

Leisure Visitor's responses to Natural History dioramas

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Abstract: Visitors to museums have been found to start their visit with an agenda. They have one or combine several identities when they make visits. Visitors may attend by themselves but more often are accompanied hence, conversations occur in both formal and informal visits. Whilst school groups those usually have a curriculum agenda which focuses on the exhibits, some visits may be organized for other reasons such as a 'treat' or to develop social skills. This chapter focuses on the responses of leisure visitors who had chosen to visit a museum with natural history dioramas. Different voices are heard from different visitors and during a visit constituent members influence what each other says because constructing meaning about the world is a social activity. Meaning is heard by others through voices, which are heard during a visit but not usually a reflection on the experience until they leave. Learning about the world happens with voices. The natural history dioramas draw out the visitor's prior knowledge and that, plus the visitor's interest in the exhibit all have the potential to influence the visitor's attitudes to the exhibits. The opinions of visitors to the dioramas were elicited through a questionnaire. They were asked to describe the 'story' of the diorama, what memories viewing such. There was a variation in responses depending on the age of the visitors. Youths were very factual and short whereas pensioners talked of memories such as working in one of the countries portrayed. Many visitors related what they had seen at the media as well.

Key words: visitor, dioramas, response, museum of natural history, agenda

Introduction

Traditionally museums have been viewed as places of learning, of culture and history and venues for the use of the educated person, not for the masses as it were. At the present time education is considered one of the main roles of a museum plays, a significant role in group's of museums did meet to consider the role of museums (NEMO, 2015). "The science learning occurs as a consequence of visiting a free-choice learning setting like a science museum", (Falk & Storksieck, 2005). Their discussions ranged over many issues but they highlighted the much wider role of museums of all kinds in present day society. They considered that the role of museums extended further than an education one in get sense of disseminating information about the collection of a given museum in a transmission mode. To interested visitors why if they did learn were in fact active learners. It is as now widely accepted that such traditional educational work is "intertwined with activities which aim to achieve inclusion, intercultural dialogue, public engagement, participation, community empowerment, or to stimulate creativity and support innovation. Activities that use museum objects as tools to do something quite different, like teaching a foreign language, transmitting basic numeracy and literacy skills, generating self-esteem, or improving health, and physical and mental wellbeing" (Tunncliffe, 2013). As well as focusing on a different approach to disseminations regarding visitors as the focus and working to meet their varied learning styles as well as taking heed of the diverse audiences who do now visit museums, including cultural heritage and language skills. As outreach, seek to provide for their museum's visitors through the intermediary of exhibits, taxidermists and interpretation, visual or interpersonal with facilitators and other such as theatre. Indeed the space in which this outreach co-occurs can be referred to as 'the experiential space', literally the area where such knowledge translation and interpretation occur during the experience of being in a cultural setting and looking at natural history dioramas as a part of the experience.

This paradigm shift in regarding both visitors and the role of the museum in meeting the needs of more diverse audiences has to be considered besides the more traditional visitor studies, which have elicited such insights into the behaviour of visitors and their interests in museums ranging from Art museums to zoos. Kirchberg & Trondle (2012) carried out

a review of visitor experiences from a literature survey and produced a framework summarising expectations, the comment about the visit and post visit reflections on the outcome and post visit which ranged from auto telic, well being to learning and satisfactions reveals the values and attitudes of the museum (Pekarik, 2010), depending on the focus of the research study. Visitors come for a multitude of reasons from a place to shelter from the rain, having a liaison, have a coffee in a café to study an exhibit in which they have a profound interest. Nor must we forget that groups often attend following a leader who determine that agenda and thus come with an entry narrative and usually a time budget (Doering and Pekarik 1996). Furthermore, these members be they of a formal educational group or a family or other, leisure group are in effect conscripts, visiting leisure gropes mash be willing, and follow the agenda. Visitors usually, make the trip to a museum attend with a pre visit agenda, which influences the visit (Falk et al., 1998). Even if they are part of a group with an overarching reason for making the visit each personal agenda can affect what interests the person during the visit and how they both interpret and recall the exhibits (Anderson et al., 2008). Furthermore, their personal agenda affects how they interact with other members of the groups, be it leisure group often of family members or a school group of learners, teachers and chaperones. Moreover, whether by organisation or default of necessity they have time budget. Pekarik (2010) however, points out that visitors attend museums for theory won personal reasons and because they view the world in which they live through their own frameworks they mayhem van resist and certainly some may resent the museum- through its interpretation attempts to influence their personal experience. The same claim could be made against member of groups such as a parent or teacher with their message and understanding of the phenomenon trying to communicate this to others in their group.

Museums have visitors, yet some seem attract more visitors than do others. Visitors studies research has explored much about the visitors in terms of the time they spend on different exhibits, hence reflecting their management with the content which may be because the exhibit attracts them with a certain 'something' within it (situational interest) or make a lion with the previous knowledge of the sister and their interest (personal interest) Such idea is explored in the Person-object theory of interests (Scheersoi, 2015).

According to Perry, (1992,1993) museums visitors have 6 psychological needs, Curiosity, confidence, challenge, control, play and communication, and these need to be met for the museums 'experience' to be a success.

Falk (2009) who had been seeking to learn why visitors actually attended museums identified that a visitor identified that leisure visitors had a particular identity depending on their motivation to visit finally identified 6 different types or categories of visitor. Their categorisation according of visit rationale ranged from "Explorers" who are curious and wait until something grab their attention, but they anticipate something will. Whereas "facilitators" are primarily focused on supporting the engagement and experience of others in their group, like teachers and often parents. On the other hand an individual making a visits is often a "Professional/ hobbyists" seeking a particular content-related objective and "Experience seekers" seem to collect experience of having and been there, done that' and add it to their collection of such experiences. Yet another identity is that of "Rechargers" who use the museum as a refuge or a place of restoration and solace, a place to switch off from the outside world.

