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Collections and cultural transmission: Museum as a niche (re)construction site

Since the end of XX century, an abundance of studies exploring the evolutionary perspective on human culture and the mechanisms underlying this process offered theoretical grounds and novel paradigms and approaches, thus allowing for more clear foundations of the field of cultural evolution (CE). Starting from this body of theory and the possible significance of material culture for cultural transmission, this paper considers evolutionary aspects of musealization and the role of museums in cumulative cultural evolution, by taking the perspective of the Niche construction theory (NCT). The argumentation is based on the view of a museum as a cultural niche and the dialectics of preservation and reconstruction in cultural transmission processes in analogy with museum conservation-interpretation dilemma. It ends with the conclusion that a museum can be seen as a niche re-construction site, thus offering a solution to the dilemma, where the notion of cultural niche implies persistence of cultural elements, but allowing, at the same time, for construction of knowledge in each generation.

Key words: cultural transmission, niche construction, museum, preservation, heritage interpretation

Збирке и културна трансмисија: музеј као место (ре)конструкције нише

Значајан број студија које укључују еволуциони приступ људској култури и механизмима културних процеса, од краја XX века надаље, понудио је теоријске поставке и нове парадигме и приступе, који су отворили пут за јасније утемељење области културне еволуције (ЦЕ). Полазећи од овог теоријског корпуса и претпостављеног значаја материјалне културе за културну трансмисију, рад се бави еволуционим аспектима музеализације и улогом музеја у кумулативној културној еволуцији, из перспективе теорије конструкције ниша (НЦТ). Аргументација у раду је заснована на поређењу музеја са културном нишом и дијалектици очувања и реконструкције у процесима културне трансмисије, по аналогији са музеолошким питањем односа конзервације и интерпретације. Закључује се да музеј може да се посматра као место реконструкције нише, при чему се питање односа конзервације и интерпретације разрешава својством културне нише да имплицира очување елемената културе, а да при томе омогућава конструкцију знања у свакој генерацији.

Кључне речи: културна трансмисија, конструкција нише, музеј, очување, интерпретација наслеђа

Introduction

One way to look at the culture as phenomenon is through evolutionary perspective. An increasing number of studies under the umbrella of cultural evolution theory, existing for couple of decades now, offers views and instruments to understand the cultural change and persistence in the light of evolutionary principles (Cavalli-Sforza and Feldman 1981; Lumsden & Wilson 1981; Boyd & Richerson 1985; Durham 1991). These studies are evidently distinct from the evolutionist school of thought in early anthropology, and in many cases distant to the other views of culture in XX century social sciences, such as cultural determinism, structuralism, or the semiotic theories.

Nevertheless, this new field of cultural evolution has predecessors in a number of XX century authors coming from a variety of scientific fields with an interest in culture (Gerard, Kluckhohn & Rapoport 1956; Campbell 1960; Mead 1964; Alexander 1974; Wilson 1975; Dawkins 1976; Dobzhansky et al. 1977) and it continues to provide for a gathering point of different scientific programs and areas of interest today, turning it into an evolutionary cluster. This paper takes advantage of an interdisciplinary channel of communication opened through this cluster, to explore a possible role of contemporary museum in cultural evolution.

With the variety of concepts existing in the field and the lack of unified evolutionary discourse, understanding of the notion of culture here needs to be clarified. It basically relies on the definition given by Boyd and Richerson (Boyd & Richerson 1985; Boyd & Richerson 2005), where culture is seen as “information capable of affecting individuals’ behaviour that they acquire from other members of their species through teaching, imitation, and other forms of social transmission”. It is important for this study to understand culture as information and as a subject to a social process at the same time. Some other authors, such as Mesoudi, Whiten and Laland, go into specifying forms that cultural information can take, naming cultural expressions such as behaviours and artefacts (Mesoudi, Whiten & Laland 2004), or cultural information vehicles (Pocklington & Best 1997). Sperber and Cladiere ask if cultural information is located in people’s minds, behaviours and artefacts, or in both, and offering the answer that behaviours and artefacts are cultural too (Sperber & Cladiere 2008, 3). This is in line with their understanding of culture as a property, for which it is more meaningful to study what is „cultural“ than what is „culture“ (Sperber & Cladiere 2008, 7). Basic to Darwinian view of cultural change is existence of variation, selection of favorable variants and accumulation of beneficial modifications over time. All three can be found in human culture (Mesoudi, Whiten & Laland, 2004), supported by cultural transmission as the crucial process of cultural persistence. For the variety of cultural traits to exist, culture first needs to be kept alive through space and time and than also modified into a variety of forms. While a number of authors insist on the importance of fidelity as a quality of the cultural transmission process (Tomasello, Kruger & Ratner 1993; Richerson & Boyd 2005; Lewis & Laland 2012), authors around Sperber include construction as equally impactful transmission process, stating that psychological mechanisms in cultural transmission are based on combination of preservation and construction:

