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“I couldn’t think of anything worse than going there to be honest”; Science museums, science centers and non-participation

Emily Dawson

Introduction

Despite decades of concern, patterns of participation in informal science learning remain skewed in favor of the more advantaged sections of the UK population. Research on those who do visit science museums, science centers, nature centers, aquaria and the many other informal science learning environments, suggests that a large number of people in the UK, from minority ethnic backgrounds, socio-economically disadvantaged backgrounds and rural areas do not take part in informal science learning opportunities¹. Informal science learning environments can, therefore, be seen as resources for some people rather than others.

This observation is notable because while informal science learning institutions were becoming key environments for public engagement with science (or PES) in the UK, the then New Labour government was heavily invested in combating social exclusion. The durable nature of social exclusion and non-participation in informal science learning despite a national agenda for social inclusion in the cultural sector gives cause for concern. Ultimately, patterns of non-participation raise questions about the relevance and sustainability of informal science learning institutions in rapidly changing, multicultural societies.

The observation above also suggests that the issues involved in social exclusion and non-participation in informal science learning are not well understood. As a result, attempts to develop inclusive informal science learning practices may have been limited and little able to address the many and complex issues involved in non-participation and social exclusion.

This article is based on PhD research about participation in PES that I carried out after working as a practitioner and a researcher in a variety of informal learning environments. While I would relish being able to offer a ‘to do’ list of suggestions for inclusive informal science learning practices, this article focuses instead on a brief summary of how the research was carried out and the findings and implications that are most relevant for the field of informal science learning.

Theoretical framework and methods

In this study informal science learning was explored from the perspective of those who did not usually participate in such activities: the ‘non-visitors’, the ‘excluded’, those for whom public engagement was not necessarily ‘public’. In order to do so I used a theoretical framework that combined different areas of research that provided insights into the relationships between cultural participation, learning science and social inequalities. Thus sociological theories about cultural participation and the reproduction of social inequalities from the work of Bourdieu², insights from informal learning research and social studies of science education were combined with intersectional theories³ about the influence of identity and social position, including the role of migration, on non-participation, social exclusion and the reproduction of disadvantages.

A qualitative, ethnographic approach was taken to exploring social exclusion and non-participation in informal science learning. In order to do so, this study explored these issues in terms of the contexts of people’s lives, their social positions, attitudes and experiences, as well as exploring specific visits to informal science learning institutions with the research participants. The study also followed a participatory approach in design, data collection and analysis.

As sketched above, research has already shown how important ethnicity and socio-economic status are for participation in informal science learning. As a result, this study focused on exploring how these social positions affected social exclusion and non-participation by recruiting research participants whose were socio-economically disadvantaged and from minority ethnic backgrounds. While living in rural areas has also be found to affect participation in informal science learning, it was important for this study that research participants lived somewhere with lots of informal science opportunities on their doorstep which they were, nonetheless, not involved with. London presented the ideal location for this study, which focused on one socio-economically disadvantaged, ethnically diverse neighborhood in central London — Southwark.

Following a snowball approach, where one community gatekeeper introduced me to another and so on, access to over 42 different grass-roots community groups was negotiated. Four of these groups ultimately took part in the project in 2010, a total of 60 people. A Sierra Leonean group (n=21), an Asian group (n=13), a Somali group (n=6) and a Latin American group (n=18) from Southwark took part in this study, generously sharing their views and experiences of informal science learning. Groups included people of different ages, different genders and different lengths of time spent living in the UK.

Over a one-year period participants took part in focus groups, interviews, accompanied visits to informal science learning environments of their choice and participant observation. The data collected with these groups amounted to four focus groups, 32 interviews and four accompanied visits, alongside almost 65,000 words of field notes based on a year of participant observations from the community group events to which I was invited. Data were transcribed, anonymized and analyzed using a range of techniques including constant comparative analysis, deviant case analysis and participatory analysis to ensure the validity and reliability of the findings presented here.

Results

This study found informal science learning as a field involved complex processes of social exclusion that operated in different ways to create enduring and resilient patterns of non-participation. In particular, non-participation was affected by negative attitudes towards informal science learning, problematic experiences of informal science learning in practice and the structure of the field of informal science learning, described in more detail below.