So visitors whatever the motivation or the reason why they arrive undergo an experience of some kind. As Diamond (2000) discusses, museums offer visitors an experience, it maybe visual, kinaesthetic, oar, very much an aesthetic one perhaps or indeed emotive or educational but such is unlikely to be one in which they can involve med in there other everyday existence, because of the very nature of the museum which is providing the experience. Even if a visit is planned as part of a formal; educational curriculum visit, which teachers deems essential experience for their learners (Kisiel 2003 a), such a visit is an experience different form haven such instruction or learning opportunity in a traditional education setting. Indeed, the novel effect of a filed visit for school children has opt be taken into consideration when discussing the merits and effects of this field trip, (Falk et al., 1978). Field trips as a part of an educational experience to visit a museum, such as a zoo (Tunncliffe, Lucas & Osborne 1997) must be aware of the various aspects of such an undertaking because of the different nature of such out of school earning amend essentially the affective nature of visits (Kisiel, 2005). Museums

and their exhibits can be considered as an aspect of outreach. Although, it is frequently regarded as an organisation encouraging its employees to participate activities in a community and to encourage the receivers to become relevant with the organisation (BIS, 2011).

With the increasing emphasis in the museum fraternity of explaining, the case of natural history museums, their role in biological conservation of species and monitoring climate change, it can be argued that interpretation of exhibits such as natural history dioramas is in effect outreach between scientists and their mediation by a 'third space' the museum exhibits and their personally. However, as Kisiel and Anderson (2010) pointed out that studies of the motivation of visitors researchers are influenced by their perspectives as well as their culture and the cultural perspectives of the visitors and learner. Such aspects they assert render such research and its implications are limed dam are focused on learning. We wanted to find out why visors, to a natural history museums in the south of England, part of a visitor attraction, who chose to come not as members of an organised 'educational' parties, thought of the museums and its natural history dioramas and whether the age groups of theses visitors made a difference to their responses. We were specifically interested in their learning outcomes or prior knowledge of the subject, but on their reflections elicited by the exhibits and memories it stimulated as well as why they were there in the first place.

Focus of visits

Visits which also contain a focus on with activities designed to be performed during a visit at exhibits, as well school based activities before and after a visit, are an integral part of the learning (Moretin and Guudisaloa, 2014) as many museum educator know. Indeed, ZSL devised programs of 'zoo sandwich' in the early nineties whereby the visit was the filling. Well-designed visits with activities that can be done during the visit itself as well as pre- and post-visit activities to be done in the classroom and which are linked to the curriculum can considerably increase student motivation and teach (Osborne & Dillon, 2007). Natural history dioramas galleries are not a similar in exhibit terms to those hands on interactive in science centers. Tunnicliffe and Scheerso (2011) point out that the focus of intervention initiatives should at such be on accurate minds-on observation rather than

physical hands-on manipulation of objects and invite questions from the observer.

Visitors attend museums, which by definition includes those with natural history dioramas with a variety of agenda, as a conscript taken by someone as part of a curriculum focused school visit or a family outing, or as a free choice learner who almost by definition has to be solo. The conscripts have made the visit predominately at the request of a companion or adult with a target. The role of visitors has been described as playing a role (Falk, 2009). Falk (2009) identified five key motivations of volunteers museum visitors not school groups. Moreover, visitors, particularly organizers of school visits, but also the 'leader' who initiated the family or leisure group visits, haven agenda before they enter and thus have an entry narrative (Doering and Pekarzik, 1996). Whatsoever, auspice children are taken to look at animals they, as well as the Peron organising the visit have agenda. Theses consists of content on which to focus, time available, there may be a wide variety of objectives even within a group with a common overall objective as group members, or even individuals in a family or couples vest may have many different missions of what they want to see. Indeed, the rationale with which visitors come to the venue are known to directly influence their behaviour and learning (Anderson, Piscitelli & Everett, 2008). Dierking (1999) claims that " the museum provides an appropriate of model the understanding regarding the nature of learning within the complex settings like a science museum.

This chapter explores the rationale for making a visit to a house with a natural history museum attached in Southern England and the interpretation such visitors gave to the scenes in the dioramas and memories evoked though such viewing. Some adults were asked the questions whilst other responses were from written responses on the questionnaire provided at the exit. Responses of the young adults were very brief and factual, older visitors saw more in the dioramas, which recalled very often particularly visit to zoos and safari parks, or wild life programmes particularly on the television. Responses by pensioners showed that the dioramas elicited for them often memories of working in Africa or India and elicited memorable stories or visit with their children and grandchildren or Percival holiday.

Reflections

Responses from visitors as to why they visited a museum vary (Falk, 2009). They assume one identity or several such as expert, during the course of a visit (Doering and Pekaric, 1996) yet museums with artefacts can elicit memories. Museums and other locations such as zoos and galleries are seeking to adapt to the, one hand challenges that an ageing populations presents but on the other the opportunities which such presents for authentic related narratives. Such emerging opportunities are discussed in the collected writings of specialised authorise in 'the Caring Museums (Robertson, 2015).

The specific concept of the Powell Cotton museum in Kent, England, we were interested in the rationale and responses of the widely differing identifiable through age group in particular of sections of leisure free choice their visit. Such ranged from teenagers, with themselves and peers or with family, older couples, family groups and pensioners.