„The construction of a mental representation involves greater or lesser transformation of the input information, with two limiting cases, that of total loss of information or complete forgetting when cognitive mechanisms just ignore or filter out the input information, and that of the construction of a mental representation containing exactly the same information as the input, as when you correctly remember a phone number. Most processing of input information results neither in total loss nor in exact copy; it is, as we insisted, both preservative and constructive“ (Sperber & Cladiere 2008, 5).

Sperber and Cladiere suggested also that, beside random forces, natural selection, and psychological forces, important factor acting on behaviours and artefacts involved in the cultural processes are ecological forces (Sperber & Cladiere 2008, 5-6).

Cultural transmission process is rooted in social learning, which is, in terms of psychological background, seen as “continuous reciprocal interaction between behavior and its controlling conditions” where “new patterns of behavior can be acquired through direct experience or by observing the behavior of others” (Bandura 1971). Tomasello introduces the notion of cultural learning, a form of social learning unique to humans, which relies more on the inter-subjectivity and the perspective-taking, as well as on the so-called ratchet effect to secure the fidelity and therefore persistence of human culture (Tomasello, Kruger & Ratner 1993). Cultural learning, according to Tomasello, can happen in three forms – imitation, instruction and collaboration (Tomasello, Kruger & Ratner 1993). While Tomasello and colleagues base their study on the ontogenetic development where direct inter-personal contact is inherent, extensive body of research on social learning in primates other than humans indicates that inter-subjectivity is not indispensable in cultural transmission (Heyes 1994, Frigaszy et al 2013). The environmental impact on behaviour doesn't necessarily have to happen through imitation or observation of behaviour of conspecifics, but rather the physical environment has an important role to play in transmitting culture, being itself cultivated (Dewey 1929; Levi-Strauss 1999). Human eco-niche is a cultural niche at the same time, based on a system of interdependencies and relations of living organisms, the surroundings that they create and modify, and intangible elements in-between organisms and things.

Artefacts as niche construction material

There is a long and diverse history of studying relations of material culture and humans. Some of them are based on looking at artefacts as extension of humans (Dawkins 1982; Malafouris 2008). A more complex theory that draws on importance of the physical environment, under the cultural evolution umbrella, is the Niche construction theory (NCT). Apart from being seen as a theory that could provide a solid basis for the reconciliation between natural and social sciences under unified evolutionary framework (Kendal, Tehrani, Odling-Smee 2011), it is also a possible means to look at the material culture from evolutionary perspective. Niche construction creates ecological inheritance and, therefore cultural inheritance, by

modifying selection pressures in the environment, which is an addition to genetic inheritance in evolution (Laland 2004; Kendal, Tehrani, Odling-Smee 2011). The theory also uses the notion of cultural inheritance and mathematical models to explain longlasting effect of human intervention in the environment and retroactive impact of the modifications produced through this process: “If the cultural inheritance of an environment-modifying human activity persists for enough generations to generate a stable natural selection pressure, it will be able to influence human genetic evolution.” (Laland, Odling-Smee & Feldman 2001, 24). This can be looked at in analogy to material culture and cultural heritage as a particularly valued part of it.

