



What Does It Mean to Be Human? The Effect of Context on Visitor Responses

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INTRODUCTION

What does it mean to be human? This question can be answered in an infinite number of ways from a variety of perspectives. It is also the central theme of the Smithsonian's Human Origins Program, and as such has played a key role in our interactive approach to presenting human origins to our diverse publics. This research project focused on understanding if and how the context of the question might shape visitor's responses. The ultimate goal of the project is to identify topics that visitors are most interested in to inform the Human Origins Program's future content development for our website, social media, public programming, and changing displays in the Hall of Human Origins.

SAMPLE

We analyzed a total of 5116 visitor responses from four samples:

- (1) Visitor responses typed into the interactive kiosk in the permanent Hall of Human Origins in the Smithsonian's National Museum of Natural History (NMNH) over a one month period in 2010, starting the day the exhibit opened, March 17, 2010, until April 17, 2010 (HHO Exhibit Kiosk; Figure 1).
- (2) Visitor responses written on sticky notes on a large board inviting visitors responses to the question "What does it mean to be human?" over a 9 day period in 2014: June 25-29 and July 2-6. This board was part of the Human Origins Program's 'Searching for Human Origins' tent area for the Kenya program at the 2014 Smithsonian Folklife Festival (Folklife Festival; Figure 2).
- (3) Visitor responses written on sticky notes on a large board inviting visitors responses to the question "What does it mean to be human?" from the first 3 of 19 libraries on the tour of the Exploring Human Origins traveling library exhibit, a collaboration between the Smithsonian's Human Origins Program and the American Library association (EHO Traveling Exhibit; Figure 3). The exhibit tour dates are from March 31, 2015 through April 28, 2017; responses analyzed here are from 2015: Chesterfield, VA (March 31-April 27); Orlando, FL (May 9-June 5); and Andover (June 19-July 16). The exhibit is still currently in Andover, so we only have a subsample of those total responses.
- (4) Visitor responses from short oral interviews by one of us (JO) in the Hall of Human Origins on July 15 and 20 (HHO Visitor Interviews).

Figure 1: A visitor entering their response into the interactive electronic kiosk in the Hall of Human Origins at NMNH. Insert on bottom left shows the screen which prompts visitors for their response.

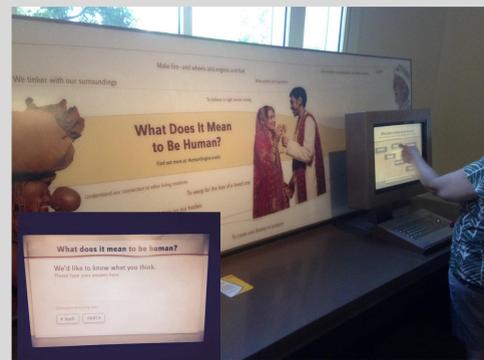


Figure 3: Sticky notes covering the large board inviting visitors' responses in the traveling exhibit at the Chesterfield County Public Library.



Figure 2: Sticky notes covering the large board inviting visitors' responses just outside the Human Origins Program's tent at the 2014 Smithsonian Folklife Festival.



METHODS

Responses were divided into 7 pre-determined categories, based on a preliminary analysis of the 2014 Folklife Festival responses and Rick Potts' previous categories (pers. comm.): Behavioral, Cognitive, Ecological, Emotional, Physical, Social, and Spiritual. Definitions for these categories are in Table 1. Responses coded as Other could not be categorized, such as those on sticky notes with drawings or in a foreign language (n=43 of the latter from the Folklife Festival). Some Other responses include references to pop culture; two examples from the Folklife Festival with several responses each include (1) YOLO, which means "You Only Live Once", from a song called "The Motto" by Drake, and (2) 42, the "Answer to The Ultimate Question of Life, the Universe, and Everything" from the Hitchhiker's Guide to the Galaxy. Responses that fell into more than one category - for example, "To breathe, feel, and think" were placed in all relevant categories, so the sum of all responses in all categories was slightly larger than the number of actual visitor responses. The total numbers of visitor responses in each category from all four samples are in Table 2 and Figure 4. Within each sample, subcategories were also identified during data analysis (e.g. "to dance" as a subcategory of Behavioral responses), and the frequency of responses in each subcategory was recorded. Since these subcategories were often slightly different for each sample, they were explored qualitatively.