We hypothesised that younger visitors would be very factual in their short replies and have few memories that were evoked but that older visitors, as had been found in museums (Tunnicliffe, 1995) particular to bringing grandchildren had rich memories with which they were in interpreting the animals and scenes on display. For example, grandparents with two pre secondary children at polar bear included in an exhibit in a British Museums asked their children whether they remember the stories their parents told of the bear that they had seen on a cruise to the Arctic. A mother told her sons at an exhibit in an exhibit of Australian wild life about their great grandfather and how he had worked his passage to Australia seeking gold in the Kalgorlie region and how she had seen so many wallabies when she herself had visited Australia.

Museums are a place where visitors can reflect. They may reflect on the subject being presented to them; they may reflect on its impact made relevance to them. Alternatively, they may reflect on past memories the stimulus elicits. Perhaps the exhibits in the museum bring back half forgotten information learnt in school or events in their life of the visitor long since forgotten?

When intergenerational groups visit to gather each visitor has varied capital of memories with which to interpret the items being viewed 'Older adults often take such an opportunity to explain in didactic manner the theory as such. This phenomenon is frequent observed in science centres at exhibits showing particular physical concepts.

Adults have been observed 'text echoing' (McManus, 1992) reading allowed the text to the rest of their group, an activity in which chaperone and teachers take part when leading school groups, reminiscence work in museums had been shown to have beneficial effects for visitors of older years. Such reminiscences often investee younger vestries too. Well being of the population is discussed more and more and the social role of the museums is a subject in which there is increasing interest and recognition (Griffin, 1998).

Visits in a museum

Gilbert et al. (1985) claims that the learning experience in non formal setting has different characteristics from the one in a formal setting. Various researchers (Fleer, 1994; Allen, 2004; Tunnicliffe 1995; Fenichel & Schweingruber, 2009) claim that this research area seems particularly fertile, both pedagogically and methodologically

The study of museums of Natural History is considered particularly critical because visitors seem to build much of their knowledge about the world around them, (Monhardt & Monhardt, 2006). The museum visitors may take advantage of the rich context of the museum and use them to develop more processed reasoning (Cumming, 2003).

Another reason that the interest of the present research focused on natural history museum and their dioramas is that the interventions which that bring the visitor together with the museum environment usually have very encouraging results on cognitive and emotional progress of visitors (Hooper- Greenhill, 1994, Hofstein & Rosenfeld, 1996; Tunnicliffe et al., 1997; Allard & Boucher, 1998; Tunnicliffe & Reiss, 1999; Mathewson, 2001; Anderson et al., 2003 ; Griffin, 2004; Martin, 2004; Eshach, 2006, 2007; Packer, 2008; Dolin et.al. 2009; Rix & McSorley, 2010) by recalling memories and previous experiences

The Natural History Museum

The natural history museums are frameworks for learning in the field of natural sciences (Paris et al., 1998; Rix & McSorley, 2010; Tran, 2007).

The visitors of natural history museums participate either on constructive or individual activities which are implemented through the interest and selection of participants (Ramey- Gassert, 1997; Henderson & Atencio, 2007). In recent decades several theories

were developed in order to clarify the relationship between the museum and visitors (McManus, 1992). The messages transmitted can lead the visitor to feel comfortable and want to return or prevent him from a possible future visit (Diamond, 1991, 2000).

The Natural History museum and its visitors

The positive experience of a visit to a museum and habits formed during the visit are encourage especially the preschoolers to return to the museum as adult visitors (Tunnicliffe, 2015). The natural history museum is a place that visitors are familiarized easily and feel pleasant (Ames, 1988). Bell et al, (2009) state that 'environments such as natural history museums provide visitors - enthusiasm and positive emotional reactions. [Moreover] there are clear indications that participants are concerned with both the content of science and their own thinking what in science. Many time the visitors of a natural history museum they might learn what they already know (Falk & Storksieck, 2005). With the variety of understanding of visitors some know quite a bit more than others (Falk & Dierking, 2000). Allen (2004) and Stocklmayer et al. (2010) argue that in environments such as museums of natural history carried cognitive and emotional progress and learning becomes a pleasure for visitors of different ages. Piscitelli and Anderson (2001) and Anderson et al. (1997) examined the learning of young children at museums through multiple levels that include socio-cultural education, knowledge, learning style, motivation and collaborative learning. Piscitelli and Anderson (2001) concluded that the most important memories of children have focused on experiences that "it was not interactive in nature and directed primarily for large exhibits in museums of natural history." Furthermore, the data suggest that the positive attitude of children towards the museum associated with reports which "can make connections to knowledge and ideas that existed." Reports provide links with the children's earlier knowledge and have a more positive effect than those who are satisfied with the use of hands - on activities (Piscitelli & Anderson, 2001; Piscitelli et al. 2003).

Finally, a survey of Anderson et al. (2001) that planned experiences and visiting museums in scenarios where children actively participate and / or acting through planned activities can enhance and contribute more to the process of learning. The shared experiences between age groups may lead to the establishment of training programs

mainly for museums of natural sciences (Miglietta et al., 2008; DeWirr & Storksdieck, 2008; Groundwater- Smith & Kelly, 2010).

Visitors Agenda

Mousouri (1997) identifies five factors as determining the family museum agenda. According to our research studies some of the factors are applied to the visitor's agenda as well. So Fig. 1 presents a representation of Mousouri (1997) but focus on visitor's agenda. The first factor is Visitors profile. The background of the visitor as well as the age and the gender provide us with the visitor's choice and motivation of visiting the museum. 'The social cultural patterns refer to the functions a particular museum is perceived to serve in the social life of their visitors', (Mousouri, 1997). This factor links to visitor's motivation of visiting the museum. The personal context of the visit here is being used as Mousouri (1997) point out trying to explain the expectations of the visitors. Finally, the Dioramas/ exhibitions involved the subject that is being presented in the museum, its physical characteristics and the media of communication used (Mousouri, 1997)

INSERT HERE FIG. 1

Figure 1: Factors determining the family museum agenda

The specific type of museums, the natural history ones, are usually a large number of institutions which had been created during the 19th century. Originally presented reports, which varied depending on the available collections, and visibility of scientific knowledge (Mironer, 1996; De Clercq, 2005; Adams, 2007; Langebeek, 2011). This type of museums did not take into account the requirements of the general public but advanced the science dogmatically referred only to a specialized public (Price & Hein, 1991; Hein, 1998).

