studies where the described complex of patterns cannot be brought in line with the actual experience of an individual migrant, Bagdasarova turned to the problem of self-construal. Inspiration here goes back to Sapir's term "intimate structure of culture" (Sapir 1949: 593). Sapir suggested directing our attention to more latent, subjective elements of human experience; as in analogy with the relationship between living speech and formal language system, the subjective components of life experience might well serve as a point of origin of anthropological description, even theory, but when looking back, they oftentimes contradict the abstract, theoretical description. In order to find out what type(s) of changes take place during migration on the level of Self, Bagdasarova focused on data, which can hardly be obtained merely by means of verbal methods, such as e.g. ethnographic interviews and surveys. At the same time, this approach was to overlap the gap between cultural and psychological explanations of a migrant's behaviour.

  Having maintained that migration disrupts previous semantic or other categorisations and representations, challenging "normality" so to speak, visuality has been chosen as a reliable terrain to deal with the multiple layering of meanings; such an approach is possible since visuality itself includes several layers of information of diverse quality. The literal iconic level includes the following: 1) *Depiction* relates to what the image portrays (e.g. red spot with a green rod). 2) *Denotation* refers to the literal meaning present in the image (e.g. a tree) conceivable as a consequence of *representation,* that is a substitution (*quasi-identic* in photographs and *equivalent* in drawings) of signifier for signified (e.g. a rod stands for a tree trunk and a spot for a treetop; in photography it is a kind of tautology as a photographed tree depicts a real tree). The signified in this case is a real object whereas the signifier is the same object but depicted. This level of consideration of the image as a sign is called *primary signification*. Denotative feature of the image coincides with Barthes'[3] *studium* (Barthes 1981) – immediate, nameable meaning of the image, which appeals to the viewer by the pure physicality of visual matter.

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[3] Barthes' semiological analysis of the image is based on photography. Here, we use only those of Barthes' terms that are applicable to the visual image in general (including drawings, collages, etc.). Barthes' linguistic communication of the image (linguistic signs of the labelling or tagging) was omitted as our study is restricted to visuality in itself.

Next comes *secondary signification* – featuring the symbolic level of visual communication. It consists of the additional components of semiological consideration of the image: 3) *Connotation* is the suggesting of a meaning by an image apart from the thing it explicitly portrays, its signification (e.g. a rod and a spot conceived as a tree may draw our attention to the reference of Adam and Eve); it is close to Barthes' term *punctum* – the subjective correlative the image evokes in me, my personal experience, including such factors as cultural background, geographical origin, historical context (e.g. dad's cherry tree). Barthes calls the signifier in this case a connotator. The sum of the connotators, the signifier of the ideology of the image, constitutes then the rhetorics of the image. One of the instruments of the rhetorics is a figure (in photography mostly metonymia and asyndetone) (Barthes 1994:316). *Figuration* as a specific case of connotation is represented by a resemblance, in other words expressing one thing in terms normally denoting another with which it may be regarded as analogous (e.g. a tree as a standing person and as a pathway of wisdom and life). The peculiarity of visuality is in the fact that the denotative level is perceivable without any contextualisation or specialised education (level of visual perception necessary to recognise denotative level of most of the images develops approximately at the age of four). Moreover, Barthes' *punctum* (Barthes 1981) appears in the visual matter even when "the doodles" or "stains" represent "nothing". Especially this latter aspect of visuality, that is the presence of meaning where common semantic codes are absent and where reliability depends on subjective feelings, experience, and sensation, is very disturbing for researchers. In order to grasp human experience more fully, this realm shall be, nevertheless, seriously considered by a researcher.

In the study of temporary urban migration such effort was taken; visuality has become a tool to reveal and describe those contradictions that might take place when one set of cultural imperatives meets another. The whole multifaceted cultural configuration space, both mental and physical, was taken under consideration; in connection to space, the issue of visual perceptual processes, which occur during the migrant's stay outside of his/her home, came up as a topic.

The experiment went as follows: Informants were asked to draw the city of Saint Petersburg as if it were a house (a single building). The process of drawing was prescribed in a certain way: the informants should use a blue pen or a pencil and use the A4 paper in landscape format. As the informants were urged to draw in a spontaneous manner, without lengthy thinking over the subject, the time for drawing was limited to 10 minutes. All the informants were students of the Institute of Peoples of the North at the Hertzen State Pedagogical University and of Polar Academy in Saint Petersburg. They came from different regions of northern Russia, Siberia, and the far north and had different migratory experiences. The data recorded for visual data collection included ethnicity, sex, native place, length of stay in Saint Petersburg, and other experiences of migration prior to the study in Saint Petersburg. The parents' profession was not specifically mentioned in the survey. In the group of 15 informants, in which further fieldwork has been conducted repetitively over several years, additional qualitative data were gathered and used for analysis. The experimental instrument was two-sided. It was a visualisation of inner psychological processes, which could not be revealed with the help of verbal methods, and at the same time it was a tool to disclose in what perceptual categories the new cultural realm is being encountered, taken in, and processed.

The results obtained by this experiment show the following: modes of visualisation and the nature of perceptual categories depend on the duration of migration and the level of the cultural/social inclusion into the new environment. Evidently, the changes relate to what is chosen to be drawn and how it is drawn. Regarding the content, the drawings can be categorised in this

way: 1) simply a house; 2) one physically limited place taken from reality (e.g. Dvortsovaya Square); 3) a set of functional buildings (e.g. a faculty, a dorm, and a grocery store); 4) popular symbols of the city (e.g. profile of Peter the Great or Admiral's roof ornament in the form of a ship); 5) stratified space (usually a house in which blocks or floors represent certain categories), 6) a map; 7) a diagram with a set of activities.

The study shows that the transformation process follows one pattern. A migrant coming to Saint Petersburg already possesses certain stereotypical images about the place. They are present in the media, in literature, at school, in the family, etc. A few youngsters have already visited the city prior to their migration, which could have confirmed or slightly changed these existing mental images. Nevertheless, the prevailing imagery comes from non-personal experience. Therefore, freshmen drawings show either stereotypical symbols of the city or a topographic scheme of a few places, which the student frequents – the institute, the dorm, and the place for some leisure activities (mostly disco bar). As the public discourse in the city of Saint Petersburg is ever present and prevailing (the mechanisms fashioning the image of the city penetrate various social spheres and spaces), the migrant tends to reproduce the stereotypical images of the place even during his/her second year. However, as the personal encounter with the city becomes more significant, the images originally constructed in the public discourse become more personalised. Moreover, there is a whole set of drawings with very detailed topographic imagery; the choice of such places is again not determined by personal experience but rather defined by public discourse (there are no detailed drawings of the institute but rather of Dvortsovaya Square). During their third year of the study the migrants started to organise the perceived information into some sort of clusters; the city in the form of a house is divided into floors, rooms, or a set of definite spots in front of the house. The place is now perceived as a set of categories, a number of different activities, a set of rules or possibilities, or a number of groups of people. As the temporary migration comes closer to its end, pure physical topography turns into the visualisation of social relationships, that is the physical place is being perceived as a social environment/cultural space. Apart from the place, people are depicted as well; for instance, the image of a dorm does not have the form of a building anymore, it becomes rather a place for socialising and bringing people together. The drawings are reduced to attributes of the particular place according to the personal experience of the migrant and his/her inclusion into a social, cultural setting. These drawing may well be read as symbols not dissimilar to the ones from the first year of migration. Nevertheless, when the latter ones come from the public discourse, the former ones depend on the imagery as produced by/from one's particular personal experience.