Apart from cumulative evolution, artefacts are another major element that distinguishes human culture from other forms of social organizations in animal kingdom (Tomasello, Kruger & Ratner 1993). This is, obviously, questioned by more recent studies exploring elements of cultural evolution in non-human primates, but ultimately, it’s about the significance of artefacts for human culture as major human adaptation. Artefacts, institutions, behavioural traditions and languages – they all seem to be intertwined and affecting each other as constructive elements of human eco/cultural niche. Nevertheless, the extensive and continuous discussion about the nature of cultural unit on one side, and the critical heritage studies on the other, allow for differentiation between tangible and intangible aspects in culture and more specific definition of the role of an artefact in cultural transmission. In some more recent definitions of culture, artefacts are left out (Acerbi & Mesoudi 2015, 482), which doesn’t necessarily mean that material objects are not part of the culture, but rather that they are not the essence of culture. Since we tend to learn a great bit through the material objects, they obviously play a significant role in the cultural transmission. Artefacts are, as Chris Caple puts it, “... any physical entity that is formed by human beings” (Caple 2006), and A. A. Berger calls for a consensus in scholarly discussions about the nature of material culture in an almost too simplistic, though thoughtful way: “Generally speaking, we can say that if you can photograph it and it isn’t too large and complicated, we can consider it to be an example of material culture.” (Berger 2016). Nevertheless, in relation to culture as whole, artefact becomes a medium for transmission and a bearer of cultural information (Nikolić 2018).

The relation between material culture and cultural heritage is an underdiscussed topic in disciplines with an interest in culture. Nevertheless, material culture does not stop where heritage begins. A social process is needed to generate cultural heritage on a collective level, though within a more inclusive understanding of the notion, the process can also be an individual one. The difference between material culture as a selection pool and cultural heritage as a group of selected items is in added value(s). In most cases it is a conglomerate of societal and personal, historical and autobiographical, factographical and emotional layers of values and meanings that we tend to call heritage significance. As it is stated in the Faro Convention of the Council of Europe: “A cultural heritage is a group of resources inherited from the past which people identify, independently of ownership, as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions. It

includes all aspects of the environment resulting from the interaction between people and places through time (Council of Europe 2005).

So how does this selection process affect our material world? Material culture takes up a considerable part of our physical surroundings (Nikolić 2018). A conscious act of choosing particularly significant elements of material culture that could serve as diachronical agents or cultural information vehicles implies responsibility of keeping. In a material world and on an operational level, transmitting information vertically means preserving its vehicle through generations.

It is through the process of preservation that considerable part of culture persists. Nevertheless, when diachronic transmission through passive agents is involved, cultural information is being interpreted rather than copied, and the transmission process becomes re-constructive in character. In terms of evolutionary thinking, tangible heritage is about persistence and modifications at the same time.

Museums as niche reconstruction sites

There is a strong argument for institutionalization of persistence through musealization of cultural heritage as particularly valued expression of culture. Intangible heritage left aside, musealization promotes and facilitates preservation and use of artefacts. It is stated in a more or less elaborated manner in definitions of museum given by international organizations¹, but to understand musealization in terms of cultural evolution, it is crucial to understand what institutionalization does for cultural persistence, and what kind of institution museum is today. According to Zucker, institutionalization

“...is the process by which individual actors transmit what is socially defined as real and, at the same time, (...) an act that can be defined as more or less a taken-for-granted part of this social reality. Institutionalized acts, then, must be perceived as both objective and exterior. Acts are objective when they are potentially repeatable by other actors without changing the common understanding of the act, while acts are exterior when subjective understanding of acts is reconstructed as intersubjective understanding so that the acts are seen as part of the external world“ (Zucker 1977, 728).

Zucker also recognizes positive impact of institutionalization on transmission, maintenance and resistance to change, which are taken here as three key aspects of cultural persistence (Zucker 1977). Even though some transmission happens based on individual influence, “increased objectification and exteriority will increase transmission” (Zucker 1977, 729). So, institution provides for formalized persistence.

¹ ICOM (International Council of Museums) museum definition was adopted by the 22nd General Assembly in Vienna, Austria on 24 August 2007, and is currently under review.

Perspective of a museum as institution changed substantially in a century, and even more so in last 25-30 years. Weil stresses the main point of this change by explaining how museums evolved from being collections-oriented to being socially-oriented (Weil 2012). Keene is addressing the role of museum collections in the context of this museological shift, explaining throughout her book that the new museum doesn't need to abandon collections to be more social, but embrace them through all possible and socially beneficial uses (Keene 2006).

The crucial argument in this study is that a museum based on collections of artefacts can be seen as a niche reconstruction site from the evolutionary perspective. This is based as much on its contemporary identity of a world interpreter, as it is based on the role of artefacts in cultural transmission. Cultural transmission today is still basically transmission of environment-cultivation skills, but in an environment changed to such an extent that the skills are extremely elaborated into numerous and sophisticated forms and branches.

