Chapter 17

Accessing Science Museum Educators’ Discourse Through Multimodal Narratives

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ABSTRACT

Museum educators play an important role in science communication, as they connect elements of an exhibit with visitors through emotion-driven experiences that are meaningful to them. Language is their main modus operandi in face-to-face interactions, but little is known of how they use it to communicate science, in part because little attention has been given to their practices and professional development. Nowadays, museums are changing, and science communication has become more demanding as these institutions exhibit hot themes of science. In this context, it is important that museum educators become aware of how they communicate science with an intended audience and reflect on how their practice can be improved. In this chapter, the authors focus on the way multimodal narratives can be used as a tool to access museum educators’ discourse as well as how to promote museum educators’ reflection about their practice and their professional development.

INTRODUCTION

Science museums, initially created to preserve and study collections of objects of scientific interest, have expanded their mission to include an educational purpose that can contribute to supporting the process of adults’ lifelong learning. This has led to the reinvention of the museum space so that exhibitions can be framed around hot scientific themes that are pressing society (e.g. global warming, sustainable development), or around processes of science (e.g. modeling or contemporary scientific research), that attend to the visitors’ needs, interests and motivations (e.g. Dillon et al., 2016), in contrast with tradi-
tional exhibitions that provide friendly interpretations of the message and do not encourage visitors to go beyond what they already know. Exhibitions on hot themes cover complex scientific ideas, requiring visitors to think critically about science (Rennie, 2014). As a result, science museums face the challenge of how to represent science in a version that encourages engagement and that is meaningful to an intended audience (Tlili, Cribb, & Gewirtz, 2006). One way to move forward is to present key ideas in a clear and simple story (Rennie, 2013), told mainly through objects and interactive exhibits explicitly linked together. However, because resources do not talk for themselves, front-line museum educators (museum educators, henceforth) may aid visitors to go beyond what they already know, and to create emotional links with what is being presented (Rennie, 2014). Hence, they can impact on visitors’ learning experiences in multiple ways, including inspiration and creativity, attitudes and values, aesthetic appreciation, knowledge and understanding in science, among others, as has been accounted in a diversity of frameworks (see for example the six strands of science learning in Bell, Lewenstein, Shouse, and Feder (2009), or the Generic Learning Outcomes in Hooper-Greenhill (2007)).

Communicating science in museums is a challenging and complex task for museum educators, who are asked to support visitors’ learning in diverse types of activities, ranging from guided visits to unstructured interactions in the exhibition area. They act between unseen or hidden science of the curatorial department and the visitors (Anderson, Cosson, & McIntoshosh, 2015). What they say is, to some extent, shaped by the institutions’ missions and rules (Clark, 1996), but their discourse is not prescriptive. Indeed, they need to adjust the content of the message and the form of the language used to engage in successful science dialogues with an intended audience, i.e. dialogues where any participant can ask questions, give, and evaluate an answer (Gilbert, 2013). The emergent dialogues are unplanned and unfold as a museum educator and an audience coordinate their individual actions to negotiate meaning (i.e. a joint activity), which is influenced by visitors’ feelings, beliefs, desires, and the role they assume in the conversation (Clark, 1996). There are some good practices that museum educators need to have in mind to enhance the coordination between what they mean and what their addressees understand them to mean (e.g. Laszlo, 2006; Stocklmayer & Rennie, 2017). In particular, museum educators need to take time to know the audience (Stocklmayer & Rennie, 2017); to carefully select the content (e.g. key ideas to convey and their level of precision, complexity, and abstraction (Yeo & Gilbert, 2014)); and to adjust the form of language, both at a macrolevel (e.g. the structure of the discourse itself) and at a microlevel (e.g. lexicon, use of analogies), to an intended audience. As a result, dialogues on hot science themes may have different levels of complexity and formality depending on the audience: from those that focus on an awareness of scientific issues, to those in which participants reflect on the impact of science on their lives. However, little is known on how museum educators use language to communicate science in museums, in part because little attention has been given to their professional development (Patrick, 2017). The majority of known studies focus on museum educator-student interactions during guided school visits. While some studies suggest that museum educators tend to transfer their knowledge to students, to use scientific terminology without clarification, and to neglect students’ needs (Cox-Peterson, Marsh, Kisiel, & Melber, 2003; Tal & Morag, 2007), other studies show that museum educators are receptive to students’ needs, employ and adjust the depth and content of the message by using a diversity of strategies (Tran, 2007). Additionally, Pattison and Dierking (2012, 2013), in studies with families in a science museum, pointed out that museum educators employed several strategies (e.g. checking in, guiding, modeling, encouraging) to facilitate family learning. These studies provide few insights on how museum educators use language in science communication, as in most of them data were collected by observing and/or interviewing museum educators about their pedagogical approaches. Additionally,