Views and attitudes towards informal science learning

Participants had limited experience of engagement with science and little or no direct experience of informal science learning. This is important because it suggests that their non-participation was not based simply on their experiences of informal science learning opportunities. Instead, participants drew on their experiences at school and elsewhere to develop views and attitudes towards science and informal science learning environments that resulted in their disassociation from both. In other words, a preference for not visiting museums or science centres came, at least in part, from experiences informal science learning practitioners have little influence over.

This study found attitudes towards science emerged from participants' school experiences, as well as from their experiences of science in daily life. School was found to be

a formative experience for participants, producing long lasting attitudes towards both science and learning science. Such associations were often negative. Participants described school as a place that put them off science as a subject, studying science beyond or outside school and scientific employment. Science was seen as an important and high status subject but too difficult to understand, too expensive to study and as something for “other people”. As one participant from the Asian group put it “science is for people who want to be doctors...but it’s definitely not for me, I find it too much for my head”.

Engagement with science was associated with childhood and children by participants. In their eyes, science was a subject for school students and informal science learning, especially visits to museums, was also seen as something for children and students. This can be seen clearly in the extract below from an interview with a participant from the Latin American group, who struggled to see museums except in terms of what they offered for children.

Jorge: The museum for the kids is quite good because the interaction with the things, I think for kids it’s wonderful, they can learn by experimenting, I think to put things for them, like very accessible, is the right thing for a kid

Emily: And what if you’re not a kid?

Jorge: It’s like, I don’t know, it’s like, I think, I see that like a playground for kids,

As a result, the association of both science and informal science learning with childhood highlighted a key way in which participants, as adults, disassociated from informal science learning. As Jorge ultimately concluded, he was not a child and was, as a result, unlikely to visit an informal science learning institution.

Despite the strong links seen between youth, science and informal science learning, participants did not always see informal science learning as a positive part of childhood. Indeed, one Somali participant described school trips to science museums as “punishments” from her teacher and had, as a result, developed a strong dislike of informal science learning institutions. As she put it, “I couldn’t think of anything worse than going there to be honest”. This finding is contrary to suggestions that school visits to informal science learning institutions encourage students from minority ethnic backgrounds and socio-economically disadvantaged backgrounds to visit such institutions⁴ and to learn science⁵. Instead this

finding suggests school visits to such places are not always positive and raises questions about how such visits are perceived by students from disadvantaged backgrounds.

Of the various informal science learning environments, museums emerged as the most recognised site for informal science learning, despite participants having little or no personal experience of museums. Participants perceived informal science learning opportunities to be not only child-oriented but Eurocentric and classed in ways that were off-putting. Overall, participants saw PES activities in museums and similar institutions as something for other people, but not for them. Participants did not see informal science learning as something that was relevant to themselves, to their communities, or as something that could be part of their lives. This ingrained perspective was a key factor in how participants negotiated their non-participation in informal science learning opportunities. From this perspective, their non-participation resulted from their own active choices, rather than as a result of inaccessibility and exclusion.

Exclusive elements of practice

The data from the accompanied visits part of this study suggests participants were right in some ways to see informal science learning opportunities as ‘not for them’. This study found that visits to informal science learning institutions resulted in both positive and negative experiences for participants.

Using Falk and Dierking’s Contextual Model of Learning⁶ to analyse the visit data, this study found that informal science learning experiences did include enjoyable and learning experiences for participants, backing up considerable research on learning in informal contexts⁷. These findings, however, caution against relying on research from museum visiting populations to make assumptions about the experiences of people from groups who do not typically take part in informal science learning. This study found that aspects of the visits involved in this study were sometimes neither enjoyable, nor learning opportunities for participants.

Inaccessible aspects of informal science learning resulted from language barriers, design issues and staff facilitation styles. This finding resonates with research carried out in the US by Ash and her colleagues⁸ and by Garibay⁹. Their research also suggests that mismatches between the language of informal science learning institutions and minority ethnic visitors creates significant problems in terms of their access to information, and thus their ability to learn or feel comfortable in such environments. The findings of this study suggest this is also the case in the UK. For example, participants felt confused by individual

exhibits, exhibitions and whole institutions because of a combination of language and design issues. Their confusion meant participants were unable to make sense of certain exhibits and felt uncomfortable as a result. Thus, the findings of this study show that the potential benefits of informal science learning activities were not equally accessible, even when participants were directly involved with a science centre or museum.

