



Connecting Museums: Science Museums as Internationalization Hubs in Higher Education

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ABSTRACT

The present essay is a report based the experience of internationalization between the Science and Technology Museum of the Pontifical Catholic University of Rio Grande do Sul (MCT-PUCRS), the Great North Museum: Hancock (GNM), of Newcastle University and the Oxford University Museum of Natural History (OUMNH), of the University of Oxford. It is about the building of a network between these institutions to discuss education, management and leadership in university science museums. Since the creation of this network in 2016, called Connecting Museums, international meetings have been held between researchers and professionals in the field and opened to the interested public. With actions related to teaching, research and extension, science teachers training activities have been organized for teachers from public and private schools, as well as the promotion of expertise exchanges between professionals regarding the management of university science museums. Publications such as articles were published in scientific journals, papers were presented in national and international conferences, and even a book was organized as the first fruits of Connecting Museums. All activities were promoted and supported by the British Council in Brazil. The expansion of the network begins in 2020 with a new configuration of the original event that bears its name. For the first time it will take place outside the MCT-PUCRS in Porto Alegre, with planned activities guided by the Museum Leaders' Report, produced by Saïd Business School, of the University of Oxford, with the aim to train future Brazilians museums leaders.

KEYWORDS

Internationalization. Education. Higher education. Science museums.

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Connecting Museums: Museus de Ciências como Hubs de Internacionalização no Ensino Superior

RESUMO

O presente trabalho se constitui em um relato sobre a experiência de internacionalização entre o Museu de Ciências e Tecnologia da Pontifícia Universidade Católica do Rio Grande do Sul (MCT-PUCRS), o Great North Museum: John Hancock (GNM), da Newcastle University, e o Oxford University Museum of Natural History (OUMNH), da University of Oxford. Trata-se da constituição de uma rede entre estas instituições que discute educação, gestão e liderança em museus universitários de ciências. Desde a criação desta rede, denominada Connecting Museums, em 2016, foram realizados encontros internacionais entre pesquisadores, profissionais da área e público interessado. Como ações da rede em ensino, pesquisa e extensão – desde então –, foram organizadas formações para professores de escolas públicas e privadas em ciências, bem como a troca de expertise entre profissionais da área no que tange a gestão de museus universitários de ciências. Publicações como artigos, trabalhos científicos apresentados em conferências nacionais e internacionais e, ainda, um livro são os primeiros frutos do Connecting Museums. Todas as atividades foram fomentadas e tiveram apoio do British Council. A ampliação da rede inicia-se este ano com uma mudança na configuração do tradicional evento que leva seu nome, que pela primeira vez ocorrerá fora do MCT-PUCRS em Porto Alegre, com atividades planejadas e orientadas pelo Museum Leaders' Report, produzido pela Saïd Business School, da University of Oxford, visando a formação de futuros líderes para os museus brasileiros.

PALAVRAS-CHAVE

Internacionalização. Educação. Ensino superior. Museu de ciências.

Connecting Museums: Museos de Ciencias como Hubs de Internacionalización en la Educación Superior

RESUMEN

Este ensayo es un informe sobre la experiencia de internacionalización entre el Museo de Ciencia y Tecnología de la Pontificia Universidad Católica de Rio Grande do Sul (MCT-PUCRS), el Great North Museum: John Hancock (GNM), de la Newcastle University y el Oxford University Museum of Natural History (OUMNH), de la University of Oxford. Se trata de la construcción de una red entre estas instituciones para discutir la educación, la gestión y el liderazgo en museos universitarios de ciencias. Desde su creación, en 2016, lleva el nombre de Connecting Museums, y se celebran reuniones internacionales entre investigadores y profesionales del campo abiertas para el público interesado. Con acciones en la docencia, la investigación y la extensión, se ha organizado capacitaciones para maestros de escuelas públicas y privadas en ciencias, así como el intercambio de experiencia entre profesionales con respecto a la gestión de museos de universitarios de ciencias. Publicaciones como artículos en revistas científicas, comunicaciones presentadas en conferencias nacionales e internacionales e, incluso, un libro, son los primeros frutos del Connecting Museums. Todas las actividades fueron promovidas y apoyadas por el British Council de Brasil. La expansión de la red comienza este año con una nueva configuración del evento tradicional que lleva su nombre, que por primera vez tendrá lugar fuera del MCT-PUCRS en Porto Alegre, con actividades planificadas y guiadas por el Museum Leaders' Report, producido en la Saïd Business School, de la University of Oxford, con el objetivo de formar futuros líderes para los museos brasileños.

