

An Analysis of Visitation Patterns at the Museum of Natural History and Archaeology, Trondheim, Norway, from 1954 to 2006

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ABSTRACT

Fluctuations in visitor numbers over the past 50 years at the Norwegian University of Science and Technology (NTNU) Museum of Natural History and Archaeology in Trondheim, Norway, indicate an overall decline in visitation since the 1990s but with some positive figures in the last years. Separate data available from 1977 to 2006 show a strong correlation between the numbers of school students and the general public. The general public paid relatively few visits in December, but visitation peaked in summer and autumn. Sundays and midweek were the busiest days. This article discusses factors that may influence the short-term, monthly, and daily distribution of visitors as well as the more long-term variations. These include the development of museums in Norway and how the historical, cultural, and nationalistic background may influence the topics and information in exhibitions, and hence the public interest in what the museum has to offer.

The Museum of Natural History and Archaeology at the Norwegian University of Science and Technology (NTNU) is a university museum in the center of the city of Trondheim, central Norway, that focuses on research in natural and cultural history and on imparting research results to the public. The museum dates from the 19th century when it was a private natural history collection belonging to the Royal Norwegian Society of Sciences and Letters, which was founded in Trondheim in 1760. The museum was opened to the public about 1900 and became part of the university

in 1984 (Steffensen, Overskaug, Holt, & Sæther, 2008). It plays an important role in communicating the results of its own research and that of other NTNU institutes. To achieve this satisfactorily and to form a basis for strategic initiatives that can maintain visitor numbers, there is a growing need for data about the way the museum operates and how the public uses its educational programmes (Alt, 1980; Cameron & Abbey, 1961; Falk & Dierking, 1992). Various types of data on the way the public uses the museum may be an important input for making the right strategic decisions (Friedman, 2007; Miles, 2007). The museum has data on the annual number of visitors for most years from 1954 to 2006, which enable visitation patterns to be analyzed and compared from year to year. In addition, the number of visits by school students and the general public can be compared in the second half of this 53-year period. We present these data and focus upon possible factors that influence variations in visitor numbers and how this information may be used to maintain or perhaps increase attendance. Finally, we briefly discuss how Norway's history as a former dependency and her persistent struggle for independence, achieved as recently as 1905, may have influenced the development of museums in Norway and the way they present their thematic content to the public.

Apart from eight years between 1966 and 1976, data are available on the annual number of visitors to the museum from 1954 to 2006. The missing years probably do not affect the overall visitation pattern that emerges for the entire study period. From 1977 onwards, the data can be separated into two categories, the general public (Group 1) and school students (Group 2), thus permitting a comparison between these two groups for the last 30 years of the 53-year study period (these basic data are reported in the appendix). Information is also available regarding the new exhibitions (in square meters) from year to year (see the appendix). Hence, because it is generally assumed that the number of visitors to a museum is, at least partly, proportional to the turnover and extent of new exhibitions and activity, the annual number of visitors and respective square meters of new exhibitions are compared. The data from the last 15 years (1992–2006) can also be presented at a monthly level for Group 1 and by the day of the week for Groups 1 and 2 pooled.

The criterion for defining a visit to the museum is the purchase of a ticket for exhibitions or other events for the public. Because this type of counting has been used consistently throughout the study period, the data set is considered reliable for comparing years and, from 1992 on, presenting the distribution by the month and the day of the week. Although admission to the museum has been free of charge for school students since 2003, every student visiting an exhibition or other museum event has continued to be recorded individually. The area taken up by new exhibitions from year to year is based on the museum's exhibition catalog, which briefly describes all the exhibitions since 1954, and on the rooms and floor space taken up, when these are stated.