Therefore, the transformation process follows one pattern: a simplified stereotype taken from a public discourse (especially from media and books) prior to the arrival to a new residence changes into a differentiated set of details based on one's personal experience; afterwards it takes on the form of a reduced single sign or symbol, which represents a concentrate of the migrant's experience in the city. In other words, the longer and richer the migrant's personal experience, the less detailed and more abstract is the visual image of the city.

In our opinion, this study provides two important insights: firstly, it draws attention to one promising way, in which visual representations can be used for analysis of social practices and assumptions. Secondly, it shows how it is possible to come to understand the impact of social practices and assumptions on the content of visual representations. Both approaches can be achieved through tracing the changes in the content of visual representations of the studied

phenomenon that parallel the changes in social practices related to the same phenomenon. Consequently, the concrete transformation in social behaviour and context can be linked to concrete changes in the representation's content. Although such an approach does not entirely avoid ungrounded conjecture in visual analysis, it surely hinders speculation about the meaning of visual symbols. According to us, interpretations obtained in this way are indisputably more grounded in the material and, therefore, more immune to idiosyncratic assumptions of the researcher.

Drawings of Nenets Children in the Tazovsky Region

The example of a particular interest here of how social context can influence the form rather then the content of drawings comes from children's drawings, which were collected by Istomin at Tazovsky boarding school, Yamal-Nenets Autonomous Area, North-Western Siberia, Russian Federation, in 2008. The indigenous population of this area consists of Nenets reindeer herding nomads and semi-nomadic fishermen, who live predominantly in dispersed nomadic camps in the tundra. The town of Tazovsky – the administrative centre of the area and an important centre of the gas drilling industry – is populated mainly by newcomers from the central regions of the Russian Federation. The Tazovsky boarding school, which is situated in this town, represents the main facility to provide basic school education for the children of the tundra nomads. These children are transported there from the tundra each autumn, once the school year begins, and live there on the state's expenses until the end of the school year. Since the school provides classes in the Nenets native language and has its curriculum adapted to the needs of children from indigenous families, it is attended also by many Nenets children whose parents live in the town permanently. The absolute majority of children from non-indigenous families, however, attend another educational facility in town, the Tazovsky secondary school, which uses Russian as the only language of instruction and the standard curriculum of a Russian school.

Amongst teachers involved in providing children in the north with basic education, a stereotypical view prevails that indigenous children, while having rather poor abilities in math and sciences in comparison to "Russian"[4] peers, are clearly superior to the latter in drawing. Statements of this kind have been reported in literature, including texts from the late 19th and beginning 20th century; they even found their way into the classic Russian works on developmental psychology by Vygotsky (1991 [1928]). Later, however, such observations have been denied on purely ideological grounds as racist prejudice (see for example Ostrovski 1991) and no serious attempt to explore them further has been made.

Although it is impertinent to believe in the inborn mental inequality of ethnic or social groups, it is likely that enculturation into a certain cultural and social environment can shape not only the content but also the structure and processes of consciousness, such as perception, attention, and memory. It was, therefore, intriguing to explore the described observation further. Art teachers at Tazovsky boarding school[5] gave a surprisingly coherent account of the differences in artistic styles of Russian and indigenous children. All of them mentioned that nomadic children draw more details in their pictures and also relate objects in their pictures to a proper background. In the words of one of the teachers:

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[4] The teachers call all children with non-native background "Russian", whether they are ethnically Russian or not.
[5] The total number interviewed was five; two of the informants were already retired at the time of the interview.

"Russian children can draw, let's say, a house, a small figure next to it, a car nearby, and that's it. All of that somehow hangs in the air: one thing, next to it another one, next to it a car. Whereas with Nenets, there is always a ground, the house stands on the ground, the figure stands firm on the ground, the car is on the ground, and further there is a horizon. Plus the sun and clouds. Russians do not draw like that, one has to teach them deliberately, and even then they often forget it, as if they turned a deaf ear." (fieldwork interview recorded in 2008, translated from Russian by Kirill Istomin)

Even more interestingly, two of the teachers reported essential differences in the process of drawing, which clearly related to the background prevalence:

"Nenets always draw backwards. You don't believe it, do you? You'll see it in the class! They always begin to draw from a horizon. Then they draw the ground and sky, hills on the ground, small rivers, and everything else that is necessary. Only then do they draw a house ("chum") and a figure. Always like that. In order to draw a figure, they first erase the lines they have already drawn. Russians, in contrast, draw a figure or a house first and only afterwards, if patience allows, they draw the ground on which the house stands. As the very last of all they draw a horizon, if artistic talent and patience permit." (fieldwork interview recorded in 2008, translated from Russian by Kirill Istomin)

These statements seemed to be compelling and further analysis followed. A set of children's drawings from several recent years was divided into three categories: (1) drawings made by children of nomadic reindeer herders, (2) drawings produced by children of semi-nomadic fishermen, and (3) drawings created by children with a sedentary lifestyle. All drawings in the first two categories were made by Nenets children, while the last category included drawings by non-Nenets children and children of mixed origin.

In correspondence with the information obtained from the teachers, the majority (about 80%) of the drawings made by reindeer herders' children contain a background with horizon, while only about 45 percent of pictures drawn by sedentary and fishermen's children show the same. Besides that, many pictures made by nomadic children have marks left by an eraser. It is quite apparent that the artist erased a part of the horizon line and objects on the ground in order to create room in the foreground for objects or persons. Not a single picture made by sedentary children shows these marks.

In order to expand on the evidence, it was necessary to examine the process of drawing. This proved to be difficult because the majority of children had already left for vacation in the tundra. However, an experimental group of four children (one whose parents had been living in the town of Tazovsky, one from a fisherman's family, and two nomadic children) was set up. The participants were asked to draw a picture of their mother working in the house (or tent-like nomadic home – "chum"). It was observed that the two nomadic children started drawing from the horizon, while the rest started from the person (mother).

