HOW CULTURE SHAPES THE MIND?

Eye tracking study on perception of medieval Nubian paintings by Sudanese and Western people

TOMASZ MICHALIK,
Polish Centre of Mediterranean Archaeology, University of Warsaw

Nubian painting: Healing of a blind man at the Pool of Siloam, Old Dongola

INTRODUCTION

The role of archaeologists is not only to discover material heritage, but also to make it available to a wide audience. However, this task can be challenging especially in a situation where the archaeologist belongs to a different culture than the one of the local community (as is in the case of many foreign archaeological missions). One reason for this is culturally grounded cognitive differences (for example the tendency for representatives of collectivist cultures to perceive holistically vs. the tendency for representatives of individualist cultures to perceive analytically, eg. Kitayama et.al 2003; Zaijila et al. 2013). This and other factors (such as common knowledge) may play a role in the understanding and value of archaeological remains, especially with varying preservation state.

To study mentioned factors an eye-tracking study on the perception of Nubian medieval paintings by Sudanese and Western visitors to the Old Dongola Archaeological site (Sudan) was conducted in 2022. The study was exploratory in nature and was intended to help archaeologists better understand the perception, recognition and value of archaeological heritage (medieval paintings) by local community (representatives of collectivistic culture), and foreigner visitors as well as researchers (representatives of individualistic culture). On this basis, it is planned to create inclusive educational programmes.

STIMULI: NUBIAN PAINTINGS FROM OLD DONGOLA, SUDAN

In contrast to the Islamic culture that dominates Sudan today, Christian kingdoms existed in the northern and central parts of Sudan in the Middle Ages. One of them was Kingdom of Makuria with its capital in Old Dongola. The medieval sacral buildings (churches and monasteries) have survived to our times.

The reception of paintings from one of them (Monastery on Kom H), depicting biblical figures, bishops and rulers was chosen for the study (Martens-Czarnecka 2011).

Archangel Michael

STUDY DESIGN

Research Question

If and how cultural background shapes the perception and recognition of medieval Nubian paintngs from Old Dongola Archaeological site?

Methods

Eye-tracking (free choice tour with wearable eye-tracker) and qualitative and quantitatives analysis of interviews concerning the understanding of the paintings.

Task & Procedure

The participants were asked to visit two rooms in medieval monastery with Nubian paintings. Following the visit, interviews about the understanding and the aesthetic value of paintings were conducted. Additionally, sociodemographic data and information about knowledge of the paintings, were collected.

Sociodemographic & knowledge questioneer → **Tour with eye-tracker (in silence)** → **Interview concerning paintings**

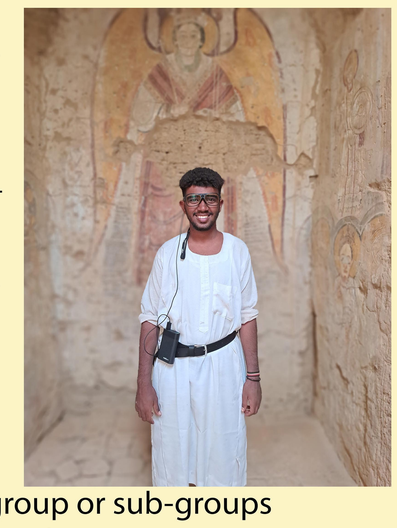
Participants:

55 Sudanese
19 Western visitors (Poland, USA, UK, Germany);

25 women,
49 men

49 first time visitors,
25 returning visitors

Total: 74 participants



Depends on research sub-guestions data from whole group or sub-groups (like first time visitors) were analyzed.

RESULTS

The process of viewing the painting was, to some extent, similar (regardless of the cultural background, the participants focused their attention on faces, hands and attributes of the depicted figures). However, the interpretation of painting as well as the level of sensitiveness to some aspects of the paintings varied due to cultural conditioning. Selected findings are presented below.