Trends in Visitor Numbers from 1954 to 2006

The variations in visitor numbers from 1954 to 2006 are displayed in Figure 1, with data for Group 1 (general public) and Group 2 (school students) pooled. A third-degree regression line through Figure 1 indicates a declining trend during the past decade, but with some positive figures in the last years. Removal of outliers, the

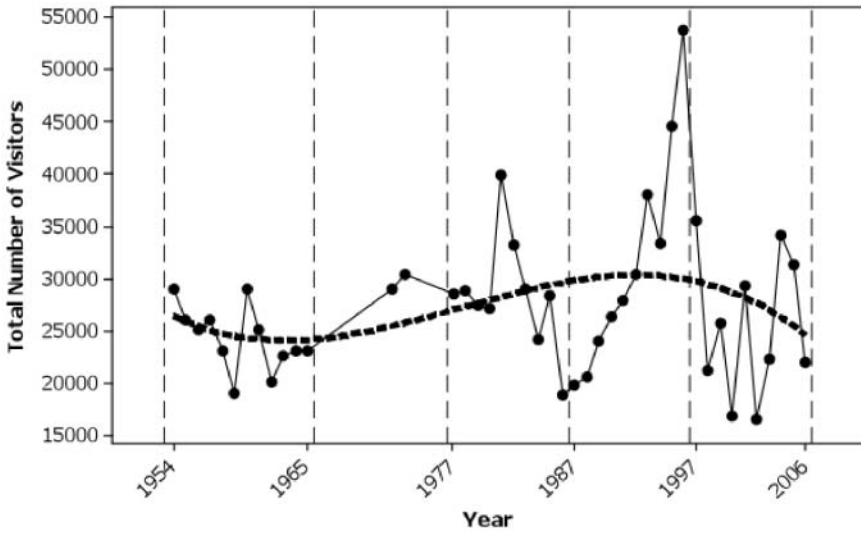


Figure 1. Total number of visitors from 1954 to 2006.

lowest and highest values between 1987 and 1996, had no effect on the regression line. The peak in visitation in 1996 can be explained by the fact that in this year the museum put effort into a medieval exhibition connected with the celebration of the city’s 1,000-year jubilee in 1997. A major historical and archaeological work displayed in the museum marked the occasion, with a detailed picture of the history of the city from its foundation until the 1990s (Christophersen, 1989; Supphellen, 1992).

We compared visitation patterns for visitors in Groups 1 and 2 for the last half of the period when these data were collected separately (from 1977). There were 30 data points where information on visitor numbers was available separately for the two groups. A correlation analysis between Groups 1 and 2 across the 30 years from 1977 to 2006 shows a positive correlation in the number of visits for each group, $r(28) = 0.605$, $p = 0.000$, although there were some years where this pattern did not hold. For example, there was an extraordinary peak for school students in 1980 when there was

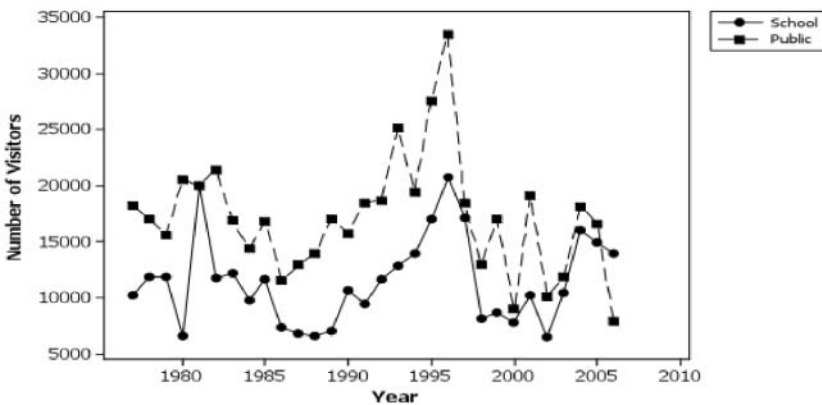


Figure 2. Number of school and public visitors from 1977 to 2006.