In recent decades recorded a trend of the natural history museums to restructure their material to make communication more effective and secondly to establish privileged relations with the formal education (schools and universities) to (re) plan their education policy (Diamond, 2000; Friedman, 2010).

Visiting a museum of Natural History is an experience having educational and leisure aspect (Donald, 1991; Patrick & Tunnicliffe, 2013). This experience offers visitors the unique opportunities that cannot be obtained within similar environments (Falk & Dierking, 2000; Piscitelli & Anderson, 2001; Schmitt- Scheersoi et al., 2002; Dewitt & Hohenstein, 2010) and found that museums are excellent sources of cognitive experiences that complement and / or enrich the agenda of each visitor (Kelly & Fitzgerald, 2011).

The visits experience in museums as Natural History promote both adults and children visitors with the opportunity to become more observant and develop their curiosity. Visitors testimony that natural history museum helped them to observe things in the outer world that previously ignored (Griffin, 2004; Patrick & Tunnicliffe, 2013).

The Galleries of Powell-Cotton Museum

In the study reported here we were interested in the response of visitors who came to the Powell Cotton Museums at Quex Park in Kent, England. (<http://www.quexpark.co.uk/museum/quex-house/>). This English gentleman's residence has been in the ownership of the same family since the 1550s. The resent regency style house was the up after the former building was knocked down and was completed in 1813. This house was enlarge in 1883 by the father of the founder that Natural history museum to accommodate his growing family. The house has formal gardens and is in a 250-acre park. The natural history museum, the Powel-Cotton Museum, whose strap line is: "Where the past meets the present to change the future" (<http://www.quexpark.co.uk/museum/>) was built by Major Percy Powell cotton "a pioneer in the use of the diorama to display mounted animals against backdrops of their natural habitats". To house the specimens of animals from Africa and India that he collected and brought back to this part of England (after being taxidermically treated) to show the local people, in the days before mass media, the diversity of living organisms

and indeed various habitats to which the animals were adapted. Indeed, older local residents talked to his granddaughter now living at Quex Park with her family, about their memories of witnessing the arrival of the mounted specimens brought down by road from London from the par excellence, taxidermist, Rowland Ward. The arrival was signaled by the ringing of the church bell. Compared with the local endemic wildlife of subdued hues, these exotic colorful animals, particularly the giraffe, lions and zebra was a wondrous invasion of colour to the locals who line the streets to witness the arrival of the latest animals (Personal communication, Johnson 2015). The Natural History museum has 3 galleries including a variety of species.

Gallery 1 is displaying the animals of north and West Africa and India. Today, this is the first gallery visitors see on entering the museum but it was actually the last gallery built by Percy Powell-Cotton himself, being completed in 1939 the year before his death. The large diorama to the left is known as ‘The Watering Hole’ represents many species from across northern Nigeria and Chad. The central diorama showcases the amazing diversity of Africa’s primates and the different landscapes they live in. The diorama to the back right of the gallery depicts animals from the Indian state of Madhya Pradesh (which translates as ‘Central Province’). The final diorama, to the right of the gallery, incorporates a variety of landscapes and animal habitats. The far left represents the more lush woodlands around the Mkuze River, in northern KwaZulu-Natal, South Africa. The central part of the diorama, formed of a high rocky crag, represents the Ethiopian Highlands, an area where land levels rarely fall below 1500 meters. The Mountain Nyala displayed here, are only found in this region and have become a rare and endangered species. Finally, the desert habitat at the front of the case showcases the diversity of species found in the Sahara desert (Powell-Cotton Museum Gallery 1, (2015). Retrieved from <http://www.quexpark.co.uk/museum/museum-galleries/gallery-1.html>).

INSERT IMAGE 1 HERE

Gallery 2 called ‘The Pavilion’ was the first gallery design and build by Percy Powell-Cotton and the starting point for his relationship with the taxidermist Rowland Ward, who helped build and design the museum’s famous natural history dioramas. The gallery

was completed in 1905 and the large Himalayan diorama is now considered the oldest untouched diorama of its type in any museum around the world. The diorama, depicting the Himalayan landscape at dawn. The painted scenery looks down on the Baltoro Glacier, which is found today in the Gilgit-Baltistan region of Pakistan. Dioramas such as this were a new and innovative way of displaying natural history in the late nineteenth and early twentieth centuries and very few dioramas of this quality or age are still standing in museums worldwide. (Powell-Cotton Museum Gallery 2, (2015). Retrieved from <http://www.quexpark.co.uk/museum/museum-galleries/gallery-2.html>).

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Gallery 3 was the second gallery to be built, added on to the ‘Pavilion’ in 1909. The dioramas in this gallery focus on species from equatorial Africa and the plains at the edge of these forested areas. The central diorama represents a lion and a buffalo, locked in battle. The large diorama of animals from equatorial Africa include one of the most impressive specimens is the large bull elephant to the left of the case. In the same case is a truly rare sight – a group of Northern White rhino (*Ceratotherium simum cottoni*) (Powell-Cotton Museum Gallery 3, (2015). Retrieved from <http://www.quexpark.co.uk/museum/museum-galleries/gallery-3.html>).