Looking at the basic uses of museum collections, additionally burdened with narrow specialisation which only recently started to decrease, it seems like the research and education are two different things, and education has nothing to do with enjoyment. Behind all these types of use, it is transmission and reconstruction of culture.

To support this argument, three levels of museum societal role will be examined in search of cultural niche as the stage and reconstructive cultural transmission as a mechanism: preservation, collections use for research/object-based learning and collections use for informal museum learning/public display. These are referred as levels, because they follow inwards to outwards direction in terms of museum-society dynamics.

1. Collections preservation

As it has already been stated, preserving museum collections as tangible expression of culture, is a pre-requisite to persistence. Collections are housed and preserved in a museum in order to provide not only for their current uses, but also for the uses by future generations. It is in the roots of the institution and it revolves around the notions of storing and safekeeping which are a way older than museum and functionally more complex phenomenon. Great many local communities around the world have a form of social agreement to preserve the most valued part of their collective material inheritance, often housed in communal buildings or local religious premises, depending on whom the community trusts the most. Some of these collections entrusted for safekeeping get further institutionalized. With institutionalization, safekeeping is more professionalized, procedures are developed according to legislation or in compliance with local traditions. Additional functions are developed around the storage as the collection becomes community asset and a source of income. Ashanti people in Kumasi, Ghana, established a museum around their local court, which is still being used, in order to pass community values on to the younger generation (Keene 2006, 21). It represents a particular case of a museum, illustrating significance of musealization in cultural niche preservation.

“...Cultural items, sacred, and ceremonial objects have long been the means of transmitting and perpetuating cultural traditions and preserving or even sometimes reviving cultural practices” (Keene 2006, 36).

There are many museological examples that illustrate various levels of cultural niche preservation on the continuum that stretches not between absolute preservation and total destruction, but between absolute preservation and total re-construction as two extremes. It is worth noting here that a museum can maintain a high level of collections preservation, and still be much closer to the cultural niche reconstruction end of the continuum. This has a lot to do with a question of boundaries between cultural niches. The size and complexity of a cultural niche becomes incomprehensible in modern world and it comes hand in hand with ultimate overlapping. An artefact can transverse a great many cultural contexts in its life history and be a witness to very different habitats through time. Ellen illustrates this issue of boundaries and overlapping in the concept of ‘basket’, explaining how it refers to

“a whole series of overlapping categories of material culture, both functional and morphological, both emic and etic, so transmission is of overlapping knowledges of non-mutually exclusive domains” (Ellen 2009, 246).

This is why artefacts are polysemous. Lemonier argued that the system of meanings that material culture bears is not limited to direct vehicles of meaning, but also to technological traits that are included in operating on material culture (Lemonier 1989). In his paper on Nuallu baskets, Ellen describes how a significant part of information is lost if an artefact is classified solely based on visible characteristics, without taking into account what is already known about the production process (Ellen 2009, 266). So, change of context affects cultural information. This is in line with the argument that cultural information is transformed and reconstructed in the transmission process. Acerbi and Mesoudi argue that the character of cultural transmission will depend on the level, that is on unit of transmission – the more complex the unit, less preservative transmission (Acerbi & Mesoudi, 2015). This brings even conservation of individual artefacts closer to the notion of reconstruction, as every trace of every life phase is being conserved, including repairs and earlier invasive restoration treatments. The fact that contemporary conservation is more inclined towards acting in environment than intervening on an artefact itself will become more important for the preservation of modern collections, where artefact had less life history time to shift between contexts and consequently – less time to change.

An additional argument for preservation of artefacts in respect to cultural evolution is given by Acerbi and Mesoudi – they can store a piece of information, even if there are no circumstances for demonstration, teaching and copying a behaviour, until an interaction between subjects of transmission is restored (Acerbi & Mesoudi, 2015).

2. *Collections use: research and object-based learning (formal museum learning)*

Research and object-based learning was primary motivation to establish public museums, Ashmolean museum in Oxford being the very first. With a variable dedication and success, museums sustain this line of rationale today.

“In displaying knowledge they are in a sense returning to one of the primary purposes of museums.” (Keene 206, 17)

Collections-based research is done by museum specialist, but also external researchers. This is collection-specific, policy-dependent and cultural-related, but overall – the research is among major drives of collecting and safekeeping. In terms of museum’s societal role, research is less visible than museum education and display. Research is done individually, so the number of researchers seems insignificant when compared with the numbers of visitors and education programs users. „Success ought also to be judged by the outcomes of the research: the difference it makes to people’s lives“ (Keene 2006, 59).