Furthermore, the analysis of the visit data and the follow-up interviews found that while the potential benefits of informal science learning opportunities were noted by participants, so too were broader inaccessibility issues. Participants noted that they were unlikely to repeat their visit or visit a different informal science learning environment given, amongst other things, their language skills, a broad disinterest in science, the cost of the visit (although all visited institutions did not charge for entry), the lack of appealing food and the competing, seemingly more relevant priorities for their time. Participants described feeling unconfident in terms of finding their way around institutions, understanding the content of galleries or seeing other people like them during their visit. This suggests that the negative perceptions participants had identified of informal science learning as “not for us” were reflected in their experiences of visiting informal science learning institutions.

Structural exclusion from the field of informal science learning

In addition to a sense of personal detachment from informal science learning and inaccessible elements of informal science learning in practice, this study also identified structural issues that limited participants’ access to informal science learning opportunities. Thus while participants described their choices about non-participation as active, this analysis suggests their ability to make such choices was limited by the way informal science learning was structured as a field.

In particular, the social positions occupied by participants at the time of the research were identified as a key issue affecting their non-participation. Participants, having moved to London as linguistic and ethnic minorities from developing countries, fleeing war and civil unrest or as economic migrants, inhabited social positions that were disadvantaged in the UK. These disadvantages resulted, amongst other things, from limited employment opportunities, language skills, a lack of information and, in some cases, insecure legal status.

For participants this meant many of them worked several, badly paid jobs in order to make ends meet. Even participants with post-graduate degrees found their qualifications were undermined in the UK since they were awarded by a developing country. Overall therefore,

participant's disadvantaged socio-economic positions were related to their positions as members of minority ethnic communities.

Access to informal science learning opportunities was found to be limited by participants' social positions since the preconditions for their participation, such as sufficient free time, money, good health, confidence, English language skills or information, were restricted or absent. Thus, as a field, access to informal science learning opportunities was structurally limited for participants. Issues of gender and age were also involved in ways that limited the extent to which participants were able to make choices about their involvement in informal science learning opportunities. What this means is that non-participation was not the result of just ethnicity, just socio-economic status, gender or age, but rather all these aspects of social position or identity, and more, were involved.

This is not to say, however, that research participants were not active in all forms of cultural engagement. On the contrary, this study found participants to be heavily involved in cultural activities that related to their communities, their heritage and their personal interests. As outlined above, however, science was rarely considered a focus for their personal interests.

Applying these findings together demonstrates how informal science learning, as a cultural field or system, was structured in ways that made it inaccessible to those without the resources required to take part, whether those resources were information, language skills, money, free-time or interest in science. As you might expect, you cannot visit a science centre if you work back to back shifts and have no free-time. Because taking part in informal science learning required these seemingly basic resources (time, money, information and so on), for the participants in this study it was hard, if not impossible to access, given their disadvantaged social positions.

Implications: Exclusion and non-participation as a complex system

Thus far I have argued that participants were disinterested in science and informal science learning institutions and actively disassociated from informal science learning opportunities. In addition, I argued that tangible access problems arose when those same participants were directly involved with informal science learning practices in museums and science centres. The final set of findings, described above, suggested that the field of informal science learning is organised in ways that make it structurally inaccessible for people in disadvantaged social positions. Thus, the first implication of this study for informal science

learning is that at present informal science learning is an inequitable system in the UK which does not provide resources to different groups within the population on an equitable basis.

Taken together these findings suggest that non-participation and social exclusion involve active choices as well as structural issues about exhibit design, organisational features of informal science learning and social disadvantage about which participants could do very little. In other words, non-participation was not as simple as whether people *do not want* to take part or *cannot* take part. Instead these factors contributed to one another, reinforcing their strength to create durable, long-term and resilient patterns of non-participation and social exclusion.

Thus, a second key implication for informal science learning results from how the relationships between the three sets of findings presented here are understood. I suggest we can understand non-participation in informal science learning as a complex system that can maintain social disadvantages. These findings suggest a mutually reinforcing cycle exists between the structural limits of informal science learning as a field, exclusive elements of informal science learning practices and attitudes towards participation in informal science learning, see Figure 1. In other words, participants were unable to access informal science learning and in turn were not particularly willing to get involved. These attitudes were backed up by their problematic experiences of informal science learning in practice.