PALABRAS CLAVE

Internacionalización. Educación. Educación superior. Museos de ciencias.

Introduction

When organizing an experience report related to the theme of internationalization in higher education, we aim to tell how this initiative has been structured – and how it has been achieving success and expanding since its organization. In addition, we would like to highlight the importance of its specific structure, and its perhaps underestimated potential to capture projects, and the establishment of international partnerships between institutions: this structure is based on the museum as an institution in a broad sense.

It is common that in higher education institutions, internationalization projects are more linked to the Graduate Programmes (GPs) of universities - or even to undergraduate courses - allowing for an exchange of expertise between professors, researchers and students. Our point here is to demonstrate how, in addition to GPs and graduation, other spaces – in this case, university science museums – can become important hubs for internationalization involving teaching, research and extension.

In this sense, this report narrates the experience of internationalization among the Museum of Science and Technology of the Pontifical Catholic University of Rio Grande do Sul (MCT-PUCRS); the Great North Museum: Hancock (GNM), of Newcastle University; and Oxford University Museum of Natural History (OUMNH), University of Oxford. It concerns the creation of a network between these institutions called Connecting Museums, which discusses education, and the challenges of management and leadership in university science museums.

PUCRS-UK Internationalization Strategy: How it All Started...

The history of *Connecting Museums* began in 2015, even though initially there was no intention of creating a network like this, nor a view on the possibilities of connections that would occur from it with universities in the United Kingdom. Since its consolidation, one of the developments that has arisen from the relationship between PUCRS with Newcastle University and the University of Oxford, is MCT-PUCRS link to the Science in Universities Museum Group (SUMs), a discussion group among members of British university science museums, whose international guests - so far - in addition to the MCT-PUCRS, are the Museum of Natural History and Science, from the University of Porto, in Portugal, and the Harvard Museum of Natural History, from Harvard University, in the United States (FERRARO *et al*, 2019).

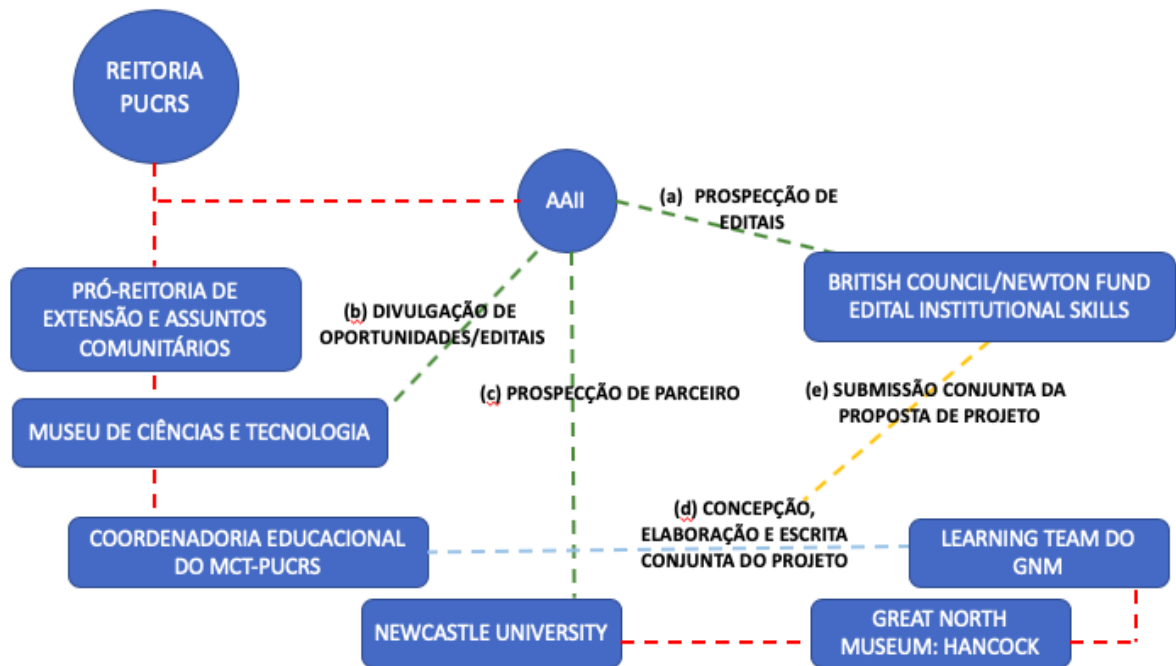
All SUMs meetings are held in the UK twice a year, each one hosted by a different museum. The group includes the museums of the University of Oxford, Newcastle University, University of Birmingham, University of Cambridge and the University of Manchester (OUMNH, 2020). SUMs aims mainly to provide a series of different activities that involve the development of *science capital*, a topic that has been widely discussed in the United Kingdom based on the research of Louise Archer and

