

“We had to be very clear that they weren’t going to try to break into any of the cases”: what potential do ‘escape rooms’ offer as a science communication technique?

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Abstract

‘Escape rooms’ are a recent cultural phenomena, whereby a group of ‘players’, often friends or colleagues, are ‘locked’ in a room and must solve a series of clues, puzzles, or mysteries in order to ‘escape’. Escape rooms are increasingly appearing in a range of settings, including science centres and museums, libraries and university programmes, but what role can an escape room play in science communication? In this commentary, we explore the emerging literature on escape rooms as well as thoughts from a small number of escape room creators in the U.S. and U.K.

Keywords

Informal learning; Popularization of science and technology; Public engagement with science and technology

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Background: escape rooms as an emerging ‘movement’

Since opening in Asia in 2006, escape rooms are now found in more than 70 countries internationally, with over 3,700 companies and over 8,000 rooms operating worldwide [Kolar, 2017]. Escape rooms have been praised for offering a holistic, human centred and play-based approach to learning, capitalising on game-based learning but via a technique that is not technologically driven in the same way that most modern gaming can be [Clarke et al., 2017]. There are typically four types of theme to escape room experiences; ‘escape mode’ where players must work together to get out in a set time period, ‘mystery’ with teams solving a mystery within a specific time period, ‘narrative’, an escape room experience which is punctuated by a compelling narrative or story, and, ‘stand-alone/nested’, where players either participate in a unique one-off experience or participate in one of several games [Clarke et al., 2017].

Contemporary cultural locations, like escape rooms, are described as neglected in the science communication literature, however studies are emerging. One such study identified that escape room visitors find them to be more active and

engaging than traditional entertainment, with key factors in engagement including, authenticity, enjoyment and the emotional connection they can promote, alongside escape rooms being a social experience, making them particularly engaging for participants [Kolar, 2017]. Their contained nature means they also have potential in terms of using historical, difficult or disused spaces such as old laboratories, dissection rooms and anatomy theatres [Chu, 2019], or to tour as “pop up exhibitions” across a range of locations [Thanukos, Witte and MacDonald, 2019].

In the commercial setting, where they offer a paid leisure or tourism activity, science-themed escape rooms, provide potential sites for scientific engagement amongst people from a diverse range of backgrounds. They also offer opportunities to examine how people collaborate and share understanding. It is estimated that almost 20% of escape rooms are themed around science, the laboratory, innovation and/or the future [Nicholson, 2015], though they can present a very stereotypical view of science with exotic glassware, luminous liquids and lab coats. Commercial locations appeal to a range of different people, from those planning an event with friends, to colleagues engaging in a team building exercise, or tourists visiting a location. Their general nature means ‘they are accessible to a wide age range of players and do not favor any gender; in fact, the most successful teams are those that are made up of players with a variety of experiences, skills, background knowledge, and physical abilities’ [Nicholson, 2015, p. 2].

A recent study of 104 institutions, including science centres, natural history museums and libraries [MacDonald, 2018] found 16% had run escape rooms previously, and 30% were interested in running them in the future. 24% cited the main purpose as attracting new audiences. This may be particularly pertinent given that audience demographics for museums and science centres do not typically overlap with the demographics for escape rooms [MacDonald, 2018]. Of the institutions that ran escape rooms, only 27% were aimed at an adult audience, with the rest being aimed at children, school groups and families. 6% cited the primary purpose of the room as teaching science or other content, with 33% citing that the main purpose was engaging visitors with problem solving, collaboration and communication [MacDonald, 2018].

In education, there has been attentiveness around how escape rooms might influence student attainment and understanding, with escape rooms created around university engineering [Borrego et al., 2017] and pharmaceutical modules [Eukel, Frenzel and Cernusca, 2017], and recommended for expansion in other areas of higher education [Clarke et al., 2017]. Participants have also been incorporated in their creation. A project in the U.S. brought together approximately 30 young people to create an escape room, encouraging young peoples’ creativity, imagination and originality, as well as collaboration [Thoegersen and Thoegersen, 2016]. Evaluation showed overwhelming enjoyment of the project but that the children responded to different elements, from working with people, to making things, and solving puzzles, suggesting participants respond to different aspects of the experience [Thoegersen and Thoegersen, 2016]. Whilst evaluation of escape rooms has been varied, and of mixed quality, the types of impacts reported include an effect on students marks [Borrego et al., 2017], enjoyment, knowledge and perceptions [Eukel, Frenzel and Cernusca, 2017]. One study suggested there was a 25% increase in students’ knowledge scores pre and post engagement [Eukel, Frenzel and Cernusca, 2017].