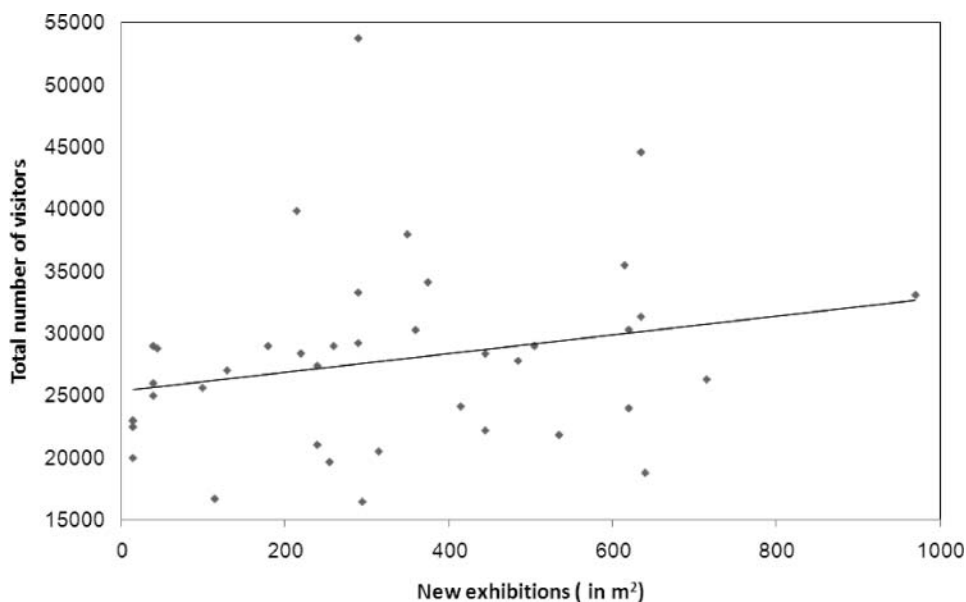


Figure 3. Total number of visitors relative to the amount of space in new yearly exhibitions.

a special exhibition about the working class that was specifically aimed at schools (see Figure 2).

Because it was expected that a high turnover of new and high-quality exhibitions would have a positive effect on attendance, we correlated the number of visitors each year (from 1954 to 2006) with the amount of space devoted to such new exhibitions in each respective year—that is new exhibitions opened during the year in question (Figure 3). Yearly average figures in square meters for new exhibitions opened during the study period was 245 m². For example, 615 m² of new exhibitions were opened in 1997 when visitor numbers peaked, but in 1981 (which was another good visitor year) only 215 m² of new exhibitions were opened. A first-degree regression line in Figure 3 shows a slight positive correlation between turnover of new exhibitions and visitation patterns, $r(51) = 0.292$, $p = 0.052$.

Visitation by Month and Day

Figure 4 shows monthly statistics for Group I visitors during the 15 years from 1992 to 2006. January, a month with relatively few visitors, had a yearly average of 1,069. A secondary peak in February (average of 1,646 visitors) was followed by a decline in March, April, and May before peaks occurred in the summer months of June (1,984) and July (2,589). Numbers then declined again in August, September, October and November before an absolute low was reached in December, with an average of 448 visitors.

Figure 5 shows the visitors per day, based on data for every week of the year from 1992 to 2006. The results show that Monday, with an average of 59 visitors, was typically not a museum day compared with the midweek days of Tuesday, Wednesday and Thursday with an average of 90–94 visitors a day. Friday and Saturday had fewer visitors, whereas Sunday peaked with an average of 134 visitors.

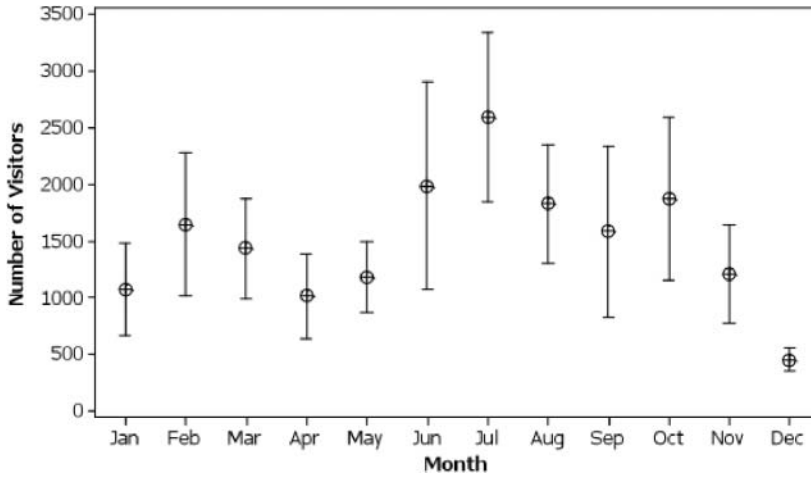


Figure 4. Monthly statistics for Group 1 visitors during the fifteen years from 1992 to 2006.

