REVEAL

Instrument/Measure: *Museum Intergenerational Communication Coding Rubric*

Type:	Video coding rubric
Number of items:	Three dimensions
Primary construct:	Level of intergenerational communication within families at exhibits
Intended audience:	Intergenerational visitor groups in a museum
Language(s):	English, Spanish
Suggested citation:	Pattison, S., Rubin, A., Benne, M., Gontan, I., Andanen, E., Shagott, T., Francisco, M., Ramos-Montañez, S., Bromley, C., & Dierking, L. (2016). *The impact of facilitation by museum educators on family learning at interactive exhibits: Results of a quasi-experimental study*. Manuscript in preparation.

The Museum Intergenerational Communication coding rubric (MIC) is designed to assess three aspects of intergenerational communication for families at museum exhibits: frequency of adult communication, frequency of child communication, and level of interactive communication between adult and child family members. For each of these, coders watch videotaped visitor interactions and rate the level of communication on a scale of one (least frequent or interactive level of communication) to seven (most frequent or interactive level), relative to three anchor points. Each of the three aspects is theorized to represent an independent dimension of family communication. Therefore, the three values are used independently in analysis, rather than being combined into a single score.

Development process

The full MIC development process is described in Pattison et al. (2016) and included initial conceptualization of the three dimensions of intergenerational communication (Pattison, Randol, et al., 2016), operationalization of the dimensions and piloting by the research team, formal testing and interrater reliability assessment with four new coders, testing by two bilingual/bicultural researchers with video of Spanish-speaking visitors, and final reliability and validity assessment with 263 family groups videotaped engaging with interactive math exhibits.

Cultural assumptions and considerations

- Communication is a complex phenomenon. The MIC assesses levels of communication on a basic level and does not address more nuanced and dynamic aspects, such as flexibility, leadership, adult or child initiation, cohesion, etc.
- The MIC was not designed to make value judgements about "better" communication within families, but rather to describe family learning at exhibits and understand the impact of different educational strategies and contexts on family communication dynamics.
- Cultural differences across families will influence intergenerational communication. For example, in some families, children may be expected to listen quietly and watch as adults demonstrate and explain the exhibit. The MIC can identify these differences across families at a basic level but was not designed to make value judgements about better family dynamics or correct approaches to family learning.

Reliability and validity evidence

- Interrater reliability for the three dimensions varied during testing and final coding. Intraclass correlation coefficients during initial testing ranged from 0.78 to 0.94, indicating that the majority of the variation across ratings (at least 78%) was attributable to differences across participant groups, rather than differences among raters. For the final coding, reliability was 0.70 and 0.69 for adult communication and interactivity, respectively. However, the coefficient for child communication was lower (0.49). Therefore, results with this measure must be interpreted cautiously.

References

Pattison, S. A., Randol, S., Benne, M., Rubin, A., Gontan, I., Andanen, E., … Dierking, L. D. (2016). *Modeling staff-facilitated family learning at interactive math exhibits: A design- based research study*. Manuscript in preparation.

Pattison, S. A., Rubin, A., Benne, M., Gontan, I., Andanen, E., Shagott, T., … Dierking, L. D. (2016). *The impact of facilitation by museum educators on family learning at interactive exhibits: Results of a quasi-experimental study*. Manuscript in preparation.

Coding Rubric: Intergenerational Family Communication

	Level 1 (low)	Level 4 (medium)	Level 7 (high)
Frequency of child communication *(doesn't matter which child or who the child is talking to)*	Children in the family group almost never talk throughout the entire interaction.	Children in the family group spend about as much time talking as not talking throughout the entire interaction (e.g., children talking interspersed with frequent quiet periods, children talking intensely for half the interaction and quiet for the other half).	Children in the family group talk almost constantly throughout the entire interaction (e.g., almost continuous child monologue, with very few moments of silence and/or ongoing conversation in which at least one child contributes to almost every conversational exchange).
Frequency of adult communication *(doesn't matter which adult or who the adult is talking to)*	Adults in the family group almost never talk throughout the entire interaction.	Adults in the family group spend about as much time talking as not talking throughout the entire interaction (e.g., adult talking interspersed with frequent quiet periods, adults talking intensely for half the interaction and quiet for the other half).	Adults in the family group talk almost constantly throughout the entire interaction (e.g., almost continuous adult monologue, with very few moments of silence and/or ongoing conversation in which at least one adult contributes to almost every conversational exchange).
Interactivity of family communication *(child and adult must be talking to each other or directly building on each other's comments)*	When family members talk, children and adults almost never talk to each other or to the group (e.g., all adult-adult, child-child, or adult/child-facilitator talk).	When family members talk, children and adults are just as likely to talk to each other or the group as not.	When family members talk, children and adults almost always talk to each other or the group (e.g., almost all child-adult talk and almost no adult-adult, child-child, and adult/child-facilitator talk).

Coder instructions:

- Watch the entire video, then code each dimension of intergenerational family communication based on the interaction overall. For example, if for half of the video the children in the group were almost always talking and in the other half they almost never did, the overall frequency of child communication would be rated level four.
- Use the 2–3 and 5–6 ratings to indicate intermediate levels between the three anchor positions.
- For frequency of child and adult, do not take into account the nature or type of talk. Instead, focus only on the proportion of overall time that family members are talking and verbally participating in conversational exchanges.
- Do not account for child age. Code all interactions as if all members of the group were capable of equally participating in conversations.
- For interactivity of family communication, "talking to each other" is defined broadly as comments from an adult to a child or vice versa, as well as comments from an adult or child that are directed to the family "group" (see below). The intergenerational partner does not need to clearly respond to or acknowledge the comments (e.g., an adult directing a child and the child ignoring the adult would still be counted as "interactivity"). Types of conversations NOT part of this category include children talking to only other children, adults talking to only other adults, and children or adults talking to staff.
- Adult or child talk to the "group" that is not clearly directed at a specific individual counts as interactivity as long as the intergenerational partner is clearly verbally or nonverbally responding or paying attention.
- Code all talk for visitors interacting at the exhibits, regardless of whether or not the individuals appear to be from the same group. This means that talk from any child or adult engaging with the exhibits counts towards the intergenerational communication ratings. For example, if a child from one family talks almost continuously for the first half of the video, then that family leaves and in the same video a child from what appears to be another group talks almost continuously for the second half the video, the whole interaction would be rated as 7 for frequency of child communication. For interactivity, provide an overall rating for all of the groups within the video, "averaging" across groups if needed. For example, if there are what appear to be two separate families at the Designing for Speed exhibit throughout the same video and one family is highly interactive (7) while the other family is not at all interactive (1), the overall rating for the video would be 4.
- A group does not have to be talking throughout the interaction to be rated high for interactivity. Ratings for this item should be based on the portions of the interaction during which one or more family members is talking. For example, if an adult and a child only talk for one minute of a six-minute interaction but during that minute all of the talk is highly interactive between the child and the adult, this interaction would be rated as a seven for interactivity. Also, all portions of the video during which at least one family member is talking should be counted towards interactivity, regardless of whether or not all family members are present. For example, if an adult and a child are working silently at an exhibit for the first half the interaction, the adult leaves, and the child talks to the facilitator throughout the entire second half, this would be rated as a one for interactivity.