University of BRISTOL

Graduate School of Education

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A Learning Research Agenda for Natural History Institutions

Key findings and implications for Policy Makers

In order to be effective, a learning research agenda for natural history museums must be flexible and speak to the differing needs of various stakeholder groups. In particular, it must make sense to practitioners (generally based in natural history institutions), researchers (often, but not always, in academic institutions) and administrators.

Practitioners seek:

- Input into, awareness of, and agency around key learning challenges in natural history settings;
- New ideas for programming or exhibition design;
- Evidence of the value of learning in natural history environments;
- Understanding why certain practices work and under what conditions;
- Ways to share their work with professional colleagues and develop their professional skills.

Researchers seek:

- A theoretically-informed understanding of the sector and learning activity within it;
- Complex problems that will help drive their line of research forward and lead to potential break-throughs in methods, theory, and intervention science;
- Opportunities for collaboration with practitioners and pathways for their research to directly influence practice; and,
- Research studies that will be publishable.

Museum administrators need:

- Evidence to fundraise around;
- Evidence to manage around;
- Evidence of the credibility of exhibitions and activities;
- A compelling and shared vision for the future of natural history museums that keeps them relevant and vibrant well into the 21st century, and that can catalyse rapid and wide-spread improvement in the sector.

The research

Understanding the full impacts of museums is challenging. The sector lacks an understanding of its medium and long-term impacts and there is debate as to what kind of impact should be expected of museum experiences. Although small-scale evaluations have occurred across these settings, they have often focused on visitor satisfaction and delivery processes. The Wellcome Trust's 'Analysing the UK Science Education Community: The contribution of informal providers' has also signposted new directions – strongly emphasising the need for a collaborative research agenda and a systematic approach to evaluation in informal science education, including natural history museums.

This project set out to produce a coherent, theoretically-informed research agenda that would greatly enhance the field's ability to respond to 21st century challenges, drive innovation, assess the true impact of activities, and communicate clearly to stakeholders in policy, science, and education about the value of natural history institutions.

The process involved organising six seminars during which participants identified and discussed problems of practice, collected examples of extant research and practice, identified relevant academic disciplines and theory that could potentially be relevant to practice, collaborated on joint research projects, and discussed ideas about how an agenda could help to bring together research and practice and guide the field into the 21st century. Crucially, these seminars allowed participants to hear from researchers and practitioners working across the UK and internationally and to consider a range of theoretical lenses through which to view learning in natural history environments.

Research design

The Natural History Museum, London, King's College London and the University of Bristol, funded by the Economic and Social Research Council facilitated a series of six seminars, over two years, to build a collaborative and theoretically informed learning research agenda for natural history museums . Museum learning practitioners and academics from a number of disciplines across the UK came together to examine the complexities of learning in rich natural history environments. A final dissemination conference, which launched the agenda, was held at the Natural History Museum in January 2016.

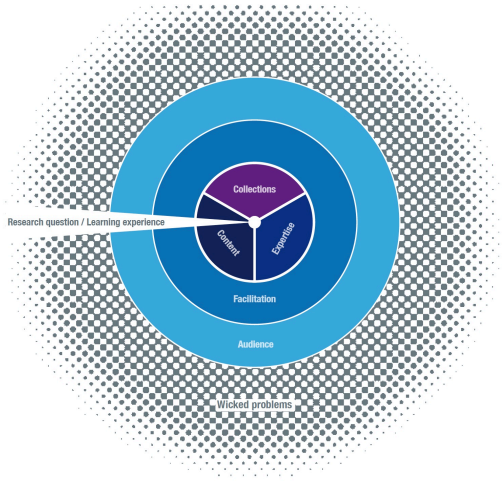

Fig 1. Conceptual map of learning in natural history institutions

Further information

The process of conversations, meetings, and exploration by researchers and practitioners of natural history learning led to a research agenda that is structured around the following major elements:

- A conceptual map of learning in natural history institutions;
- Problems of practice, (ongoing conversations in the field); and,
- Example research questions.

The agenda is intended to highlight key challenges for the field. It is not meant to be fixed; it is expected to change over time and to be used in different ways by different stakeholders.

A conceptual map of learning in natural history institutions

The map offers a straightforward way of looking at the complexity of practice, particularly in terms of identifying key research moments to study. It incorporates five interlinked and interactive dimensions in natural history learning experiences, all of which are situated within the broader context of the wicked problems confronting all of our visitors. At the map's core are collections, content and expertise, three dimensions that characterise the uniqueness of natural history institutions as distinct from other contexts for learning.

Collections:

All natural history learning institutions have collections which are a resource that can be drawn upon by scientists, educators or the public to advance learning about the natural world. The collections reflect the fields of study, expertise, and values as well as the history and geography of the institution.

Content:

Objects and collections are explicitly linked to core natural history content. Contemporary content might include biodiversity, evolution, climate change and sustainability as well as processes of science (for example, modeling and hypothesising) and behaviours and values (for example, stewardship and conservation) associated with these areas.

Expertise:

Natural history institutions have staff with specialised knowledge and skills related to content, collections and/or learning. Expertise is held by individuals who may include scientists, curators/collections managers, educators and experience developers who work to help audiences engage with the natural world. This expertise may be found within institutions or come from external collaborators.

Surrounding the core dimensions are facilitation and audience. Facilitation activates collections, content, and expertise for target audiences.

Facilitation:

Facilitation transforms collections, content and expertise into learning experiences that reflect the needs and interests of audiences. Institutions facilitate learning in many ways including face-to-face interaction (for example, talks, tours and workshops), exhibitions, interpretive signage, interactive displays, self-guided activities and social media. Facilitation can occur through both on-site and off-site programming.

Audiences:

Audiences are distinct groups who may engage with content, collections and expertise through facilitated experiences. Audiences vary by institution and include, for example, families, educational groups, adults, specialist groups (for example, natural history societies, citizen science participants and policy-makers) and online visitors. Crucially, audiences include those groups whom the institution is already serving, as well as those it aspires to engage with in the future.

Further information

The transects can be read as both specific learning experiences and as openings for research. A specific learning experience can be seen as a transect that crosses a number of dimensions. In order to develop a learning experience, the institution draws upon its core resources (collections, content, expertise) with very specific ideas of the target audience. The institution and the audience meet through facilitation. The impetus for engagement may come from the core institutional resources and sometimes it can come from the audience interests or engagement, something that museums increasingly encourage. Done well, over time, both the institution and its audiences become more knowledgeable about, and connected to, each other. The institutional core should evolve to reflect its own commitments as well as those of the audiences it serves.

The transects depicted in the model also illustrate where there are openings for research. Designing learning experiences can be challenging and there are many problems of practice that emerge. These problems may start in one dimension of the model but invariably cross others. The problems of practice form the base of the research agenda and highlight the complexities of learning and research in these institutions. The map is intended to scaffold the formulation or articulation of problems of practice, by providing coherency to the interacting conceptual elements of learning in natural history museums.. It provides a grammar for asking potentially fruitful questions and guards against either researchers or practitioners framing things in ways which are too narrow to touch the active ingredients of any learning situation. We anticipate that the map will support the development of a common language and shared goals across the research-practice boundary.

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