There are currently limited examples of escape room evaluation in a science communication context. In 2017, the Eden Project created its first temporary escape room 'Alien Rescue'. The Eden Project attracts those with interests in science and the environment, i.e. those possessing high science capital [Archer et al., 2015], as well as incidental tourist visitors, community and educational groups (some of whom may be deemed to have low science capital). Evaluation found that over half of escape room visitors were aged 25 to 54, only one in ten had participated in an escape room before and over 95% rated the escape room as 'good or excellent' [Eden Project, 2017]. Over a third on those evaluated said they wouldn't normally, or were not sure if they would, participate in a science-themed activity [Eden Project, 2017], suggesting escape rooms can also attract individuals who may not otherwise identify with science.

In addition to their potential novelty as a science communication technique, escape rooms offer an experimental environment in which to capture, observe and record people's decision-making, perceptions and experiences of the scientific process. This offers a space, which subject to appropriate ethical processes, provides opportunities to witness and observe engagement in ways that may not always be practical in a busy museum or informal environment. Research techniques that are less well utilised in science communication also have the potential to emerge. For example, Kolar's [2017] study of escape rooms used 'netnography', an analysis of over 1,200 Trip Advisor reviews of escape room experiences as the basis for the research.

From a science communication perspective escape rooms offer potential interest, but there are also some important questions, including how much the content is perceived to be science and what sorts of messages it might send to participants were they to 'fail' to escape the room. Interested in escape rooms as a potentially novel format for science communication, we took the opportunity to investigate further.

Talking to science communication escape room creators

In 2018, we identified a small number of U.K. and U.S. institutions who were or had offered science-themed escape rooms. This included universities, museums, science centres and commercial escape rooms. Twelve were contacted to participate in a semi-structured interview and five agreed to be interviewed. The interviews were guided by an aide-memoir, and the analysis took an inductive thematic analysis approach. Five prominent themes were evident in the comments collected from this small group of interviewees. These were associated to escape room 'context', 'design', 'engagement', 'participants' and 'post-escape room engagement'.

Taking context as the starting point, there were multiple motivations to design escape rooms. For some, escape rooms provided an opportunity to utilise spaces that were deemed to be difficult, or even rooms that provided an obvious opportunity to be closed off or for people to be 'locked in'.

'It was an old kid science exhibit and it was something that was under-used and we were having some maintenance issues... There were some water features that were leaking. So, we actually took advantage of the existing thematic build out of that space to determine our subject matter.' [Museum A]

At the same time, their versatile nature was highlighted and at least two of the interviewees had been involved in the creation of escape rooms that were specifically designed to be moved, including outdoor sites, museums and libraries, even if made locally relevant:

[The escape room] was designed to be a moveable experience so you could operate it at different locations within a community... We would try and whenever possible design the experience specifically for that given location because, while there's a benefit in it being generic that could go anywhere, we wanted the kids to interact with unique elements in the space.' [Commercial escape room A]

Some escape rooms operated simply as a 'pop up', 'we don't do it every day. Just when we have time we'll announce it as a pop-up program' [Museum B]. Consequently, it was evident that escape rooms offer a level of versatility in how and where they might be located.

The motivation to generate additional income via an escape room was mixed. For some it was a way to attract new paying audiences, in others the cost of a ticket included access to other parts of the institution or space. A small number were applying for funding, specifically to reach groups in locations that would be free to visit, like gardens and libraries.

The design of the escape rooms took an opportune mix of relating to existing exhibitions or environments, seeking advice from others, and working in partnership with other organisations. Some escape rooms had emerged locally, the idea of passionate communicators or curators, whereas others were larger in scale and involved partnerships between universities, and other external museums. There was one instance of an escape room design company being used, whilst others talked of collaborating with students, game designers and researchers to develop resources. It was also evident that designing content, particularly in small teams, had its challenges:

'It was really difficult to make games yourself, because so many people have different ways of thinking about things. You think you've done something that'll be really easy, and everyone found it really hard... we had to be very clear that they weren't going to try to break into any of the cases... And people found something that was under one of the cushions that we didn't know about. Somebody had torn up a piece of paper and put it under there. And they spent ages trying to reconstruct that piece of paper. But it was just a piece of rubbish.' [Museum C]

Design challenges could be exaggerated when designing games for different spaces or participants. Interviewees talked of 'ramping up the difficulty' when aiming at different age groups, finding locally relevant specimens, or wanting to increase the connection to museum collections, or the science content that was involved, were they designing an escape room again.

