A visit study that helps explainers

A case study with *Aventura pelo corpo humano*

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a city of contrasts
• What behaviors do children and their peers (other children) express while engaging with modules in an interactive exhibition? Age range: 5 to 8 years old

• Different activities (and different designs) generate different types of engagement?

• To what extent do explainers influence the engagement of children?
  * 200 out 212 Brazilian science centers analyzed by Carletti and Massarani (2015) have explainers

• What are the contributions of research to practice in science communication activities in science museums?
• Hands on exhibition
• Objective: to stimulate discoveries about the human body in an interactive way
• Comprises 11 exhibits
• We took 7 exhibits to a public school in Rio

What happened to my body? (storytelling)

Similarities and differences

- Human russian doll
- This is stomach!

Organ Jigsaw Puzzle
Modeling the brain
Inside the nose

*Adventure through the human body*
The study

- Partnership between Museu da Vida and Oregon State University / Support from CNPq and Faperj
- Adapting methodology to local reality, based on available technology
- Data collection: observation *in loco* with audio and video recording (recorder and GoPro fixed on an observer)
- When and where: November 3rd to 6th, 2015 | Municipal School Alagoas (Pilares, Rio de Janeiro)
- Participants: 77 low income kids, distributed in 13 classes, from Kindergarten to 3rd year of Elementary School, aged between 5 and 8 years old
- Science communication activity - all classes (18) of the school were attended
What is engagement?

"In terms of informal science education, engagement is a loosely defined term generally referring to behaviors that demonstrate interest in or interaction with a science-related activity or experience. Engagement is often considered an integral part of participation in or learning about science, or as a stepping stone to further participation or learning. However, how the term engagement is being used in a specific instance is rarely well defined."

(McCallie et al, 2009, p. 20).
Types of engagement

What are the engagement levels that children and their peers have when they visit an interactive exhibition, according to the different types of activities offered?

• **Type 1**: Little participation, with little or no protagonism of the children. Activities related to Deficit model (Lewenstein e Brossard, 2010);

• **Type 2**: Children can interact with exhibits, but still depend on explainers to perform the activity and the protagonism is still low;

• **Type 3**: Children participate in the activity as protagonists, but mediation is still determinant;

• **Type 4**: Children are considered an integral part of the activity and the exhibit, which leads to a greater level of engagement and protagonism, since the activity can happen with little interference from the explainer.
Coding and analysis

• Code definition – bottom-up

• Two main groups: engagement (behaviors expressed by children, including emotions and non-oral reactions) and mediation strategies (resources used by explainers)

• Some mediation codes: explaining, instructing, asking, conducting behavior, correcting information, encouraging, stimulating interaction (with other children, objects, or the human body itself)

• Using Dedoose, an online software
Touching, smelling, talking about the objects and the activity
Some results/insights...

- The experience of the kids changes according to the activity, the exhibit and the mediation of the explainer

- Activity transformed by mediation: *This is stomach!*
  - Excessive use of technical terms
  - Focus on the explanation than on the experiment itself;
  - Long duration of the activity
  - Greater presence of code "expression of restlessness" - 66% of the analyzed groups, against a maximum of 23% in the other modules
  - Need of adaptation and reorientation of the explainer
• Way that the kids were distributed in the circle
Insights

• Some of the results we know empirically, but it has been useful having the information from the research approach, in order to persuade the need of change in the museum
• Rethinking the training of explainers (and the role of the explainers)
• Stimulate children's autonomy so that they engage and explore more freely the activity
• Challenge: how to encourage the autonomy of the children's audience without losing control of the group?
Thank you!

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