PLACES

Platform of Local Authorities and Communicators Engaged in Science

Modules used: A2

Science Centre

2012

This is a standardized version of the original case analysis number 30. Specific names and locations have been substituted from the original document number 30 with generic references in order to preserve the anonymity of every participant.

In case you would like to read the original document, please contact occ@upf.edu.

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Abstract

The purpose of this study was to assess the impact that a visit to this science centre would have on its visitors' attitudes to science, their awareness and perception of the notion of a 'city of scientific culture', as well their perception of the science centre's role in the city. To this end, we conducted a standardized survey of a sample of visitors to the science centre. Our findings show that very few of the visitors we interviewed were aware of the 'city of science' initiative. Moreover, our respondents reported high levels of enjoyment of their visit to the centre. A high percentage of those who had enjoyed their visit to the centre also stated that their attitude towards science had changed for the better post-visit. Finally, respondents were found to believe that the science centre plays a principal role in the city's cultural life.

Introduction

The country has a long history celebrating scientific achievement and its role in the country's economic development, democratic guarantees and international prestige. In 2008, 1.88% went into Research and Development. The national commission for employment and skills evidences that the increased exploitation of research and technology will lead to more than 2.7 million new STEM jobs by 2017. Science and society initiatives, mostly converging policy-makers' and scientific stakeholders' input, have attempted to further bridge the gap between science and people's perception of its direct effect on their 'everyday lives', with scarce evidence of direct wider public contribution, though. The public attitudes to science survey (PAS survey: 2000, 2005, 2008, 2011) became a regular exercise to examine the relations between science and the public sphere. These generally reveal a positive attitude and enthusiasm towards science, as well as trust in scientists' efforts to 'make life better for the average person' between 2000 and 2008.

Approximately 20 million people, adults and children of all backgrounds, visit science centres and museums annually in the country. For about 14 million of these visits represent leisure activities with family and friends or as part of school visits reference needed.

The present research context

This study deals with the personal impact of a science centre visit. The latter represents the change (self-reported in this survey) that occurs in an individual as a result of their contact with the science centre (reference 2). The survey reported here includes factors such as:

- Science learning

- Changed attitudes towards science (self-reported)

- Social experience

- Personal enjoyment

A face-to-face exit survey was conducted on a sample of 137 visitors at a science centre. Established in 2001, the science centre was partly funded by a commission with additional sponsorship coming from a number of sources. It was chosen as the site for this study because of its affiliation with the PLACES Project and its location in a science city. Built at a cost of around 87.852.875,72€, the facility is a purpose built science centre comprising three

principal attractions, a Science Mall with general science learning exhibits, a tower and an IMAX cinema.

Science Mall

The Science Mall is a vast titanium-clad crescent shape structure that houses three floors of over 250 interactive science-learning exhibits, a Science Show Theatre and the Planetarium. The Planetarium contains a Zeiss optical-mechanical projector that projects images of the night sky onto a 15 metres diameter dome.

IMAX Cinema

The IMAX cinema was the first IMAX cinema to be built in the country. The single auditorium seats 370 in front of a rectangular screen measuring 18.9 metres by 25 metres feet and has the capability to show 3D films as well as standard 42D films in IMAX format. It opened to the public in October 2000, several months prior to the opening of the two other buildings.

The tower

At 127 metres tall, the tower is currently the tallest tower in the country and is the second tallest freestanding structure. The tower rotates under computer control so that it faces into the wind. It is usually open to visitors however at the time of the study it was closed for maintenance work.

This city of science

The mission is: "To inspire the curious, stimulate the creative, empower the wise and connect those with passion."

The city is the largest of the region and the fourth largest city in the country. The city itself has a population of almost 600.000 (12% of the region's people) and the wider metropolitan region has a total population of 1.7 million, more than 30% of all the people living in the region. Over the last 30 years, the city and the wider region have experienced significant economic change, and a related population decline. It became a city of science in 2012 and its strategic plan is part of its Local Action Plan in the PLACES Framework.

Methods

'Visitor Studies' deal with evaluating museums, learning programmes, exhibitions, and other attractions. Although relevant, the present case study is not intended to evaluate the site itself, which is used to access visitors and members of the public interested in science, within the framework of evaluating the impact of SCIPs in the country (which contributes to the definition of the concept of 'Cities of Scientific Culture'). Science centres are just one of multiple SCIP agents. The purpose of the study was to assess both the immediate and self-reported long-term impact. A face-to-face exit survey was conducted on a sample of 85 visitors at the science centre. An exit survey is defined as a post-visit survey that covers multiple aspects of the experience as well as demographic (age, gender, group type) and/or psychographic items (values, interests, attitudes, lifestyles) (reference 3). As described in the previous section, the Science Mall building is where all the exhibits are located, so its visitors represent the population of interest for the present study. The Science Mall is the main attraction of the science centre and so the study was aimed at visitors of this section of the centre rather than IMAX visitors who have little or no contact with science exhibits.

Research Questions

- What impact does a visit to the science centre have on public attitudes to science as well as on public perception of the notion of a city as a 'city of scientific culture'?

- What is the influence of a visit to the science centre on citizens' perception of the latter's role in the city?