Reflecting their multiple purposes, spaces and designs, we also found a broad range of participants referenced. Children and families, as the mainstay of many of

the organisations, were still very evident, but escape rooms were also seen to offer potential to attract adult visitors and different groups. This included running escape rooms for 'team building', summer camps, hosting birthday parties, and groups of friends:

'We even had a National Guard group contact us when we were having the escape room, to see if they could rent it as a private staff bonding experience. So, we had members from our National Guard come and play, so it's kind of been all over the map.' [Museum B]

Two interviewees expressed surprise that the escape rooms had not attracted more university students, either from the campus on which they were situated, or in the second example, from a local department deemed relevant. The desire to attract new communities, including visiting rural settings, attracting non-English speakers, and those that were not being catered for within a particular museum, was apparent:

'We did not tackle the escape room as another piece of specific science content learning... purposefully... we have a huge museum that does that. But the goals for us... was really providing another opportunity for millennials, people without kids, and that corporate audience... We know our family audience is coming... it was really about the people we weren't reaching and having that be the gateway experience into a broader relationship with the organisation.' [Museum A]

Identifying new participants is one part of the puzzle but then the engagement itself must cater to their needs, and we found a number of approaches utilised. These included communication and engagement amongst competing teams, including verbal, body language and use of signs and symbols, sharing knowledge and question asking, which also included with and via hosts/presenters located in rooms themselves. Escape rooms were often designed to be fun or enjoyable, interviewees witnessed participants enjoying the experience, and discussed enjoying it alongside them, and that play was an integral part of the way in which escape rooms created 'bonding':

'I think it was a fun thing to do. It got groups of people together. They were all really chatty. I don't know if that's a factor of the type of people that want to do those games, but they were excited... We could see them all talking about stuff when they were in there, and they came out.' [Museum C]

Narratives play a role here, but so too did problem solving which people often addressed via teamworking. However, there were mixed views as to how integral science content might be. Whilst some interviews talked about wanting to 'spark' an interest in science, to uncover scientific processes or methods, there was also space within the design of puzzles and the piecing together of information for people to learn and decipher, if they were less familiar with the scientific content:

'Our primary objective is to teach about, ideally, is to teach about evolutionary science... but doing it through a fun narrative. And, so, it's not even going to be necessarily, we may not even describe it as an evolution activity, and I doubt that we will. It will be trying to solve the problem.' [University A]

This meant at least two interviewees in addition to the above, talked about ‘sneaking’ in science where science content was there to be drawn on but may not necessarily be obvious in the context of the wider game.

Finally, evaluation of the experiences was somewhat sparse, but this was not without interest to interviewees, often working in small budgets or teams, they frequently reported looking beyond their organisations for research and advice. One interviewee reported that they gathered data on whether people stayed in the institution after the escape room and found that frequently they did. Whilst others reported on encouraging people to continue to explore other collections and following up the escape room experience with take away materials, ‘extension’ activities, or encouraging people to come back and visit again.

Summary

In summary, we found multiple reasons for use of escape rooms within science communication, as well as perceived benefits and challenges. In some of the smaller institutions we spoke with there was a real desire to create an engaging experience, without necessarily wider motivations beyond that. For some of the larger institutions, escape rooms could be incorporated into a business model, to increase visitors as well as attracting new participants. Serendipitous use of spaces also emerged. Some institutions sought to incentivise people to visit alternative spaces, providing a ‘gateway experience’, whilst for others it was intended to offer an exclusive engagement, which best suited the participants need, without necessarily encouraging them to visit other attractions. These comments illustrate that escape rooms offer considerable versatility to the science communicator, in terms of motivations, design, science content, and ongoing impacts. Perhaps most significantly though they appear to offer considerable flexibility in attracting a range of people to science communication, who may not otherwise strongly identify with it, and for this reason more of us may wish to consider getting ‘locked in’.

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