INTERPRETATION OF DATA

At the outset, three factors must be taken into account when interpreting our data: (a) the population trends in the city of Trondheim and neighboring boroughs, which might influence the visitor statistics; (b) the accessibility of the museum in terms of opening hours and admission prices during the study period; and (c) the availability of resources for services to visitors, where it might be assumed that a higher level of service to the public influences the visitor statistics (Hood, 1993).

During the study period, the population in the museum’s primary catchment area, within a radius of 30 kilometres from the museum, has risen from 70,000 to 159,000. With respect to accessibility, the number of hours and days during which the museum has been open to the public has increased from 1954 to 2006. In the first years of the period, the museum was open at the weekends and by special arrangement, but since

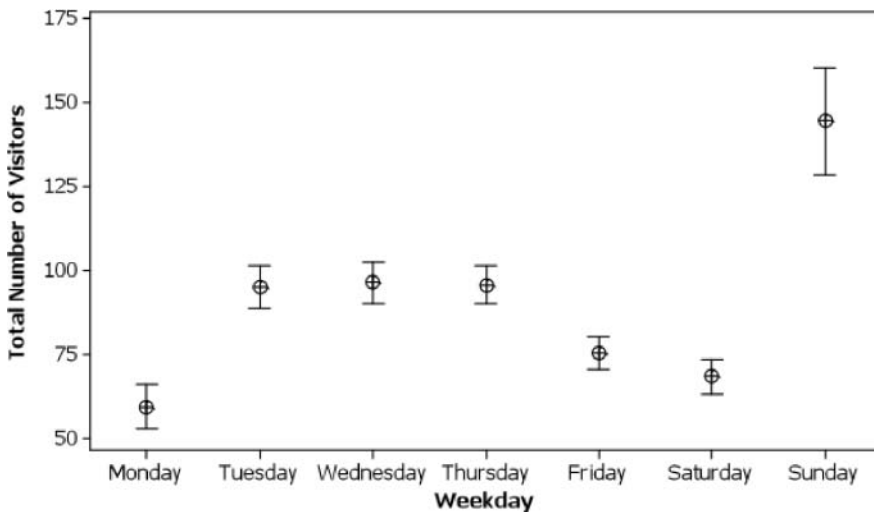


Figure 5. Visitors per day, based on data for every week of the year from 1992 to 2006.

the 1980s it has been open virtually every day. The price of admission has increased in line with normal inflation and is now NOK 30 (US\$6) for a single ticket and NOK 100 (US\$20) for a family ticket. School students have been admitted free of charge since 2003. We therefore conclude that accessibility has increased during the study period in terms of opening hours and the price of admission. It can also be asserted that a visit to the museum from its primary catchment area is easier today than in the 1950s and 1960s when public transport and private cars were less widespread. Substantial increases in resources for visitor services in 1964, 1987, 1996, and 2003, including the provision of guided tours of the exhibitions and educational programs accommodated to the school curricula, should in principle have made the museum more attractive and interesting, especially to schools that should have experienced a lasting educational benefit for their students (Koran, Koran, & Ellis, 1989; Falk & Dierking, 1997). All three factors should therefore have resulted in increasing visitor numbers over the course of the study period.

A number of other events during the study period have also impacted on visitor numbers. In 1954, a dead giant squid was washed up on the shore near Trondheim and the museum placed it on display. More than 10,000 people, 14% of the city's population, visited the museum on the following two days, greatly motivating the dissemination of zoological research at the museum. In 1960, a new exhibition presenting the occurrence, behavior and songs of Norwegian birds was opened by King Olav V. This marked another upturn for the museum's visitor service, reflected in the number of visitors that year. The exhibition was particularly relevant to schools, whose curriculum included birds and birdsong.

Visitor services became a permanent function of the museum in 1965, and the data indicate a positive trend in visitor numbers up to the mid 1970s. We attribute this trend to improved accessibility due to longer opening hours and the provision of guided tours, lectures, and storytelling sessions. However, we do not have an empirical basis in interview studies, for example, to enable us to assert with confidence that these were the only factors to have an effect. For instance, a new "Age of Enlightenment" during the 1970s has been widely recognized (Sheppard, 2000; Macdonald, 2003), when museum presentations of natural and cultural history were well timed in respect of the search by members of the public for their historical roots and to acquire knowledge in the accelerating development of society.