In March 2011, during subsequent fieldwork in Tazovsky, further evidence on the phenomenon was collected by comparing children from the Tazovsky boarding school (most of them having a nomadic and semi-nomadic background) and the Tazovsky secondary school (all of them from sedentary, non-indigenous families). In the class at the Tazovsky boarding school, eight pupils out of 12 (66.67%) drew the background first and then proceeded to the foreground and salient objects. In contrast, at the secondary school, only four out of 14 children (28.57%) drew the horizon first,

while nine pupils (64.29%) used the "foreground first" strategy. The resulting sequential photos of the process of drawing illustrate these observations.
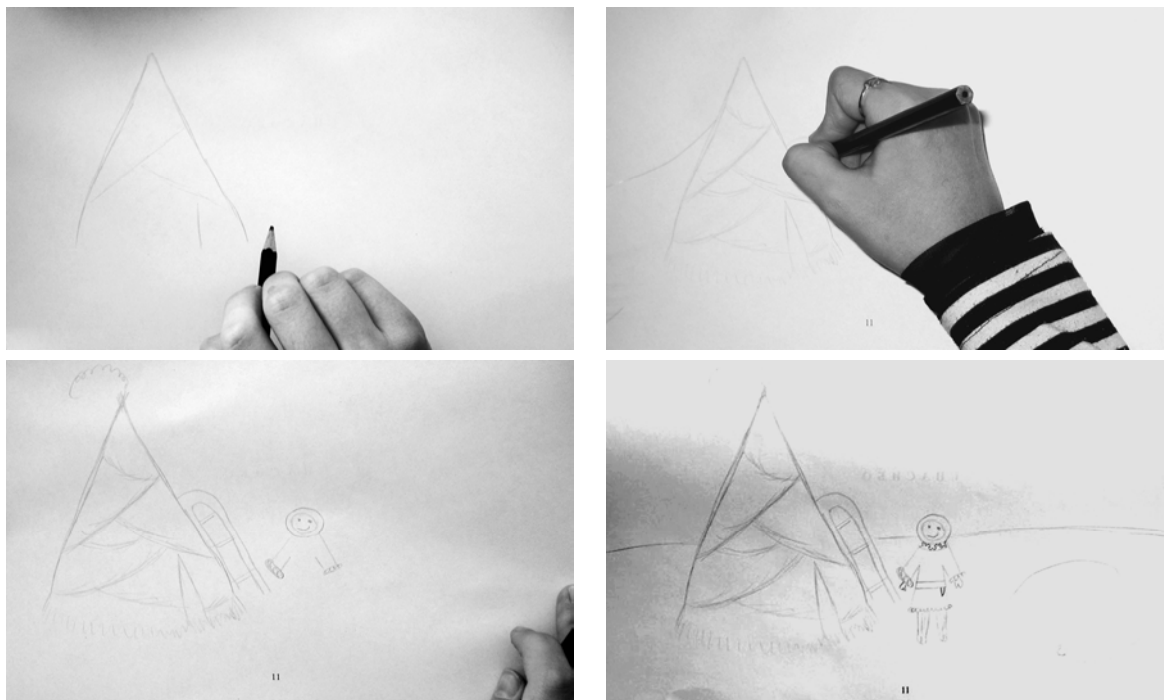
a) Photo set
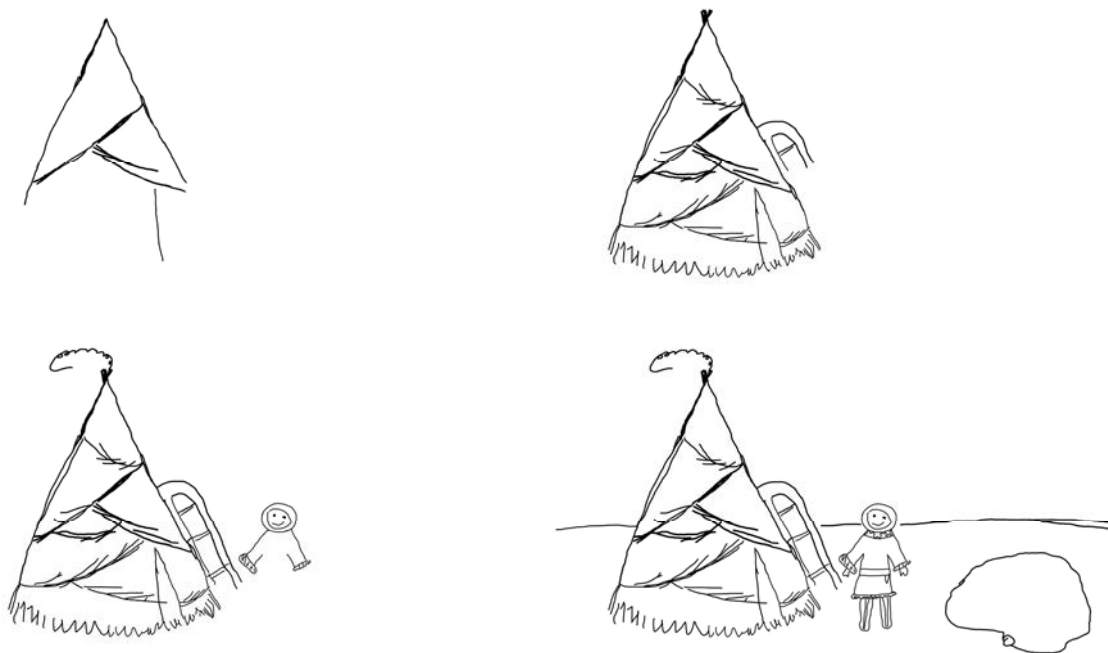
b) Reconstruction of the drawing strategy on the basis of the photo set