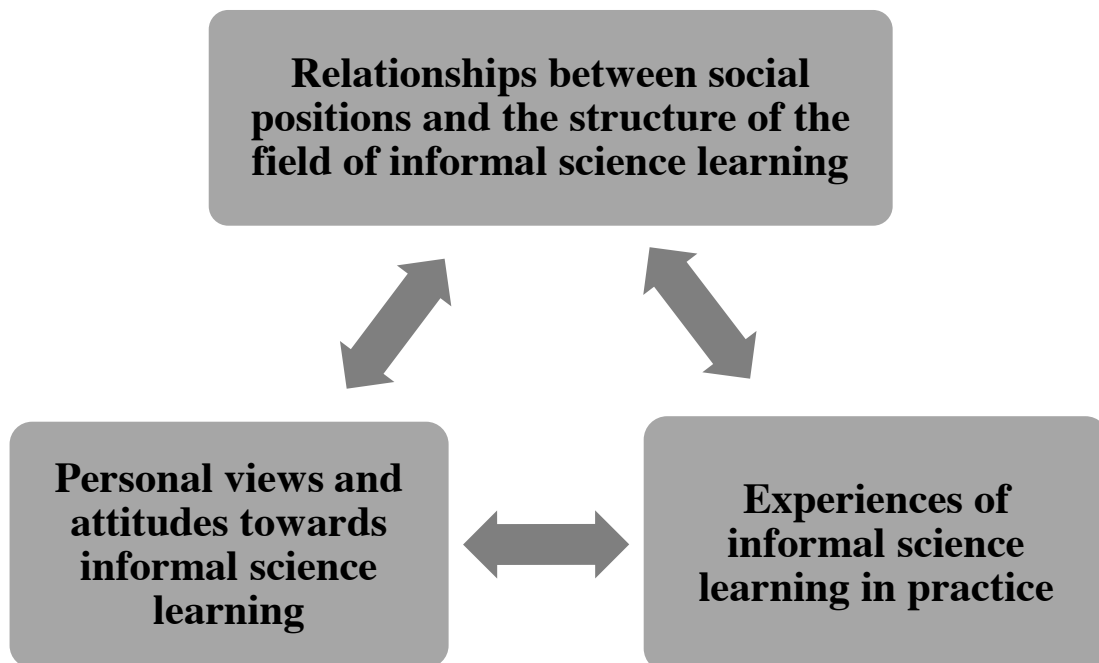


Figure 1: The cycle of non-participation/exclusion and informal science learning.

It is worth noting two key features of this. Firstly, the relationship between informal science learning as a field and participants social positions plays a considerable role in this cycle. The constraints experienced by participants were such that exclusion from informal science learning was structured by the limitations of social position, even before informal science learning practice was experienced. This finding suggests that informal science learning as a system can be considered part of broader patterns of social disadvantage and marginalisation that are in many ways outside the remit of those working in informal science learning. This point is important because researchers, practitioners, policy makers and funders of informal science learning need to be able to understand their roles, limitations and potential in this broader context.

Secondly, however, and in response to the first point, understanding how the different features of this cycle influence one another is a crucial step in seeing how non-participation, or exclusion, from informal science learning contributes to the reproduction of social disadvantage. In particular, how being excluded from reaping the potential benefits of informal science learning may uphold the view that informal science learning is not for everyone, and in turn, stop some people from getting involved. By understanding this process I argue we are better able to see how inclusive informal science learning practices may hold great potential for disrupting the reproduction of social disadvantage and contributing to social change.

While this study demonstrated some of the inaccessible elements of informal science learning, also present were moments where participants were able to connect with an exhibit in ways they found meaningful, creating learning opportunities. This suggests that informal science learning is not intrinsically unappealing or inaccessible to non-participants. Rather, that with considerable effort to acknowledge and understand inaccessibility and the development of increasingly inclusive practices, we may in the long term hope to shift this cycle towards a more equitable and inclusive pattern. Indeed, as Heumann Gurian¹⁰ has argued, this is a key responsibility of the informal learning sector.

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Notes

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