INSERT IMAGE 3 HERE

Methodology

We had focused our work on the responses of visitors of all ages, formal school groups visiting as part of their curricula studies and informal visitors. We wondered whether the response of non- educationally focused visitors was similar across the age groups or whether there were differences. Our interest arose from informal conversations with visitors and in particular noticing that Powell Cotton had a number of senior aged (over 50 perhaps) visitors. Partly because they ran at that time tea dances in mid afternoon in the winter months and seniors, retirees, were quite frequent visitors. Accordingly, we decide to design and collect voluntary response to a questionnaire. One of the volunteers

of Quex park offered to ask visitors at some weekends if they would fill in a questionnaire, most often she use the questionnaire as the template and verbally asked the questions as we had noticed a number visitors reluctant to write answer after the visits. However, pile of blank questionnaires were also left at the entrance of the museum and some filled in sheets were handed in from there. Such data could usefully be analysed further looking for clusters of interest (Frantz, Koran & Menningger, 2009) which is what became apparent in our read reread of summary of responses.

We based the content of the questionnaire on topics that occurred to us having listened to a variety of visitors and their comments. In some instances we carried out open ended interviews with visitors such are not reported here but anecdotally memories and associations with oats events in their previous life were often a focus of their comments, such as the retired lady who had been a midwife in Southern Rhodesia (now Zimbabwe) and one of the dioramas particular reminded her of the bush in the area where she had worked. Another gentleman actually looking at ceramics in another gallery of the museum en route to look round the House, said his visits to the dioramas had not particularly interested him. However, he then went on to talk about serving in the British's Army in Afghanistan and other parts of the world and how the animals in the desert like dioramas had reminded him of these countries. We compiled a summary and table of the responses, and then analysed the content of the main headings columns as well as adding the demographic questions.

The questions were, *age range*, *gender* and *gallery*. Then the visitors were asked, verbally or through the questionnaire various questions regarding their interpretation with the dioramas of Powell Cotton Museum. More specifically:

Please describe the dioramas you are looking at.

Can you see a story? What is it?

How does this dioramas make you feel?

Does this dioramas bring you back any memories?

We are very conscious that unlike spontaneous dialogue and remarks said out loud unstuffed questions, albeit open ended, does cur the respondent into a topic about which they may well not have themselves thought. Although, the responses are elicited after the

visitors have looked at the exhibits hence they are very likely to have been influenced by the visitors own knowledge and interpretation of what they have seen.

Results

When visitors looked exhibits, especially dioramas, varied types of conversations are present, which locate, identify, describe and interpret. Visitors attended Powell Cotton museum in different days and were collected conversation units and response via the questionnaires of the dioramas of the galleries 1,2 and 3. These research units were analysed in this research.

Females were the largest number of respondent (47), followed numerically by males (30) and other who didn't indicate on the sheet. A total of 80 questionnaires were collected in.

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Figure 2: The distribution of genders responding to questionnaire

Figure 1 indicate the age range of the authors authorise of collected questionnaires. 44 of adults' visitors responding were over 40 years of age.

INSERT FIG. 3 HERE

Figure 3: The distribution of age responding to questionnaire

The majority of questionnaires were completed referring to Gallery 1, the first gallery to be encountered once visitors had entered the Powell Cotton Museum.

INSERT FIG. 4 HERE

Figure. 4: The distribution of the preferred Gallery

There were 80 responses. 2 of which were blank sheets. The visitors provide only their age group and gender.

Categories	Number of responses	Example of comments
Mentions animals e.g. as collection 'many game', 'animals', specific every day or scientific name.	28	'I am looking at giraffe, zebra and other grazing animals.', 'Primates'
Mentions Geographical location E.g. 'Africa'. 'Kashmir'	10	'Animals in Africa', 'Kashmir scene'
A natural environment	6	'Animals in a natural habitat' 'desiccated environment'
Describes geographical features	4	Mountains and ranges', 'desert'
A Ecosystem/habitat e.g. rainforest, jungle setting	8	'A savannah scene', 'Tiger in rainforest growling at unseen'
Descriptive, e.g. Big, lots	12	'Lager number of species', 'lots, 'Big'
Type of display	3	'Well many heads' 2 under 18s at wall of

		antelope heads in Gallery 2.
Affective comments	9	‘Amazing did slay’, ‘beautiful’, ‘harsh’
Endangered status/conservation	2	Endangered tigers

Table 1: Description of diorama to which they referred to

The second question about the ‘story’ of the diorama about which they are commenting received 7 bank answers of whom 2 were under 18 and 3 in the next age group. One was in the 40- 49 age group, a female. Table 2 ‘The Story’ respondents’ found in dioramas, most comments were focused on gallery one, a long African didoes, a compilation of primates on the end wall and several smaller dioramas one featuring a tiger in the foreground and one a desert with rocks.

Categories	Number of response	Examples of comments
Descriptive behaviour	21	Antelopes climbing up rook face’, ‘Tiger wandering off’, ‘animals looking for food’
Adaptation to environment	3	‘How colours of coats of animals , Reflects the colours of their surroundings’
Anthropomorphic comments	11	‘A rhino’s party!’’, ‘They want to be left alone in peace’, ‘symbolic of were, hunting’
Affective comments	3	‘Sad these animals were hunted...’
Biological ideas e.g. predator prey, circle of life	11	‘The predator/prey relationship of the natural world ‘ ‘ Startled deer looking for a predator’ ‘relationship between predator and prey’ Nature is diverse’ ‘survival
Tells a story, not expanded	2	
Political	1	‘Could be interpreted in different way (Kashmir diorama G.2) Hostilities between Russia, India,

Other	9	Scotland'. ‘Pictures of African life’ ‘full of a variety of; potential scenes’
Conservation of species		
Habitat/geography	4	Low and highland, Scotland, Russia, India’, ‘jungle’

Table 2: 'The Story' respondents

Table 3 presents the way the dioramas make the visitors feel. Visitors have positive and negative feeling while they are looking the dioramas.