Fig. 1: "Foreground first" strategy
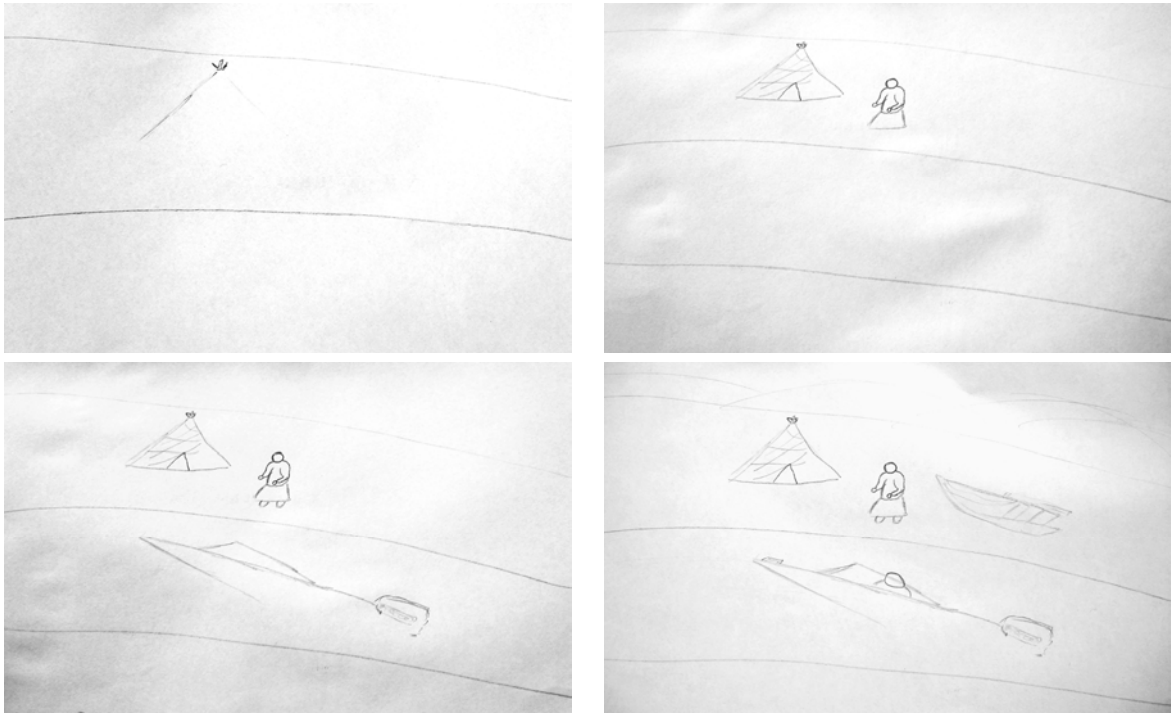
a) Photo set
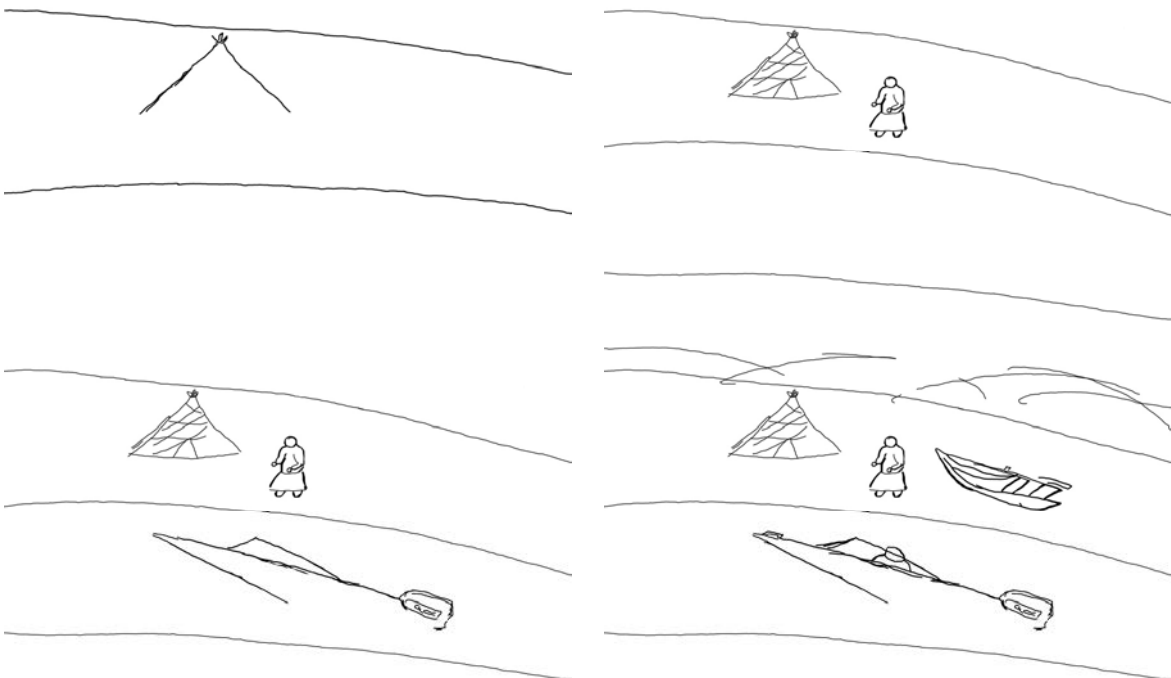
b) Reconstruction of the drawing strategy on the basis of the photo set

Fig. 2: "Background first" strategy

These findings argue quite strongly for the fact that the form of drawings and the peculiarities of the process of drawing are influenced in important ways by social and cultural practices. It is much more difficult to establish how exactly this influence works. Below, we discuss our attempts to find and test a theoretical model explaining this.

Social Practices, Visual Perception, and Visualisation Styles: an insight from cross-cultural psychology

In our attempt to make sense of Siberian visual style(s), we have turned to psychological studies of visual perception conducted by such scholars as Kitayama, Nisbett, Masuda, and others (Markus and Kitayama 1991; Kitayama et al 2003; Nisbett and Miyamoto 2005; Masuda, Gonzalez et al 2008). In a number of recent studies, these authors have demonstrated that representatives of different cultures differ in the degree they attend to focal objects in their perceptual field (referred to as analytic processing) as opposed to attending to the context within which the objects reside (referred to as holistic processing) (Ji et al 2000; Ketay et al 2009; Kitayama et al 2003; Masuda and Nisbett 2001, 2006). Thus they have demonstrated that representatives of East Asian cultures are more likely to attend to the perceptual field as a whole and focus on relationships between focal objects and the field, while European Americans are more likely to detach focal objects from their context and focus on attributes of the objects (Peng et al 2000; Kitayama et al 2003; Masuda and Nisbett 2001; Nisbett and Miyamoto 2005; Nisbett 2003). Evidence suggests that this difference emerges as early as by age six (Duffy et al 2009; Vasilyeva et al 2007). Unfortunately, only one study has shown so far that this difference exists between groups in other parts of the world as well (Uskul et al 2008).

Trying to make sense of these observed differences, Kitayama and colleagues relate them to social practices that prevail in the corresponding cultures and reinforce either independence of Self from others or interdependence of Self with others. This, in their opinion, gives rise to distinctive cognitive styles of independence or interdependence correspondingly (Kitayama et al 2007; Markus and Kitayama 1991, 2003; Nisbett 2003; Uskul et al 2008). Here, they broadly follow Hofstede's idea of universal patterns in cultural value systems (Hofstede 1980). The interdependent cognitive style, the authors argue, fosters holistic processing since an individual must pay attention to a broad range of relationships and contexts in the social field, which goes hand in hand with greater attention to the physical field. In contrast, independent cognitive style fosters analytic processing because an individual can focus on relevant objects and their attributes without paying much attention to how they are embodied in the wider social context (Kitayama et al 2007; Nisbett 2003; Uskul et al 2008). In other words, people with interdependent cognitive style should be primed to context and background and biased against perceiving details of the individual foreground objects, whereas people with independent cognitive style should be primed towards perceiving individual objects of the visual field in detail and biased against perceiving their context or background. Kitayama and colleagues insist, however, that purely independent as well as purely interdependent cognitive styles are rare if ever observed in reality and that they should be treated rather as two poles of a continuum, in which individuals with a similar cultural background and yet with different social and cultural practices of establishing relations between Self and other fall in different points.