The peaks in 1981 and 1997 were due to the preceding increase in resources for exhibition work and, in particular, to two exhibitions that attracted large numbers of visitors. The first, in 1981, was about workers, and the second was about medieval life in Trondheim and was opened by King Harald V in 1997 in connection with the city's millennium celebrations that year. These peaks are easy to identify; the problem is how to explain the ensuing dramatic declines and the subsequent fluctuations that have continued right up to the present day.

Black (2005) showed that such rapid declines in visitors following peak years is not unusual and explained it by lack of planning and resources for follow-up and renewal, for example of a large and initially well-visited exhibition. We believe this is correct in our case as well, and that a key lesson to be learned from our annual visitor statistics for 1954–2006 is the need for sharper focus on strategies for running and renewing exhibitions. One challenge may therefore involve finding the "golden

mean” with a high turnover, although not too high, of good exhibitions combined with effective supplementary initiatives to impart information. In this regard, it is also worth noting that according to data from 1977 onwards, in which we compared the annual visitor statistics for school students and the general public, it seems that the dissemination programs we offered appealed equally to both groups. This may give some cause for concern. We must check whether our programs targeting schools are as well accommodated to the curricula as we have believed or are still too general to give us the expected response from schools. At the same time, it is important that both the school programs and the exhibitions themselves are not so narrow that they exclude large groups of visitors.

Information about the flow of visitors on a more detailed level, such as by the month and day, is helpful in designing long-term strategies for dissemination, funding, and staffing. Our data provide a fairly clear indication that the summer months are consistently associated with a comparatively large number of visitors, while numbers are particularly low in December. Classic explanation models can probably be applied to explain this pattern: The flow of tourists is reflected in visitor numbers in summer, whereas the slack month of December can be ascribed to competition with preparations for Christmas combined with the absence of an initiative by the museum to provide activities that are relevant to Christmas as a theme. However, during the last year resources have been put into new exhibitions and oral talks in December, focusing on different traditions of celebrating Christmas, which have resulted in a significant increase of visitors this month. Somewhat of the same may also be said about the visitation patterns that emerge within the week where Monday, Friday, and Saturdays show low visitor numbers. Friday and Saturday as museum days compete with the weekend where Norwegians typically practice different kinds of outdoor life. On Monday, being the first day in the week, school students normally stay at school for different activities there and planning of the week. Similar patterns have also been noted in the United Kingdom (Black, 2005) and elsewhere but can change over time. Local variations may, of course, also occur.

Norway’s History and the Development of Museums

The five Nordic countries, Denmark, Finland, Iceland, Norway, and Sweden, share a fairly common cultural history. Four of them are closely related linguistically and they have also been politically linked in a variety of combinations. Within the various alliances, Norway has several times been a dependency of either Sweden or Denmark, and ultimately attained her sovereign independence as recently as 1905 following a lengthy struggle. In Norwegian museum circles, this historical background has traditionally resulted in an extraordinary focus on emphasizing nationalism, Norwegian culture, and Norwegian identity. It is probably not an exaggeration to say that most cultural historical museums were established in line with the philosophy of building a nation, and that they are still marked by this. As important symbolic institutions they were intended to help to build up and strengthen the national state, Norway, and the public’s understanding of national fellowship and roots. Many of the exhibitions and much of the information presented still focuses strongly on this aspect. The 2005 centenary celebrations of the dissolution of the Union with Sweden was thus thoroughly marked by the principal museums, including this one, with well-visited exhibitions

that stressed such aspects as research cooperation on the Nordic level and production of knowledge.

Museology also has a position in the modern, post-war evolution of museums in Norway, and the first Norwegian initiative to establish museology as a university discipline occurred in 1964 (Gjestrum, 1995). In the 1960s, the prevalent definition of *museology* was “the study of the purpose and organisation of museums” (UNESCO, 1958), often interpreted to indicate that the main focus should be on safeguarding different kinds of material. Afterwards, a broader definition of museology emerged, and the concept now includes communication with the public (Cameron, 1971, 1992). More recently, several other initiatives have been taken for research and teaching of museology in Norway, and empirical investigations are underway as valuable instruments to plan dissemination work in museums (Henriksen & Frøyland, 2000; Henriksen & Jorde, 2001).