other collaborators in projects that address the aspiration to science, taking as its research focus under-represented groups in the scientific universe (ARCHER; DEWITT; WILLIAMS, 2014; ARCHER *et al*, 2015).

The term *science capital* was developed by Archer *et al* (2015) based on the concept of *symbolic capital* used in Pierre Bourdieu's sociology. *Science capital* is associated with the ways in which we consume science; our relationship with elements of the scientific field – content, spaces, and personalities – associated with the way we are exposed to science throughout life.

However, before this movement – still in 2015 – the British Council of Brazil, (supported with funding from the *Newton Fund*) devised a programme called *Institutional Skills*, with the objective of encouraging and supporting projects related to the training, qualification and engagement of communities and health workers of Brazilian institutions. Priority areas included Education (BRITISH COUNCIL, 2015). The public notice regarding the programme was sent to the Educational Coordination of MCT-PUCRS by the, then-called, Advisory for International and Interinstitutional Affairs (AAII) of the university, a structure that has now been reformulated and restructured and whose name has been changed to the Office of International Cooperation, now linked to the Office of the Pro-Vice-Chancellor of Research and Post-Graduation at PUCRS (FERRARO, PIRES, SHINKAY, 2016).

Figure 1. Organization chart and flow of project prospecting and fundraising of AAII and MCT-PUCRS in 2015.



Source: It was created by the authors.

Figure 1 illustrates the relation between the academic units involved, from the initial notice to submitting the proposal at the end of 2015. The red lines indicate the link between the different university sectors. At that time, AAI was directly linked to the Rectory of PUCRS; it was responsible for offering the notice to the Educational Coordination of MCT-PUCRS, then under the scope of the Office of the Pro-Vice-Chancellor of Extension and Community Affairs of the university. In addition, AAI made initial contacts with Newcastle University, which culminated in the joint work of the MCT-PUCRS educational sector with the GNM *Learning Team* - AAI's actions are represented by the green lines. The conception, elaboration and writing of the project (represented by the blue line) happened jointly, as well as its submission (yellow line) to the *Institutional Skills* notice, since the project should have a coordinator in Brazil and another one in the United Kingdom.

One of the programme's premises was that the Brazilian institution should work together with a British institution, in order to foster the relationship between Brazil and the United Kingdom. Accordingly, to meet this demand, PUCRS proposed that Newcastle University should be its partner in this endeavour. In addition to furthering the relationship that already existed between the universities, the selection criterion was based on the structural similarity between the institutions, mainly with regard to the fact that both have science museums: MCT-PUCRS and GNM, respectively (FERRARO, PIRES, SHINKAY, 2016).