Although social practices, which give rise to the two cognitive styles described above, can be various (Kitayama et al 2007; Nisbett 2003), Uskul, Kitayama, and Nisbett have recently argued that one important factor, which determines the cognitive styles, might well be the type of economy (hunting and gathering, pastoralism, agriculture, etc.) and way of life (Uskul et al 2008). Thus the authors predict that nomadic pastoralists, due to the specifics of their way of life placing more emphasis on individual initiative and autonomy, should have independent cognitive style and, hence, analytic processing; sedentary people (especially sedentary agriculturalists) in contrast,

should have more holistic processing. This prediction was proved in their study among pastoralists, fishermen and sedentary agriculturalists in the eastern Black Sea region of Turkey.

Kitayama and colleagues demonstrate that both cognitive styles can guide innovative and ecologically efficient behaviour, which is characteristic for humans. Their impact goes far beyond perception: in fact Kitayama and colleagues have demonstrated that the effects of cognitive styles are most pronounced in the realm of social interaction and preferences (for a review see Kitayama et al 2007; Nisbett 2003). As far as perception is concerned, the two styles have its specific advantages and shortcomings and, therefore, reliance on a particular style can be established by the means of behavioural tests. Several kinds of such tests have been proposed up to date. These include, for example, the rod-and-frame test[6] (Ji et al 2000; Witkin 1967; Witkin and Berry 1975; Witkin and Goodenough 1977) and the underwater-world-scene test[7] (Masuda, Ellsworth et al 2008; Masuda and Nisbett 2001, 2006; Chua et al 2005). However, the most broadly used kind of test is the frame-line test[8]. It was developed specifically to address incomparability of cognitive competence in absolute and relative tasks (e.g. attitude attribution), and thus, to deal with the impossibility of reliable proof whether the differences in visual perception are related to social and cultural practices or not (Masuda et al 2003). In "Kitayama squares" there is an objective model of reference. Furthermore, both incorporation and ignorance of contextual information are parts of the test. The participants are shown a square frame with a straight line drawn from the middle of the upper side of the square, whose length is equal to one third of the height of the square. Afterwards the respondents are presented with an empty square (of the same or different size as the original one) and are asked to fill it with a line, which would either reproduce the length of the line in the example (absolute task) or, which would be proportional to the height of the frame (relative task). The absolute task requires from the participants to ignore contextual information, in this case the frame in the example as well as the frame in the empty template. In the relative task, the respondents have to take into account the information about the frame (its size and the overall proportions), both while judging the example and when drawing the line in the template.

The above mentioned tests have given substantial evidence on cultural variations in cognitive competences (Nisbett et al 2001; Masuda et al 2003) and pointed out the direction towards subsequential studies on the relationship between cognitive styles and visual processing as well as the influence of socialisation on the both. In order to summarise the state of art in existing culture-psychological and neurocognitive studies relevant to our research interest, we wish to point out the following findings on the relationship between cognitive styles and visual perception:

(1) Framed-line tests have been conducted among Japanese, Americans and American immigrants in Japan, on one hand, and among Japanese immigrants in the U.S., on the other hand. All students showed differences in visual perception between them. Furthermore, it was proven that even brief exposure to another cognitive style affects the mode of visual perception (Kitayama et al 2003). No clear distinction was found between Chinese and American students (Zhou and Cacioppo 2008).

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[6] This test uses a frame of about 40.64 square centimetres with a rod set inside the frame. Both move independently from each other. The respondents are asked to define when the rod is vertical, without having paid attention to the frame. This experiment is to examine the impact of context (the frame) on perceptual judgment (verticality of the rod), and therefore, cultural variation in attention.
[7] In this test, participants are asked to watch animated vignettes of underwater scenes. The tested key phenomenon is whether the respondent pays more attention to the background and/or relationships amongst the objects (interdependence) or to the salient objects and their features (independence).
[8] In our study, we prefer to call the test "Kitayama squares".

(2) Frame-line-like test conducted among Japanese and American children (4–13 years) proved that the distinction in cognitive style (CS) is established at the age of six (Duffy et al 2009; Vasilyeva et al 2007). Cultural biases in visual cognition become more pronounced with age, that is, with increasing cultural experience (Park et al 1999; Goh and Park 2009).

(3) Studies on neurocognitive functions demonstrate that the distinction happens also within the structural brain organisation. There is proof of functional differences in ventral visual cortex – "a critical brain region for visual perceptual and attentional processing" (Goh and Park 2009: 108). The ventral visual cortex is organised similarly in the tested groups, but cultural influence operates in a specific manner; biasing ventral visual processes reflect greater object processing in Westerners and greater context processing in East Asians (Goh and Park 2009: 108). Other neuroscientific studies show that the cultural background has an effect on rather attentional (late-stage) than visual (early-stage) processing.[9] Activation in attention-related brain regions is modulated by cultural experience (Ketay et al 2009).

However, the most important finding for our topic is the recent study by Masuda and his colleagues (Masuda, Gonzalez et al 2008), which directly addresses the relation between cognitive styles and the practices of visualisation, particularly drawing. The scholars attempted to apply the theory of cognitive styles (TCS) to make sense of the difference in artistic styles between East Asia and Europe. They observed that classical Eastern and Western artistic styles[10] differ in the ways predicted by the TCS: Western classical drawings usually feature one or few objects, depicted with great attention to details against a background relatively poor in objects and features. The foreground object(s) bear the main aesthetic weight, while the role of the background is secondary and supportive. In contrast, the Eastern classical drawings usually have a lot of elements in both the foreground and background. Both are depicted rather schematically, without many details: aesthetic information is recorded in relations between objects rather than in the objects themselves. One important feature of Eastern art, which is visible also in Eastern films, is the elevated line of the horizon. The sky occupies less space than the ground. This allows for the representation of more background elements.

Masuda and colleagues continued by asking modern Japanese and Americans to draw small pictures (Masuda, Gonzalez et al 2008: 1265–1266). Their analysis of these pictures allowed them to argue that the peculiarities of classical art – i.e. attention to background and context among Japanese and attention to details of objects among Americans, persist in laymen pictures independently of their artistic quality. Examples of pictures produced by each group were reproduced in the article (ibid: 1267). We were struck by the strong feeling of similarity between Japanese laymen's pictures and those produced by children of Nenets reindeer herders.

Finally, Masuda and colleagues proceeded to test the impact of cognitive style upon other kinds of visual representation, particularly photographs (ibid: 1266–1271). In order to do that, they asked a group of Japanese and a group of Americans first to evaluate a series of photographs and then to take photographs of a model. Again, the Japanese preferred pictures with rich background, even if the main object on them was blurred, while the Americans did the opposite. Similarly, while

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[9] We understand attention as the selective focus on specific information, or, on the contrary, ignorance of other. Perception represents an individual's phenomenological experience and interpretation of the visual sensory information (Masuda, Gonzalez et al 2008). The studies on perceptual-cognitive processing raise another question: On what stage does the distinction of either object-focused (analytical) or context-focused (holistic) processing take place (on the stage of perception, encoding, consolidation, retrieval from short-time memory, mental comparison, or mental representation)? Neurocognitive research provides us with some answers already.