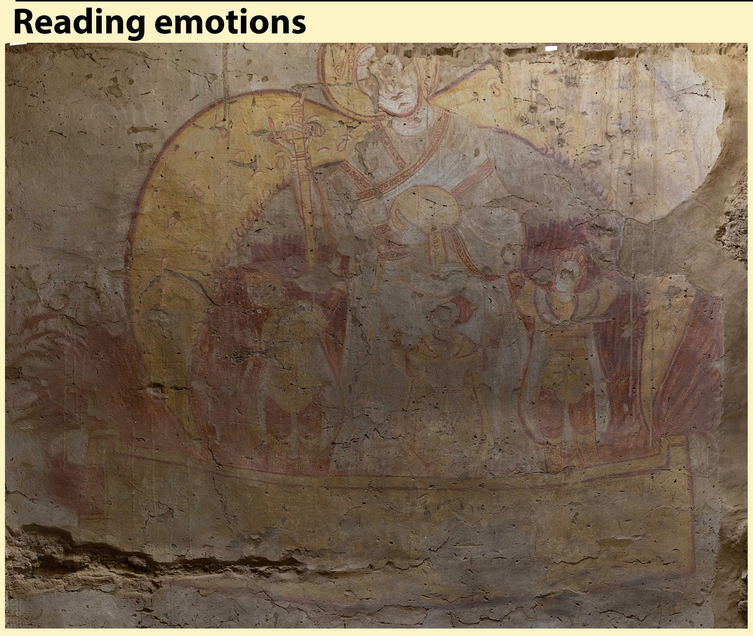
Knowledge and perception

Cultural (non-expert) knowledge may influence visual behavior. In the case of a painting depicting Christ, representatives of Western cultures (n=10) looked at his face significantly longer (mdn= 5099 ms) than the Sudanese people (n= 38; mdn = 1628 ms) (fixation duration time; U = 96,5; p<0.05). One of the reasons can be the cultural significance of Christ for Western visitors.

Beauty and perception

Beauty is one of the important factors stimulating the viewing of paintings. The study has shown that there is a positive correlation between the aesthetic assessment of paintings and the time spent looking at them (fixation duration time): Sudanese (n=54; rho= 593, p<0.01), Western (n=19; rho=814, p<0.01). In the context of the conducted study, it was also important that the participants recognized clearness and state of preservation of the paintings as an argument for the aesthetic value.

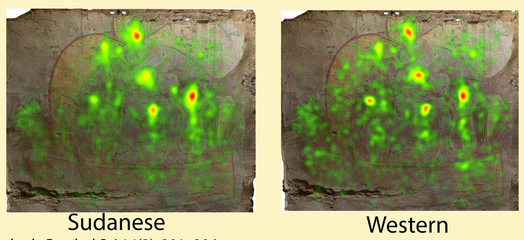
Reading emotions



Three Youths in a Fiery Furnace

Although reading emotions is one of the basic cognitive skills, it can be a challenge in paintings which are not well preserved or non-realistic.

The study showed a different assessment of the emotional content of the painting "Three Youths in a Fiery Furnace": X2: (df = 1); 7.36 = ; p <0.05, Phi = .322. People from Western culture (n=17) more often perceived them as negative "apocalyptic" (arguing it by Angel's sad face, sword and fire), while Sudanese people (n=54) perceived them as positive (a scene of care, joy or asking for something - the gesture of raised hands similar to praying act).



Sudanese Western

References

Kitayama S, Duffy S, Kawamura T, Larsen JT (2003) Perceiving an object and its context in different cultures: A cultural look at new look. Psychol Sci 14(3): 201–206.
Malgorzata Martens-Czarnecka, Nubia III, The Wall Paintings from the Monastery on Kom H in Dongola, Dongola 3, Warsaw 2011
Zaijia Liu, Xianjun Sam Zheng, Mingyang Wu, Rui Dong, and Kaiping Peng. 2013. Culture influence on aesthetic perception of Chinese and western paintings: evidence

CONCLUSIONS

This study was the first step in achieving the understanding of how "mental heritage" (cultural grounded cognitive mechanisms and knowledge) shape the understanding of the remains of the past (material heritage). In this case the statistical analyses did not show a significant difference between the participants in the context of holistic and analytical perception (distribution of fixations), which can mean that to some extent "foreign - far from contemporary" paintings have a similar effect on various people (although the inequality of research samples may be a limitation here). On the other hand participants differ in the context of recognition and interpretation of paintings, sensitivity to their elements as well as in some aspects of aesthetic value which is important in the context of educational inclusive programmes.

contact: t.michalik@uw.edu.pl

EXCELLENCE INITIATIVE RESEARCH UNIVERSITY | UNIVERSITY OF WARSAW | POLISH CENTRE OF MEDITERRANEAN ARCHAEOLOGY