Table 1: Definitions and descriptions of each category of visitor responses.

Category	Definition
Behavioral	Responses focused on specific actions and behaviors; for example., the act of making art or music, the act of playing, or the act of wearing clothing.
Cognitive	Responses focusing on mental actions and processes, including those deal with understanding, thought, knowledge, and senses.
Ecological	Responses dealing with human interactions with Earth, nature, and non-humans, including environmental modifications.
Emotional	Responses dealing with mood and intuitive feeling.
Physical	Responses dealing with anatomical and physical features and actions, including responses like DNA that refer to biological makeup.
Social	Responses focused on relationships, family and friends, and societal interactions.
Spiritual	Responses dealing with spiritual ideas, religion, God, beliefs, morality, and worshipping.
Other	Responses that do not fall into other categories

RESULTS

A chi-square test indicates that the distribution of responses in each category in the four samples are not distributed randomly ($\chi^2=323$, $df=21$, $p<2.2e-16$). In all samples, the highest proportions of responses were in the Cognitive category followed by the Emotional category, which together, generally made up about half of the total responses. A Spearman's rank order correlation is positive for all sample comparisons, generally high, and in 1/3 of cases is statistically significant (and nearly in another 1/3), indicating that the rank order of responses in most of the samples are also similar (HHOxHHO $r_s=0.6707$, $p=.0069$; HHOxFF $r_s=0.4286$, $p=.2894$; HHOxVI $r_s=0.6015$, $p=0.1147$; EHOxFF $r_s=0.6707$, $p=0.06987$; EHOxVI $r_s=0.9386$, $p=0.0006$; FFXVI $r_s=0.7857$, $p=0.0209$). Category qualitative results and subcategory similarities or differences are in Table 3.

Table 2: Total number of responses in each category from all four samples. In the last row, total is number of visitor responses in all categories / number of actual visitor responses. Number of visitor responses is higher than number of actual visitor responses because some responses were included in more than one category.

Category	HHO Exhibit Kiosk	Folklife Festival	EHO Traveling Exhibit	HHO Visitor Interviews
Behavioral	177 (7%)	141 (6%)	27 (5%)	3 (5%)
Cognitive	885 (33%)	556 (25%)	126 (24%)	25 (42%)
Ecological	211 (8%)	125 (6%)	61 (12%)	4 (7%)
Emotional	585 (22%)	477 (22%)	103 (20%)	14 (24%)
Physical	296 (11%)	86 (4%)	39 (8%)	2 (3%)
Social	238 (9%)	275 (13%)	57 (11%)	4 (7%)
Spiritual	182 (7%)	255 (12%)	57 (11%)	4 (7%)
Other	82 (3%)	262 (12%)	49 (9%)	3 (5%)
Total	2656 / 2600	2177 / 1975	519 / 492	59 / 49

Figure 4: Proportion of responses in each category from all four samples.

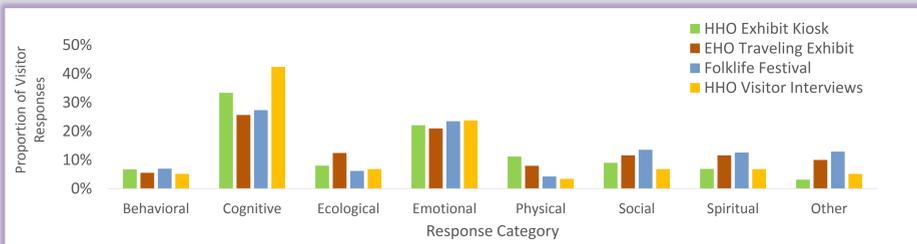


Table 3: Qualitative data exploration of each category of visitor responses from all four samples, including specific frequent and/or noteworthy responses.