[10] Compared were drawings from the 15th to 17th centuries.

Americans took photographs in such a way as to make the maximum numbers of details of the model visible and recognisable, the Japanese cared more about the details of position and contextualisation of the model in the room. Therefore, Masuda and colleagues demonstrated quite convincingly that the styles of visualisation of Japanese and Americans are different; moreover, these differences correspond to expectations that Japanese have a culturally induced bias towards context and against foreground details (i.e. the interdependent style of visual perception and holistic processing) and Americans a bias towards details and against context (i.e. the independent style of visual perception and analytic processing).

In our opinion, these studies convincingly show how social and cultural practices can influence important aspects of the form of visual representations (particularly drawings) – the organisation of space in terms of background-foreground relations and the degree of details of foreground objects. This correlation might well inspire modifications in essential features of the concept of Self and its relations to others. Self-construal and Self-others interdependence are then factors that can induce a particular culture-specific cognitive style; the latter, on its own, can affect both visual perception and visual representation. If this theoretical model is correct, it is the cognitive style – an important aspect of culture – that we as researchers can learn from while analysing the form of drawings.

However, the studies conducted so far and described in this section still have several important shortcomings, which make it difficult to claim that the described theoretical model is proven beyond reasonable doubt. First of all, these studies, with one notable exception (Uskul et al 2008) focused on two groups only, on Northern Americans (mainly from the U.S.) and East Asians (in particular Japanese). Secondly, and most importantly, Masuda, Gonzales et al (2008) demonstrated only that certain differences in visuality regularly occur across ethnic groups. Thus, differences in both visual conventions (as manifested by artistic conventions in painting, by visualisation through photographs, and by visual affordance) and in a cultural preference for more social information have been found between Americans and Japanese. Nevertheless, the scholars have in fact not proven that these differences are related to each other and that the former causes the latter. This could be proven only by demonstrating the statistical correlation between the aspects of visual representation (the size of background as determined by the position of the line of horizon, for example) and the degree of holistic as opposite to analytic processing (as measured, for example, by Kitayama squares). Otherwise, it cannot be excluded that the differences observed are not related to the cognitive styles but happen to rely on some another aspect(s) of Japanese and American culture. In order to resolve these shortcomings, we performed a small pilot study in Chukotka, in the far north of Russia, which will be described in the two following sections of the paper.

Empirical Study Design

The present empirical study was conducted in two seashore hamlets of Providenski District in Chukchi Peninsula, Russian Federation, called New Chaplino (ca. 470 inhabitants) and Yanrakynnot (about 420 inhabitants). New Chaplino's origin goes back to Old (*Staroe*) Chaplino, an artificial assemblage of Yupik Eskimo settlements put together by the Soviet government, which was then moved to Tkachen bay in 1958 and renamed New (*Novoe*) Chaplino. Together with Yupik, the hamlet is settled by Chukchi and incomers (Russians, Ukrainians, and Moldavians). As for traditional economic activity, sea mammal hunting prevails here. In contrast, Yanrakynnot is a

traditional settlement where both sea mammal hunting and reindeer herding play significant roles. The majority of inhabitants identify themselves as Chukchi. New Chaplino is considered to be a more favourable place to live in than Yanrakynnot as its inhabitants profit from job offers and purveyance in the nearby located regional centre Providenya.

Another important aspect to mention is the composition of the studied group. The data were collected amongst local school children during the summer camp 2010. Whereas the summer camp in New Chaplino included 7–16-year-old pupils, the Yanrakynnot group comprised 7–11-year-old pupils (the one 16-year-old participant was excluded from the statistical analysis). As the case reported here is a day summer camp, the type of the school (boarding or day school) loses its validity. The participants of the camp were either a) pupils who could not travel and/or spend their vacation elsewhere or b) children whose parents preferred for one reason or another to have the school taking care of their offspring (the summer camp provides free meals, a 7-hour-programme, and institutional supervision). In other words, the day camp comprised those children who were for the time being "immobile" – unable to travel neither outside of Chukotka (in contrast to the children who happened to receive this year's free vacation in the Moscow region or Russian South for their performance in academics, or those children whose parents are employed and receive a partial travel subsidy to vacation off the peninsula every two years) nor within Chukotka (as opposed to children returning to the reindeer herders' base in the tundra, the sea mammal hunters' summer base, or relatives in a nearby village).

All in all, the social characteristics of the group might seem more relevant in this case than their ethnicity: out of 22 children in New Chaplino who participated in one task or another (with 2 cases of 3 siblings in the sample), there are 5 cases of single motherhood, 8 cases of an alcohol-abusive parent, and 7 cases of an unemployed (UE) parent. One family (3 siblings studied) belonged to the Yupik sea hunters, one family (1 child studied) to the Chukchi reindeer herders, and one family (1 child studied) to the traditional bone carvers. In Yanrakynnot, out of 14 children (1 case of 3 siblings in the sample), there are 6 cases of single motherhood, 6 cases of UE, and 11 cases of an alcohol-abusive parent. Two families are traditionally both reindeer herders and sea mammal hunters, two families sea mammal hunters, and two families reindeer herders; in the sample there is one child present from each family.

Our research design comprised several experimental tools, including drawings and the use of photography (in our case, we use both photos as objects and photography as a practice), which draw on Masuda et al's study (Masuda, Gonzales et al 2008). The participants were asked to make a portrait photograph of a model, evaluate photographs provided by the researcher, and draw a bay. The data obtained from these tasks were then compared with the results of drawing the Kitayama squares. We also collected supplementary qualitative data on each informant that included his/her family background, interests, and motivations.

The number of respondents in each test can be summarised as follows:

Respondents					
№	Tests	Settlement		boys	girls
1	Drawing	New Chaplino		10	11
		Yanrakynnot		10	5
2	Kitayama squares	New Chaplino		6	5
		Yanrakynnot		8	5
3	Portrait photographing	New Chaplino		9	9
		Yanrakynnot	indoors	9	5
			outdoors	3	4
4	Photo evaluation	New Chaplino		9	4
		Yanrakynnot		3	2

Fig. 3: A summary of respondents by test numbers for each task

The changing number of respondents was caused by inconsistent, rather voluntary presence of children in the summer camp as a whole, and for each concrete task in particular. Every day the composition of the group was slightly different, so the given tasks were answered each time by a different number of respondents. The overall relatively small number of respondents is the result of the generally low presence of school children in the village during the summer.

The procedure of data collection had certain peculiarities: In case of New Chaplino the tasks were given one or two tasks at the time with a pause of several days in-between as the researcher was living in this village for several weeks. Before the tasks were given to the children, the researcher socialised with the children informally (in the street, in play, hiking, teaching them how to take pictures). In Yanrakynnot, the tasks were given in one morning, just before the closing ceremony of the camp, so to some extent the tasks were conducted in a rush and each time with a different number of respondents. No prior socialisation with the children was possible (except for one girl, cousin of the host).