Eligibility

Respondents had to be 16 years old or over in order to eligible to participate in the survey. The last-birthday selection procedure was used for sampling from groups. Data was collected on one weekday, Friday the 10th of August, morning and afternoon, and one weekend day, Saturday the 11th of August, morning and afternoon, and the software saved a record of the time and day of each interview. According to the centre's records, there were approximately 363 visitors on the first day and 355 visitors on the second day. Approximations can only be provided because season ticket users offer the centre no information about the makeup of the group and so cannot track the number of children, adults or concessions entering the centre. 42 season tickets were used on the Friday and 41 on the Saturday.

Sampling size and strategy

As stated above, a random sample of 137 science centre visitors was obtained (85 responses, and 52 non-responses). The standardized questionnaire consisted of twenty-three closed-ended questions designed to measure the impact of activities and policies related to science communication (SCIPs).The data collection mode was as follows: we approached and recruited participants systematically and conducted face-to-face interviews. Each of us had an iPad and we recorded all responses using the specialist survey software Polldaddy, as a version of this is available for offline use. Visitors to the Science Mall were provided with wristbands which we used in the sampling process to distinguish between these visitors and IMAX visitors.

In the framework of the PLACES impact assessment, each investigator has limited resources for the collection of data. In this project we could not have gained a representative sample of citizens in our respective science city. We tried, however, to obtain reasonable representativeness of the eligible museum visitor population in question. Moreover, visitor numbers were lower than expected due to higher than average temperatures, being 5° Celsius warmer than average for 10th August.

For this time of year in the summer holidays the centre had expected in excess of 500 visitors on the Friday and more on a typical Saturday. The sampling fraction (defined as the ratio of sample size to population size) is 19%, which means that 19% of the eligible population is included in the sample. Moreover, the response rate for the survey (the number of people who answered the survey divided by the number of people in the sample) was 62%.

Non-response and refusals

We recorded the gender of the refuser as well as whether they were accompanied by children, the latter having been deemed to be an important potential detractor.

Location of interviewers

After an initial consultation with a member of the Public Engagement Team at the centre, we were located at the exit from the Science Mall, in a corridor that also served to connect the Science Mall to the IMAX cinema. We were positioned there because all visitors to the centre leave the Science Mall building this way, ushered past the shop, thus giving us access to all the visitors. This location was beneficial because it meant other members of a group could visit the shop whilst the participant completed the survey, this was especially the case for groups with children.

The survey instrument proposed in the toolkit underwent a few modifications before the survey was carried out. These were deemed necessary in order to ensure that the instrument was fit to the purpose of the case study and to the population of interest.

Results

Socio-demographic characteristics

Before we proceed with our descriptive analysis in answer to our two research questions, we provide a short overview of the relationship between our main variables of interest and a few socio-demographic characteristics of our respondents, namely age, education, as well as the type of work they do.

<u>Enjoyment of visit</u>

As we might expect, Table 1.1 shows that the category with the highest number of respondents is that of professional and technical jobs, and a majority of them, regardless of their occupation, declared to have very much enjoyed their visit (for example, 88% of those in professional and technical jobs had very much enjoyed their visit). Moreover, Table 1.2 shows that most of the visitors we interviewed have at least A levels/ Highers, and as expected, the majority had very much enjoyed their visit. Finally, people in all age categories also expressed high levels of enjoyment derived from their visit, with a the exception of those in the 16-24 category, who had mostly quite enjoyed their visit (55%), and in a smaller proportion very much enjoyed it (36%).

<u>Attitudes to science</u>

Things look rather different in what concerns the degree to which their visit to the centre had had an impact on their attitudes to science. Opinions are rather divided on the matter. For instance, among those in clerical jobs the same proportion of respondents, namely 40%, said they were much more positive or a little more positive towards science following their visit, while 20% had not changed their attitude. A very small proportion said their attitudes had changed for the worse (see Table 1.1). Opinions are divided among people in different age groups as well, while higher proportions declare to have become a little more positive, or their attitudes to be unchanged. Moreover, concerning education, things tend to look rather similar. For example, among those who have an undergraduate degree, 15% were much more positive, equal proportions said they were a little more positive or that their attitude remained unchanged, while 8% said they were much less positive after their visit (see Table 1.2).

<u>The science centre as one of the main tourist attractions in town</u>

The majority of our respondents in all occupational categories said they believed the science centre was definitely, or at least probably, one of the main tourist attractions in town. For example, among students, 25% said 'yes,

definitely', 42% 'yes, probably', 8% 'no, probably not'17% 'no, definitely not, and 8% couldn't say (Table 1.1). Table 1.2 shows that there is variation among people of different ages and with different educational qualifications. However, higher proportions of respondents in all categories pertaining to the two socio-demographic variables say it is either definitely or probably one of the main tourist attractions in the city. For example, among those holding a GCSE/O levels/CSE/Standard grades qualification, 33% said it is definitely one of the main tourist attractions, 58% that it is probably the case, and 8% that it is probably not.

The science centre as an important symbol of the city

The picture here looks rather similar and high proportions of respondents in all socio-demographic categories hold the view that the science centre is emblematic of the city. For instance, among students, 25% said it is definitely a symbol of the city, 58% that it is probably the case, 8% that it is probably not so, and 8% couldn't say (Table 1.1). Amid those aged 35-44, 60% thought it is definitely so, 20% fall into the next category, 8% said it is probably not a symbol of the city and, finally, 12% couldn't say (Table 1.2).