Object-based learning (OBL) is less sustained among primary museum functions. The reason for this might be the fact that it was originally developed as a feature of a university museum. Today it is still mostly a feature of university museums or a special agreements between a museum and a university (Duhs 2010; Hannan, Chatterjee & Duhs 2013; Chatterjee 2010; Simpson and Hammond 2012). Similar to research, it is an individual or small groups endeavor, conducted by a teacher or a museum curator (Chatterjee 2010; Cain 2010; Duhs 2012; Hannan, Chatterjee & Duhs 2013).

Both of these collections uses relate directly to cultural transmission, regardless of museum programming and display policy. This provides for cultural transmission to incline towards preservative, but it still is prone to reconstruction – it lacks an inter-generational contact, so there is no copying of behaviours related to the artefact production or original use. The teaching that is part of OBL is based on reconstruction itself. This turns guided OBL into a double mediated information retrieval, since an artefact itself presents already the first level of mediation. Guidance in OBL is based on assumption that learners are not equipped with sufficient knowledge of the artefacts context to be able to retrieve cultural information without it. This can be discussed in relation to various instruction approaches and didactic tools.

3. *Collections use : display and informal museum learning*

Of all three levels of serving to a society, communicating culture to museum public through displays and informal learning programs is the most interpretative and, accordingly, most re-constructive one. Museums preserve an abundance of cultural items, belonging to an abundance of cultural niches. They communicate culture to its users through reconstruction of a cultural niche with the help of relatively preserved cultural objects. This can be seen as another level of indirect cultural transmission, where institution plays a role of an interpreter and the community is at the other end of the channel. It corresponds to what Acerbi and Mesoudi ex-

plained as dependancy of the character of cultural transmission on the transmission unit. The more complex the unit, the more interpretative narrative surrounding the artefacts (Acerbi & Mesoudi 2015). “It is not the collections that are the source of colonialist messages of power and control, but the museum, in its buildings, systems, and displays” (Keene 2006, 40).

Nevertheless, reconstruction of culture induced by the availability and didactic power of museum objects on one side and the adaptive value of social learning on the other, is not without boundaries. “In societies that are the subject of ethnographic and anthropological collecting, there are very complex issues around the relationship of collections and people who owned the objects that have been collected and displayed.” (Keene 2006, 39).

Conclusions

So how the three societal roles of museums relate to persistence and evolution of culture? There are, obviously, two intertwined cultural processes in museums, dialectically related and arguably both adaptive – transmission and interpretation. Some level of fidelity is necessary to provide for information to be interpreted at all. Sorensen invited museums to send collections into the future equipped with a variety of contextual materials for their after-life, like in Pharaoh’s tomb, instead of simply amassing more and more stuff (Sorensen 1989, 72). Holtorf argued that life history of an artefact is not ended by musealization, but rather continued through this new context which implies interpretative approach and reconstruction of its primary context, based on information obtained as a result of its musealization (Holtorf 2002). It can be concluded, thereafter, that material culture is pertained through continuous transversing from one context to another, through various processes within its secondary, or museological/ethnographical context, such as excavation, analysis, interpretation, archiving, display.

“The purpose of a museum may radically change; it may be considered redundant; but the collections are a permanent record of our cultures” (Keene 2006, 40).

So primary cultural niche that an artefact comes from is subject to anthropology and archaeology, while museum context which produces various niche reconstructions is subject to museology and heritage studies, or to Holtorf’s understanding – to ethnography (Holtorf 2002).

In the light of this view of museology, it can be argued that the two aforementioned processes, transmission and interpretation, are actually one, consisting of a transmitting and an interpreting step. In this sense, transmission can be seen as information retrieval and interpretation as knowledge building (Scardamalia & Bereiter 2013), or a more individualistic notion of building a worldview (Gabora 2004).

“The learning process involves not just extraction but also interpretation of input information, and interpretation typically involves enrichment of the information interpreted.” (Sperber & Cladiere 2008, 7).

Museums have a significant adaptive potential in preserving elements of cultural niche and producing knowledge by exploring and re-arranging them into novel cultural structures. Cultural learning is a conscious process, so it is on users to see how this potential is best exploited.

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