Using this toolkit, we wished to test the correlations between the degree of holistic in contrast to analytic processing (which, in accordance to Kitayama and others reflects the cognitive style), on the one hand, and the size of background on drawings (measured by the position of the horizon), on the other. We also wanted to test if the degree of holistic as opposed to analytic processing affected the preferences for certain kinds of photographs as well as the manner of taking photos by participants themselves. Our working hypothesis was that children with a high degree of perceptual holism would prefer photos with rich background (and smaller focal objects) and take similar photos themselves, while the children with a high degree of perceptual analytics would both prefer and take photos with large and detailed focal objects.

The set of tasks went as follows:

1. Children were asked to draw a bay, including four obligatory objects – the sea, a house, hills, and a person. Additional elements were welcome. The paper size A4 was used in the landscape format. The topic of a bay was chosen deliberately as it is conventional theme in the artistic style of both the Chukchi and Yupik bone-carving and art schooling. We assumed that if children in the study have been exposed to such conventions since pre-school times, the subject itself would not have caused any difficulties. It was important to us that it was the realisation of the subject (mainly

through composition and object interdependence), which should reveal the differences in children's perception and visual processing, and not the choice of a subject.

The task, as the reality shows, needs at least 15–20 minutes for completion. Children tended to go from desk to desk, checking what their friends drew or in search of 'the right' colour pencil. Sometimes they thought of the content for a long time, keeping the paper empty, and then spending a great amount of time filling in the objects with colour. Children preferred to cross-out the drawing if they did not like it, to fold the paper, and to start all over again. It was necessary to make sure that the children drew all the necessary objects; they often forgot one or two. In New Chaplino, some children were drawing for more than 30 minutes; then they were urged to finish by the teacher under the threat that they would not receive brunch if they did not arrive there on time.

The drawing task was aimed to reveal how important or unimportant the horizon, contextual information, and/or the salience of objects were for the children. After all the drawings were collected, the height of the horizon, which was taken to indicate the size of the background (see Masuda, Gonzales et al 2008) was measured on both the left and right side.

2. The next task was the Frame-line test, designed by Kitayama et al (Kitayama et al 2003) and described in details above. In comparison to the test originally described by Kitayama and colleagues, our variant had several parameters changed. Firstly, the square in the example was 150 mm (instead of 90 mm) and the line 50 mm (instead of 30 mm) long. We thought that the bigger squares would be easy for the children to fill. Secondly, the empty squares in the test templates were always the same size, namely 60 mm (and therefore the resulting line should be 50 mm in the absolute task and 20 mm in the relative task). Each template consisted of 8 empty squares where 5 squares were training ones and only the last three were taken as valid results. This was done to minimise the effect of motor skills on the results of the test: we supposed that by the sixth trial the children would get used to the task and learn to draw the line they really considered to be correct rather than those they just managed to draw. This task conducted in the group of children was the most difficult to explain. Despite the fact that the example was given, participants had a hard time to understand the tasks. In the absolute task, some children used another survey template as a stencil and wished to fulfil the task by copying the line. Such attempts were immediately discouraged by the interviewer. In the relative task, it was necessary to show examples of fractions and how a fraction was related to the task. In this case, however, the children divided the line into fractions in all its length and did not determine the length of the first portion at its necessary position.

3. For the task "Photographing a model", the pupils were asked to take four pictures of a peer in such a way that (1) the peer was sitting in the classroom, (2) the peer was standing in the classroom, (3) the peer was sitting in the corridor (with the long, narrow room behind his/her back), (4) the peer was standing in the corridor (with the long, narrow room behind his/her back). In each case, the model was about 215 centimetres away from the photographer. The participants were asked to take the pictures horizontally only. This task went well despite the initial assumption that children would have a hard time learning how to use the zoom. Even the more complex digital single-lens reflex camera Canon EOS 400D with the lens Tamron (AF 18–250 mm) with a manual zoom was mastered by children in a very short time.

4. The task "Photo evaluation" used seven photo sets that consisted of portraits of the same man who was either sitting indoor (interior INT), sitting outdoor (exterior EXT), or standing outdoor. In the same posture the model was photographed with a different lens (from 18 mm to 250 mm wide),

which led to a change in the width of the perspective field, in focal length, and in the size of the figure (the smaller the lens size, the smaller the figure). In two sets, the figure of a man was kept the same by adjusting the distance between the tripod (photographer) and the model accordingly. In all other sets the model was photographed from the same spot and only the lens was changed.

The "photo evaluation" was conducted slightly differently in the two hamlets. As the capacities and time were sufficient in the case of New Chaplino, these respondents were asked similar question twice with a pause of several weeks in-between. In other words, the task "Photo evaluation" consisted of a two-fold evaluation of a set of photos. Firstly, the respondents were to choose the best photograph out of the set number 7 and out of the set number 9. The chosen photo was to be evaluated on a scale of 1–7 (1 worst, 7 best). After several weeks, the children were asked to evaluate all the photos from all the sets. Each photo was graded on the above 7-point scale. In Yanrakynnot, only this second version of the task was conducted with the group of children.

Results and Discussion

The quantitative data obtained from the children was analysed using the SPSS software, which is a standard tool for statistical data processing in social sciences. Unfortunately, the collected sample was rather small. Since the representatives of one single ethnic and social group – the settled Yupik Eskimo – comprised almost the whole sample, no comparison of visual perception between groups was possible. This has been so far the most important limitation in our study, which we are going to rectify in the future. Besides that, a different number of participants performed each of the tests; therefore the correlations between tests could be studied only on the basis of smaller sub-samples of the main sample, comprising 15 to 20 participants. In fact, we initially regarded our study a pilot project, aimed rather at testing our newly designed research tools than obtaining significant results. Indeed, obtaining statistically significant results from a sample so small is almost impossible: in order to obtain them, the correlation between variables should be extremely high. It has been, therefore, truly surprising for us that we were still able to obtain conclusive results with extremely good statistical validity.