Thus, the institutions signed a partnership and they collaboratively created two exhibitions on the theme of Evolution in their museums. After a series of work missions in Brazil and the United Kingdom, the exhibition "Brands of Evolution" was conceived at MCT-PUCRS and "Bones: skeleton secrets of animal world" at GNM. The aim of the joint project was – through the exhibitions – to offer training for science teachers on their themes, supporting them so that after training they could produce plans to conduct their classes in museums (FERRARO, PIRES, SHINKAY, 2016). Since its inauguration, in March 2017, the Brazilian exhibition – supported by the funding, - has already received more than 600 thousand visitors and was used to train around 2000 teachers, with the distribution of more than 3 thousand copies of didactic materials produced specifically for understanding the concepts within it.

The University Museum Group

Once the partnership was consolidated, throughout 2016, in the run up to the inauguration of the exhibition at MCT-PUCRS, there were several project meetings, and, the *University Museum Group* (UMG) met in September of that year. The UMG has a different scope than the SUMs, as its breadth is greater, and it is not restricted to science museums; adding British institutions that are also responsible for art galleries, collections and archives, among others. In this meeting, the theme was partnerships between these institutions with international partners: (UMG, 2016). The closing speech

was made by Matt Hancock, then Minister of State for Digital and Culture, emphasizing the importance of the UMG component institutions for teaching, learning and research, as well as the relevance of the connection of these institutions with others of international origin (FERRARO *et al*, 2019).

MCT-PUCRS was invited to join the meeting as an international partner of GNM, at Newcastle University. Representatives from both museums described how the partnership was formed. During the conference, the director of OUMNH (University of Oxford) was interested in the way in which the university museums in Porto Alegre and Newcastle were formed, and the representatives of MCT-PUCRS – the then Educational Coordinator, and the Director of Graduate Studies of PUCRS – were invited to a courtesy visit to Oxford University, where they visited the OUMNH facilities and held a meeting about the possibilities of science museums as hubs for internationalization.

Considering that university science museums have research structures linked to them, a close relationship between them would be interesting, so that future projects involving the three institutions, PUCRS, Newcastle University and University of Oxford, could be considered.. Thus, as an initial strategy, it was decided to organize an event to discuss education in science museums, their management modes and their leadership associated with innovation and creativity processes. This idea served as the embryo of the event that would occur in 2017 named *Connecting Museums* (UK-BR): leadership, innovation and education in science museums (PUCRS, 2017).

Figure 2. Identity of the Connecting Museums event that now represents the network of PUCRS, Newcastle and Oxford.



Source: Created by the Visual Programming sector of MCT-PUCRS.

The first iteration of the event was divided into two parts. First there was an institutional speech by the Pro-Rector of Research and Graduate Studies at PUCRS welcoming everyone and emphasizing the importance of the scope of the conference. Then, the managers of the three museums presented and explained the management and innovation models for their museums. Then there was a round table discussion open to questions from the public (PUCRS, 2017; FERRARO *et al*, 2019).

In the second part of the event, those people who were responsible for the education area of MCT-PUCRS, GNM and OUMNH gave their presentations sharing good practice related to the educational activities that take place in their museums and the relation with scientific literacy, the importance of the role of museums in popularizing science and science capital as a pressing theme to guarantee exposure to science and the consumption of scientific material. The proposal to engage various audiences in science through education was the subject of the discussion open to the public below. There was also a speech by the Information Technology professional from OUMNH about the ways in which the dissemination of content is carried out in the museum linked to the University of Oxford (PUCRS, 2017; 2019; GLAM, 2017; FERRARO *et al*, 2019).

In 2018, there was a modification to the initial Connecting Museums model. Sponsored by the British Council of Brazil, the event was focused on investing in science training for public and private school teachers in the state of Rio Grande do Sul. The teachers participated in training meetings throughout the year and had to deliver a project at MCT-PUCRS with students, about the knowledge acquired during the training. The cases were presented to British partners by the professors, who produced a chapter on their activity. These chapters will be incorporated in a book on Connecting Museums that is currently in press. In addition, teachers participated in the event conference, where they were able to interact with international guests (PUCRS, 2018).