Even though the NTNU Museum of Natural History and Archaeology has experienced a declining trend in visitor numbers over the last couple of decades in the study period 1954–2006, it may be said that in the new millennium there has been an increasing and positive focus on museums in Norway and their significance as centers for culture and knowledge for the public (Norwegian Archive, Library and Museum Authority, 2005). A number of white papers have been published in recent years on how to organize and strengthen the museum sector. The government database recorded 9.2 million visitors at the 325 Norwegian museums in 2005. The Norwegian population numbers less than five million. Of the four university museums that cover natural and cultural history, the University Museum in Oslo, the capital of Norway with a population of approximately 550,000 and nearly 1 million when neighbouring boroughs are included, dominates the statistics with 900,000 visitors in 2005. In the same year, the university museums in Bergen on the west coast (population 242,000) and Tromsø in northern Norway (population 62,000) had 55,000 and 44,000 visitors, respectively. Thus, based on this general trend and these figures, and considering the number of potential visitors in Trondheim and the surrounding district (population 159,000), it should be possible to improve on the current numbers of visitors to the NTNU Museum of Natural History and Archaeology. A trend of increasing numbers of visitors has also been seen in Sweden since 1988, when the first records were made (Nylöf, 1995). One reason for this positive trend in recent years, both in Norway and elsewhere in Scandinavia, may be that in our complicated and challenging times, museums stand forth perhaps more than ever before as dependable and impartial suppliers of knowledge and, at the same time, are not afraid either of raising controversial problems or casting light on difficult episodes in history.

CONCLUSION

Based on the data presented here, we provisionally draw the general conclusion that good exhibitions and teaching programs, good planning of the year and the days, and working closely together with schools and other museums, may be key steps to take to maintain or increase visitation to the museum. In particular, we must make an effort to counter the tendency for a subsequent collapse in visitor numbers by renewing and expanding exhibitions and drawing in more visitors in seasons and on days when our figures show that there are normally fewer visitors.

Finally, we wish to point out that we have here focused on visitor numbers with the underlying aim of increasing them. As visitor numbers increase, and the museum becomes more widely known, the potential for obtaining higher grants will also increase. In some situations this may present a dilemma, for instance when one wishes to provide a service to small groups, even individuals, from the general public or schools. Should high visitor numbers be an objective and a key success factor? Or is this an old-fashioned way of thinking in the years to come? It would probably be useful to start a debate around this question.

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APPENDIX

Year 1954–2006	Total number of visitors	Group I (General Public)	Group II (School students)	m ² of new exhibitions
1954	29,000			40
1955	26,000			40
1956	25,000			40
1957	26,000			0
1958	23,000			0
1959	19,000			0
1960	29,000			180
1961	25,000			0
1962	20,000			15
1963	22,500			15
1964	23,000			15
1965	23,000			15
1972	29,000			260
1973	30,280			360
1977	28,400	18,200	10,200	220
1978	28,800	17,000	11,800	45
1979	27,400	15,550	11,850	240
1980	27,036	20,496	6,540	130
1981	39,851	19,956	19,895	215
1982	33,093	21,421	11,672	970
1983	29,009	16,831	12,178	505
1984	24,140	14,392	9,748	415
1985	28,381	16,814	11,567	445
1986	18,808	11,496	7,312	640
1987	19,679	12,883	6,796	255
1988	20,528	13,930	6,598	315
1989	24,000	17,021	6,979	620
1990	26,314	15,713	10,601	715
1991	27,808	18,422	9,386	485
1992	30,299	18,678	11,621	620
1993	37,966	25,142	12,824	350
1994	33,298	19,438	13,860	290
1995	44,564	27,543	17,021	635
1996	53,716	33,443	20,673	290
1997	35,491	18,391	17,100	615
1998	21,054	12,968	8,086	240
1999	25,633	17,007	8,626	100
2000	16,719	8,979	7,740	115
2001	29,234	19,091	10,143	290
2002	16,488	10,041	6,447	295
2003	22,209	11,780	10,428	445
2004	34,122	18,082	16,040	375
2005	31,352	16,506	14,846	635
2006	21,848	7,918	13,930	535