Categories	Number of response	Examples of comments
Affective comments	26	
Negative emotions	18	‘Sad these animals were hunted’, ‘Creeps me out,’ ‘Some of the creatures are scary’
Positive emotions	15	‘Made me smile’’, ‘in awe’, ‘Appreciation of why the animals had to die,’ ‘I always find it fascinating’.
Biological conservation	5	Appreciate now they are endangered’, ‘These animals are disappearing’ ‘Some of these animals are threatened with extinction’.
Sill of the makers	6	‘Incredible skill o the taxidermists’’, Glad they have been so well preserved’, ‘incredibly slicked taxidermy amend wonderful centre piece’ Privilege to see such skilful work.’\
Reflective	4	Their existence (the taxidermic animals) discards the need to keep collection. ‘Intrigued how came back frond they come back from Africa’, ‘How clever nature is’.

Realist 6 'Amazingly real' like that animals are about to pop out' (at you)'. 'How real they seem', 'Background noises'.

Table 3: Feelings elicited by the dioramas

The table 4 present the responses of the visitors regarding their memories. The majority of respondent had memories evoked by looking at the dioramas. Of the 17 who denied it 10 were in the under 29 years, all but 2 under 19 whilst 4 were in the older age groups. Three were female in 40-49-age range.

Categories	Number of response	Examples of comments
Repeat visit to this museum	9	
As adults	1	'Yes, I have been several times, I love it
Visits as child	10	'When I first came to the museum about 20 years go', 'Visiting as children'' when I was here when I was 1'.
Lived/visited Africa	11	'Yes, of South `Africa, smells and noises 'having breakfast an elephant came', 'Memories'.
Viewing media	8	'What I have watched in wildlife documentaries', 'The TV'. Lion King (Film)' 'Jungle book, Baloo'
Visits to Zoo/safari parks	10	'Much better than zoos, you cans see each animal in close up, it's brilliant'', 'London Zoo', 'Longleat' (a safari park).
Seeing animal in the wild	2	'Hogs in Poland'
Biological ideas	3	'The changing coats of animals response to different seasons
Other	4	'Of dioramas'' wrestling with my brother'

Table 4: Memories Evoked

Discussion

Few visitors showed awareness of conservation of species initiatives, although such information was not provided, in several categories of memories, e.g. descriptions of the dioramas, how the diorama made them feel whilst several responses lamented the killing of the animal for display but did not comment on the cultural content in which this was effected for these specimens nor the motivation of Powell Cotton in the days of little overseas travel, except for the wealthy, and no media bringing such information to most people.

Analysis by read reread of these data show that the younger visitors were very factual and had few memories whereas the older visitors had rich memories to associate with the natural history dioramas either from personal experience or from wildlife documentaries seen on the media. Quex and the Powell Cotton had vestries from the locality or who had visited before in Childhood as so called those earlier visits.

The appreciation of the skill of the taxidermist ewes voiced by some visitors and the realistic appearance of the sciences, with the animas' 'as if they' would pop out', made me angst to touch them' testifies to the skill of not only Powell Cotton in choosing then specimens and making notes on their habitat but also on the skill of the taxidermists, whose art can create this realisms or absolutely spoil the illusion.

We believe that dioramas, particular those with a historical legacy, having been constructed in different times when the viewing of exotic animals, habitus and geography were unavailable to the vast majority can also provide insights for visitors in geographical and geological aspects of the environment. Such is an area much neglected. The American Museums of New York do study meteorology as well as the changes in habitats featured on their dioramas or not (Holmes, 2010). Climate change effects and the changes in endemic ecology can also be studied.

Natural history museums carry out a considerable amount of research and their collections are extremely valuable particularly to scientists yet little of this work is shared

with visitors. If museums and its dioramas are engaged aid in outreach, enhancing the public understanding of crucial biological issues, as well providing an enjoyable and aesthetically pleasing experience, this outreach role could be considered further. Some of the visitors in this small pilot study looking at dioramas were relating the diorama contents to the status of the species depicted in the portent day and more information could be provided to heighten wariness of the issues amongst other visitors.

However, visitors are not a distinct single entity in terms of interest, rationale for visit and knowledge of the scientific issues that are presented. Hence, one size of interpretation does not 'fit all', and the challenge of museums is to provide a mediating focus to these different visitor genres and identities. A challenge in indeed of the 21st Century.

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References

- Adams, J. (2007). The historical context of science and education at the American museum on Natural History. *Culture Science Education*, 2, 393-440.
- Alexander, R. (2008) Towards *Dialogic Teaching: rethinking classroom talk*. Cambridge. Dialogos. York.
- Ames, P. (1988). To realize museum education potential. *Curator*, 31(1), 20-25.
- Anderson, D., Hilke, D., Kramer, R., Abrahams, C., & Dierking, L. (1997). Summative evaluation research: How thing fly- National Air and Space Museum. Unpublished evaluation report. Annapolis, MD: Science Learning Incorporated.
- Anderson, A. Piscitelli, B., Everett, M. (2008) Competing Agendas: Young Children's Museum Field Trips. *Curator* 51 (3) 253- 273
- Anderson, D., Lucas, K. & Ginns, L. (2003). Theoretical perspective on learning in an informal setting. *Journal of Research in Science Teaching*, 40(2), 177-199.
- Allen, S. (2004). Designs for learning: Studying science museum exhibits that do more than entertain. *Science Education*, 88(1), 17-33.