The most important result is the extremely strong correlation between the children's degree of holistic versus analytic processing as measured by the Kitayama squares and their way of drawing as reflected in the position of the line of horizon on their pictures. In order to test this correlation, we introduced a special parameter, which we named Kitayama Index, or (KI):

$$KI = |aver\ (50 - AT)| - |aver\ (20 - RT)|$$

AT and RT represent the length of the line drawn in the absolute and relative test squares respectively, while 50 and 20 are the right (exact) line lengths under these test conditions. In other words, the KI represents the difference between the average mistakes made by a child in the absolute and relative tests. KI is less than zero if the child makes bigger mistakes in the relative than in the absolute Kitayama square and, therefore, presumably has more analytic then holistic processing. In the opposite situation of more holistic processing, the KI is higher than zero. The absolute value of the index presumably reflects the degree of holism or analytics of perception, as you can see from these tables:

Pearson correlation with Kitayama Index	Average of the horizon	Horizon on the left side	Horizon on the right side
Correlation coefficient	0.761	0.717	0.737
Sig. (p), 2-tailed	0.000	0.001	0.001
N	17	17	17

Fig. 4: Summary of linear (Pearson) correlations between the Kitayama Index and the parameters of horizon in the drawing

Spearman correlation with Kitayama Index	Average of the horizon	Horizon on the left side	Horizon on the right side
Correlation coefficient	0.740	0.678	0.772
Sig. (p), 2-tailed	0.001	0.003	0.000
N	17	17	17

Fig. 5: Summary of non-parametric (Spearman) correlations between the Kitayama Index and the parameters of horizon in the drawing

The Pearson correlation coefficient between KI and the average position of the horizon on the picture is almost 0.8, which is an extremely high correlation. The two-tailed probability of the mistake, that is the statistical significance (p), is less than one percent. The results of the Spearman correlation are almost as high. Therefore, we have discovered convincing proof that the important attribute of children's pictures – that development and richness of background as reflected in the position of horizon – depends, up to the degree close to determination, on the style (related to priming and biases) of visual perception as predicted by the cognitive style. This dependence has been previously only assumed (but not tested) by Masuda and colleagues. Importantly, we managed to demonstrate this dependence in a group very different from those previously studied in the framework of the cognitive styles' paradigm. In our opinion, this is an important argument for the very important role that cognitive styles, which are presumably a cultural artefact, play in the ways of creative visualisation.

  The results we obtained in our tests with photographs are, unfortunately, much less impressive. Both Kitayama and Masuda predict that, other things being equal, people with holistic visual perception should dislike photos with poor background and like those with rich background. In order to test this prediction, we investigated the correlation between the KI and the mean evaluations of the photograph sets. Since these evaluations were not normally distributed, we had to rely on Pearson correlations only. The results are presented in the following table:

Pearson correlation with Kitayama Index	Mean evaluation of the **18 mm** lens	Mean evaluation of the **35 mm** lens	Mean evaluation of the **50 mm** lens	Mean evaluation of the **70 mm** lens	Mean evaluation of the **100 mm** lens	Mean evaluation of the **200 mm** lens	Mean evaluation of the **250 mm** lens
Correlation coefficient	-0.346	-0.638	-0.710	-0.515	-0.540	-0.785	-0.206
Sig. (2-tailed)	0.297	0.035	0.014	0.105	0.086	0.004	0.544
N	11	11	11	11	11	11	11

Fig. 6: Summary of linear (Pearson) correlations between the Kitayama Index and the results of the photo evaluation task

As you can see, all the correlations between the KI and the values given to photographs are negative. This means, in fact, that the more holistic the perception of a child was, the less he liked our photograph sets in general. As predicted by Kitayama and Masuda, this negative correlation was especially pronounced in the cases of close-up photographs with little background (lens with length 200 mm or telephoto lens). In contrast to the predictions, however, the dislike was even stronger in the case of wide shot photographs with rich background (lenses 35 mm and 50 mm). One possible explanation can be that the children simply did not like the objects in the background for whatever reason. This can explain why children, who should be more attentive to background, disliked it just as much as pictures without background at all.

Finally, we have failed to find any significant correlations between the KI and the kinds of photographs the children produced. One possible explanation is that children did not master the camera well enough in order to take the photographs they really liked. The other explanation can be that our sample was simply too small to allow for other possible factors' cancelling each other and the significant correlations becoming visible.

In any case, however, our study proves that at least as far as drawings are concerned, the form of the visual representation – namely the richness and size of background – is likely to depend directly on cognitive style induced by social and cultural practices. Therefore, it can be used for making assumptions about cognitive style, which seems to be an important aspect of culture. Importantly, the cognitive style is not something easily detectable by the means of interviews or participant observation and, therefore, the analysis of drawings could be one of the best methods to study it in the field.

Conclusions and Plans for Future Research

In this paper, we tried to establish how visual representations, particularly drawings, can be used to obtain information about social and cultural practices and assumptions. We were particularly interested, if visual representations can be employed to reliably discover those facts about cultures and societies that cannot easily be discovered by standard ethnographic techniques such as participant observation and interviews.

The material we have presented shows, as we hope, that such facts indeed can be reliably established from drawings as far as appropriate methods and theoretical models are used. This concerns both the content (what is depicted) and the form (how it is depicted) of drawings. In the case of content, as we believe, the most reliable way to extract new social and cultural facts from drawings is to trace the changes in the depicted content and associate it with the changes in social practices. The form of drawings, on the other hand, can be a useful indicator of culturally induced cognitive style, which is intimately related to the concept of Self in relation to others. As it has been shown in many studies performed in the framework of cross-cultural psychology, cognitive style is likely to affect many aspects of behaviour as well as a number of cultural assumptions and preferences apart from visual perception (for a review see Kitayama et al 2007; Nisbett 2003; Shore 1998). Unfortunately, standard ethnographic tools can rarely provide cues to it.

Although our study confirms the existence of a relationship between visual perception and cognitive styles, our sample does not allow us to draw more valid conclusions on how the relationship between socialisation and/or cultural influence, on one side, and the style of visual

perception, on the other side, really works. As the sample included members of only one cultural background, we cannot give a valid support to the argument, whether people coming from the same cultural background are characterised by a dominant strategy of processing visual information or not. We are going to compensate for that in our forthcoming work, which expands on the issue. This work will be based on a new survey portfolio, which will contain the following items:

- Brief survey data list (age, sex, ethnic origin, residence, parents' profession)
- Task: Drawing of a bay
- "Kitayama squares". Absolute and relative tasks.
- Task: Ornament evaluation

This package of tasks will be administered to informants at two different field sites. Istomin will survey school children in Tazovsky District, Yamal-Nenets Area, North-Western Siberia, while Bagdasarova will do the same in Providenski District, Chukotski Autonomous Okrug, in the far north-east of Russia. This new sample will be much bigger, cross-cultural, and more consistent (all tasks will be given to all the children from the sample).

   All the tasks have been already described in our previous research design; only the ornament evaluation is new. It is designed as follows: the informants will be confronted with four types of ornaments:

- Single geometric motif
- Single plant- or animal-like motif
- Combined geometric motifs
- Combined plant- or animal-like motifs

They will be asked to evaluate each item according to their aesthetic or other preference and assign each type a mark from 1 (the worst) to 5 (the best). We expect that the participants with high perceptual analytics would prefer single ornaments, while those with high holism would opt for combined ornaments. If this expectation can be proven it can potentially contribute to explaining the differences in the forms of ornaments between peoples and cultures.

   We hope that this future research will become an important contribution to better understanding the relation between culture, visual perception, and styles of visualisation.[11]

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[11] By the time the final draft of this paper had been submitted for publication, the field work of this study was already completed. The data from 253 surveys collected in the two regions had been processed. We hope to publish the results of this new study in the near future.

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