Connecting Museums as an International Network for Museum Education, Leadership and Innovation

Since its creation, the Connecting Museums event has been undergoing constant reformulations, with opportunities for this network to expand its members. As a result of discussions during 2019, it was decided to hold an expanded meeting in 2020, outside Porto Alegre. The chosen city was Rio de Janeiro to be hosted at, the National Museum. The event will continue to receive support from the British Council of Brazil. The idea being that not only other science museums will join the network, but other types of museums and related institutions.

With the recent events involving the National Museum, in Rio de Janeiro, there is a need to discuss themes aimed at training future leaders of these institutions in Brazil. Based on the Museums Leaders' Report, produced by the Saïd Business School of the University of Oxford (GLAM, 2018), the methodology will be to exchange experience between peers by placing British museum managers directly in contact with Brazilian museum managers, so that they can think together about the current and future challenges of museum management, preparing the leaders of the 21st century.

The report produced was to understand the knowledge of British museum managers, articulated across axes such as culture, community and commerce: three elements consistently referenced in the feedback of the managers who participated in the study. It is from the interlocution of this triple-helix that other themes emerge, such as research and credibility and skill, with regards the decision-making by these professionals. In the discussion involving these emerging categories, the challenges related to education, community engagement, access to knowledge, identity issues and preservation, among others, are part of the wider discussion that aim to empower people so that they can exercise, with quality and safety, their role as leaders of museum institutions.

It is worth remembering that as an event and as a network, *Connecting Museums* will not leave behind the discussion related to science education, in view of the important demand from the United Kingdom in this area. There, the difficulty of finding science teachers is due to competition for talent between the education sector and industry. . Thus, museums - in this case, science museums, as well as science centres and botanical gardens - must continue to fulfill their social role in promoting science capital, and in awakening interest in science in a community that has increasingly chosen careers related to the humanities. This shift is a concern, due to the fact that such a move may impact the production of future technologies related to hard sciences such as Chemistry, Physics, Mathematics, Biology, as well as Engineering.

Final Thoughts

There are many challenges regarding internationalization in higher education. It is clear that the metrics imposed by the Coordination for the Improvement of Higher Education Personnel (*Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - CAPES*) in the evaluation of the country's PPGs, increasingly stimulates this type of connection, acting as a synonym for quality, improvement and innovation of practices related to teaching, research and the extension. In this sense, the unique function of university museums, that naturally articulate the elements of this tripod with excellence and mastery, can contribute to the fundraising that is used for the elaboration and execution of international projects.

Museum associated teaching and educational practices, with research related to collections, heritage and education, also provide teaching and research outcomes to communities, demonstrating their reach. . Thus, they become powerful hubs for the internationalization of universities, and can be used as a resource to support fundraising. The partnership that gave rise to *Connecting Museums* was a prominent case study at one of the meetings of the Brazilian Association of International Education (FAUBAI) (PUCRS, 2019b).

This presentation, offering an outline of the research in Education conducted at the university, was then also presented at the University of Birmingham (UoB), during the reception of a member of the PPGs in Education and Education in Science and Mathematics at PUCRS by the International Office of UoB. The same professional was also awarded with a scholarship (CAPES/PrInt call) to develop research related to science capital in science museums as a Visiting Research Fellow at the University of Oxford.

In view of the facts reported, it can be seen that the relation between PUCRS and UK universities has been increasingly solidifying. In this sense, *Connecting Museums*, in contributing to this, also reaffirms its desire to continue to articulate the knowledge produced, and connect the expertise of the colleagues that work across different museum realities. The year 2020 promises to be extremely important for the network, which is likely to expand its performance at the national level, connecting researchers, professors and other professionals in the area of museums.

Other SUMs members wish to join to *Connecting Museums* so that the good practices with regard to education, management, innovation and leadership in museums, carried out both in Brazil and in the United Kingdom, can be shared, tested and improved. It is also desired that more institutions will join the *Connecting Museums* network, also proposing to organize and host future meetings. The idea that started at MCT-PUCRS is intended to - and wishes to - increasingly strengthen the discussion and the role of museums as crucial for the development of science and culture in the country.

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