- Bell, P., Lewenstein, B., Shouse, A. W. & Feder, M.A., (2009). *Learning science in informal environments: People, places and pursuits*. The National Academic Press, Washington, DC.
- Brooks, J. & Vernon, P. (2011). A study of children interests and comprehension at science museum. *British Journal of psychology*, 43(3), 175-182.
- De Clercq, J. S. (2005). Museums as a mirror of society: a Darwinian look at the development of museums and collections of science. In Tirell, P., (ed.) *Proceedings of the 3rd Conference of the International Committee for University Museums and Collections*, UMAC Publication, Oklahoma, 57-65.
- DeWitt, J. & Storksdieck, M. (2008). A Short Review of School Field Trips: Key Findings from the Past and Implications for the Future. *Visitor Studies*, 11(2), 181-197.
- DeWitt, J. & Hohenstein, J. (2010). Supporting Student Learning: A Comparison of Student Discussion in Museums and Classrooms. *Visitor Studies*, 13(1), 41-66.
- Diamond, J. (1991). Prototype interactive exhibits on rocks and minerals. *Curator*, 34(1), 5-17.
- Diamond, J. (2000). Moving Toward Innovation: Informal Science Education in University Natural History Museums. *Curator*, 43(2), 93-102.
- Dierking, L. (1996). Historical survey of theories of learning, in Durbin G. (ed.) *Developing museum exhibitions for lifelong learning*. London: The Stationery Office for the Group for Education in Museums, 21-24.
- Doering, Z.D. & Pekarzik, A. J. (1996) Questioning the entrance narrative *Journal of Museum Education* 21 (3) 20-25
- Donald, J. (1991). The measurement of Learning in the museum. *Canadian Journal of Education*, 16(3), 371-382.
- Eshach, H. (2006). *Science Literacy in Primary Schools and Pre-Schools*. Springer.
- Eshach, H. (2007). Bridging in-school and out-of-school learning: Formal, non-formal and informal education. *Journal of Science Education and Technology*, 16(2), 171- 190.
- Falk, J. (2009). *Identity and museum visitor experience*. Walnut Creek, CA: Left Coast.

- Falk, J., & Dierking, L. (2000). *Learning from Museums: Visitor Experiences and the Making of Meaning*. Walnut Creek: AltaMira Press.
- Falk, J. H., Martin, M. W. and Balling, J. D. (1978) The novel field trip phenomenon: Adjustment to a novel setting interferes with task learning. *Journal of Research in Science Teaching* 15: 127-154
- Falk J. & Storksieck, M. (2009) Using the contextual model of learning to understand visitor learning from a science center exhibition, *Science Education*, 8 (5), 744-778
- Falk, J ., Moussouri, T. and Coulson, D. (1998) The Effect of Visitors ‘Agendas on Museum Learning *Curator* 41 (2) 107–120
- Fenichel, M & Schweingruber, H. (2009). *Surrounded by Science. Learning Science in Informal Environments*. The National Academies Press, Washington D.C.
- Fleer, M. (1994). Fusing the boundaries between home and child care to support children’s scientific learning. *Research in Science Education*, 26, 143-154.
- Friedman, A. (2010). The evolution of the science museum. *Physics Today*, 63(10), 45-51.
- Gilbert, J., Watts, M. & Osborne, J. (1985). Eliciting Student Views Using an Interview-about- instances Technique. In West, L. & Pines, L. A (Ed.) *Cognitive Structure & Conceptual Change*, Orlando: Academic Press Inc.
- Griffin, J. (1998). Learning science through practical experiences in museums, *International Journal of Science Education*, 2(6), 655-663.
- Griffin, J. (2004). Research on students and museums: Looking more closely at the student in school groups. *Science Education*, 88(1), 60-70.
- Groundwater-Smith, S. & Kelly, L. (2010). Learning outside the classroom: A partnership with a difference. In A. Campbell, A. & Groundwater-Smith, S. (Eds). *Connecting Inquiry and Professional Learning in Education*, London: Routledge, 179-191.
- Hein G. (1998). *Learning in the Museum*. Routledge.
- Henderson, T. & Atencio, D. (2007). Integration of play, learning and experience: What museum afford young people. *Early Childhood Education*, 35, 245-251.

- Hofstein, A. & Sherman, R. (1996). Bridging the gap between formal and informal science learning. *Studies in Science Education*, 28, 87-112.
- Hooper-Greenhill E. (1994). Who goes to museums?, In Hooper-Greenhill E. (Eds.), *The educational role of the museum*, London and New York: Routledge, 47-60.
- Hooper-Greenhill, E. (1994a). *Museum and Gallery Education*: Leicester University Press.
- Kelly, L. & Fitzgerald, P. (2011). Cooperation, Collaboration, Challenge: How to Work with the Changing Nature of Educational Audiences in Museums. In Mockler, N. & Sachs, J. (Eds), *Rethinking Educational Practice Through Reflexive Enquiry*, 77-88, London: Springer.
- Kiesel, J., F. (2003 a) Revealing teacher agendas: An Examination of teacher motivation conducting museum field trips. (Unpublished dissertation) University of Southern California, Los Angeles, CA.
- Kiesel, J., F. (2005) Understanding elementary teacher motivations for science field trips. *Science Education* 89 (6) ,963 -955
- Kiesel, J.F. and Anderson, D. (2010) The Challenges of understanding Science Learning in informal Environments. *Curator: The Museum Journal*. 53(2) 181 -190
- Kirchberg, V. and Trondle, M., (2012) Experiencing Exhibitions: A Review of Studies on Visitor Experiences in Museums / *Curator: The Museum Journal*. Volume 55 Number 4, 435 - 452
- Langebek, R. (2011). L' aménagement des collections d' Histoire naturelle aux XVIII et XIX siècles, *La Lettre d L' OCIM*, 134, 29-36.
- Mathewson, D. (2001). Museums and School: An analysis of the education 'game'. Paper presented in the 18th Biennial Conference of the Australian Association, Canberra.
- Martin, L. (2004). An emerging research framework for studying informal learning and schools. *International Journal of Science Education*, 88, 71-82.
- McManus, P. (1988). Good companions: More on the social determination of learning-related behavior in science museum. *International Journal of Museum Management and Curatorship*, 7, 37-44.