Category	Qualitative Data
Behavioral	Behavioral responses most commonly involved creative and artistic elements rather than technological ones. In the HHO Exhibit Kiosk sample, 'to sing' was the most frequent response, followed by 'to play'. 'Play' was also frequent in the Folklife Festival responses, after 'art' and 'music' responses.
Cognitive	Cognitive responses were the most common in all samples. Two common responses included 'to live' (the most frequent response in the Folklife Festival and EHO Traveling Exhibit sample and the second most frequent response on the HHO Exhibit Kiosk sample) and 'to think' (the most frequent response in the HHO Exhibit Kiosk sample and the third most frequent response in the Folklife Festival sample). 'To learn' was the second and third most frequent response in the Folklife Festival and EHO Traveling Exhibit samples, respectively, but was only about 3% of the HHO Exhibit Kiosk sample.
Ecological	Sentiments about protecting the environment were common in Ecological responses (most frequent in the Folklife Festival sample, second most frequent in the HHO Exhibit Kiosk sample, and third most frequent in the EHO Traveling Exhibit sample), but so were opposing feelings of how humans dominate and destroy the planet (most frequent in the HHO Exhibit Kiosk sample and second most frequent in the Folklife Festival sample). This may represent a fairly universal tension between the potential for - and actual - positive and negative impacts we have on our surroundings.
Emotional	Emotional responses were overwhelmingly positive. In all samples, responses about love ('to love' or 'to be loved') were the most frequent, and the second most frequent response was 'to feel'. Responses included very few negative emotions such as fear and sadness, although 'to cry' was nearly 5% of the HHO Exhibit Kiosk responses. A combination of the words life, laugh, and love was noted in the Folklife Festival sample, but not the other samples.
Physical	Physical responses were the third most common category in the HHO Exhibit Kiosk but were far less common in the other three samples. This could be interpreted to indicate that visitors at the kiosks are affected by the content of the exhibit, which includes many objects and graphics focused physical or anatomical features. The most frequent physical response in the Folklife Festival sample involved 'Homo sapiens', which was very infrequent in all other samples. Perhaps the Folklife Festival visitors were thinking about the universality of being human. Many physical/anatomical responses in all samples included features that aren't unique to humans.
Social	Social responses most often referenced friends and family, and often included elements of responsibility. This echoes the ecological theme of caring for others as well as our environment. 'To help' and 'to take care' were the most frequent responses in the Folklife Festival sample, and 'responsibility' and 'taking care of ourselves, others, or things' were the first and third most frequent responses in the HHO Exhibit Kiosk sample.
Spiritual	Spiritual responses often included the word God or a related element (to be 'created by God' or to be 'created in the image of God') - this was the second most frequent response in all samples. In the Folklife Festival and EHO Traveling Exhibit samples, 'to make mistakes' or 'to sin' were the most frequent responses, while these kinds of Spiritual responses were less than 3% of the HHO Exhibit Kiosk sample. In the HHO Exhibit Kiosk sample, responses most frequently included the word 'belief'.

Figure 5: Word cloud of all responses from all samples. The size of words indicates the overall word frequency.



CONCLUSIONS

Results from this study will allow us to adjust our approach to future content development for the Human Origins website, public programming, social media, and exhibit. While there are some variations in the samples based on context, similar patterns and subcategories appear in each sample, and Cognitive and Emotional responses make up nearly 50% of each data set. For example, Physical responses are highest in the HHO Exhibit Kiosk sample compared with any of the other samples, yet Cognitive and Emotional responses are still most frequent (in that order) in this sample. We conclude that visitors in the exhibit have the same universal thoughts about what it means to be human as in other settings. Recognizing this, we can focus on ways to connect scientific evidence to the things people most often think about when it comes to being human - cognitive and emotional aspects - including the evolutionary foundations of these aspects of being human. Future work could include incorporating responses from the Human Origins website as another sample, comparing responses among the 19 EHO Traveling Exhibit locales, increasing the Visitor Interview sample size, and conducting Visitor Interviews in other NMNH exhibits.

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