- Miglietta, A., Belmonte, G. & Boero, F. (2008). A Summative Evaluation of Science Learning: A Case Study of the Marine Biology Museum “Pietro Parenzan”. *Visitor Studies*, 11(2), 213-219.
- Mironer, L. (1996). Les musees d’histoire naturelle dans une typologie des musees. *La Lettre de L’ OCIM*, 55, 67-71.
- Monhardt, L. & Monhardt, R. (2006). Creating a context for the learning on science process skills through picture books. *Early Childhood Education Journal*, 34, 67-71
- Morentin, M & Guisasola, J. (2014). The role of science museum field trips in the primary teacher preparation. *International Journal of Science and Mathematics Education* on line. DOI 10.1007/s10763-014-9522-4 Online ISSN 1573-1774
- Moussouri T. (1997). *Family agendas and family learning in hands-on museums*. Unpublished Doctoral Thesis. University of Leicester. UK
- Osborne, J, and Dillon, J. (2007) Research on teaches in informal contexts. Advancing the field? *International Journal of Science Education* (29), 1441-1445
- Packer, J. (2008). Beyond learning: Exploring visitors’ perceptions of the value and benefits of museum experience. *Curator*, 51(1), 33-54.
- Paris, S. & Yambor, K. & Packard, B. (1998). Hands- on Biology: A museum school university partnership for enhancing students’ interest and learning in science. *The Elementary School Journal*, 98(3), 267- 288.
- Patrick G. P and Tunnicliffe, S. D., (2013), *Zoo Talk*. Springer.
- Pekarik, A. (2010) From Knowing to Not Knowing: Moving Beyond Outcomes. *Curator: The Museum Journal* 53 (1) 105 – 115
- Perry, D.L (1992) *Designing exhibits that Motivate*, Association of Science-technology Centers Newseltter, 20(1), 9 -10, 12
- Perry, D.L (1993) Beyond cognitions and affect: The Anatomy of a museum visit, In *A.benefiled, S.Bitgood, H. Shetel., D. Thompson, and R.Williams (Eds) Visistor Studies: Theory, research, and practice. Volume 6 Proceedings of the 1983 Visitor Studies Conference jaksonville, Al. Center for Socila Design*, 43-47.
- Piscitelli B. & Anderson D. (2001). Young children’s perspectives of museum settings and experiences. *Museum Management and Curatorship*, 19(3), 269-282.

- Piscitelli, B., McAndle, F. & Weier, K. (2003). Beyond looks and learns: Investigating, implementing and evaluating interactive learning strategies for young children in museums. *Final Report, QUT- Industry Research Project*. Brisbane, Australia: Centre for applied studies in early childhood, Queensland University of Technology.
- Price, S. & Hein, G. (1991). More than a field trip: science programmes for elementary school groups at museums. *International Journal of Science Education*, 13(5), 505-519.
- Ramey- Gassert, L. (1997). Learning science beyond the classroom. *The Elementary School Journal*, 97, 4,
- Rix, C. & McSorley, J. (2010). An investigation into the role that school- based interactive science centers may play in the education of primary- aged children. *International Journal of Science Education*, 21(6), 577-593.
- Robertson,, H. L., (2015) *The Caring Museum: New Models of Engagement with Ageing*. Edinburgh .Museums ETc ISBN 978-1-910144-62-6
- Schmitt- Scheerso, A., Vogt, H. & Naumann, C. (2002). The development of situation interests in an informal learning environment- a visitor evaluation study in an educational exhibition on individuality. Proceedings from the IVth ERIDOB Conference *Biology Education for the Real World*, 22-26 October, Toulouse, France.
- Stocklmayer, S. M., Rennie, L. J. & Gilbert, J. K. (2010). The roles of the formal and informal sectors in the provision of effective science education. *Studies in Science Education*, 46(1), 1- 44.
- Shindler, K.(2016) *In Want of a camel For Stuffing*. Rowland Ward, 1847 – 1912. *Evolve*. . Natural History Museum London, 40 - 45
- The Network of European Museum Organizations (NEMO), (2015) *Revisiting the educational Value of Museums Connecting to Audiences*. Report of NEMO Compiled from a November 2015 conference, Pilsen, Czech Republic, "
- Tran, L. (2007). Teaching Science in Museums: The pedagogy goals of museum educators. *Science Education*, 91(2), 278-297.
- Tunnicliffe S. D., (1995). *Talking about animals: studies of young children visiting zoos, a museum and a farm*. Unpublished PhD thesis. King's College, London.

- Tunnicliffe, S. D., Lucas, A. M. & Osborne, J. F. (1997). School visits to zoos and museums: a missed educational opportunity? *International Journal of Science Education*, 19(9), 1039-1056.
- Tunnicliffe, S. D & Reiss, M. (1999). Building a model of the environments: How do children see animals? *Journal of Biological Education*, 33(3), 142-148.
- Tunnicliffe, S.D. & Scheersoi, A. (2011) Natural History Dioramas. Dusty relics or essential tools for learning in A. Fillippopoliti *Science Exhibitions: Communication and Evaluation*. Edinburgh, Museum Etc. 186-217
- Vuillaume, D.(2015) Introduction. In *Revisiting the educational Value of Museums Connecting to Audiences* Report of NEMO Compiled from a November 2015 conference, Pilsen, Czech Republic