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Features of the Observation Method in Museum Audience Behaviour Research

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Abstract. Audience behaviour research is one of the most relevant topics in the field of museology, as visitor-oriented modern-museology-based museums inevitably need to understand how visitors learn, explore and understand museum information and communication. The article discusses the specifics of the application of observation as one of the oldest scientific research methods in the study of museum audiences. Even though observation is identified as an essential way of studying audience behaviour in real-time, the application of the method still raises questions about the way it is applied, issues of objectivity and the reliability of data. This paper aims to highlight relevant methodological issues in the application of observation and other qualitative methods of museum visitor research in assessing the relationship between the essential research question and the data needed to answer it. A literature review and the results and experiences of the empirical research conducted for the doctoral thesis are used to answer the questions. The empirical study of visitors' free choice behaviour in the Lithuanian Museum is used to illustrate the relevant features of the monitoring method, while the detailed results of the visitor behaviour monitoring study are presented in a dedicated paper.

Keywords: observation method; audience behaviour research; qualitative multimethods

Stebėjimo metodo ypatumai muziejų auditorijos elgsenos tyrimuose

Santrauka. Auditorijos elgsenos tyrimai yra viena aktualiausių muziejų srities temų, nes į lankytojus orientuotiems šiuolaikinės muzeologijos pagrindu veikiantiems muziejams neišvengiamai reikia suprasti, kaip lankytojai mokosi, tyrinėja ir supranta muziejaus informaciją bei komunikaciją. Straipsnyje aptariami stebėjimo, kaip vieno seniausių mokslinių tyrimų metodų, taikymo ypatumai tiriant muziejų auditorijas. Nors stebėjimas įvardijamas kaip esminis būdas tirti auditorijos elgseną realiuoju laiku, taikant šį metodą vis dar kyla klausimų dėl jo taikymo būdo, objektyvumo ir duomenų patikimumo problemų. Šiame straipsnyje siekiama išryškinti aktualius metodologinius stebėjimo ir kitų kokybinių muziejų lankytojų tyrimo metodų taikymo klausimus vertinant esminio tyrimo klausimo ir duomenų, reikalingų norint į jį atsakyti, santykį. Atsakant į klausimus remiamasi literatūros apžvalga ir daktaro disertacijos tema atlikto empirinio tyrimo rezultatais bei patirtimi. Empirinis lankytojų laisvai pasirenkamo elgesio Lietuvos muziejuje tyrimas pasitelkiamas svarbiems stebėsenos metodo bruožams iliustruoti, o išsamūs lankytojų elgesio stebėsenos tyrimo rezultatai pateikiami specialiame straipsnyje.

Pagrindiniai žodžiai: stebėjimo metodas; auditorijos elgsenos tyrimas; kokybinis daugiametodiškumas

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Introduction

Choosing the right method for solving a scientific problem is the basis for empirically based new knowledge in all scientific fields. Traditional methods specific to certain fields of science reduce the risk of choosing an inappropriate or atypical way to analyse the resulting gaps in scientific knowledge. However, when considering the methodological specificities of data collection in the social sciences, certain controversies emerge, where some methods are seen as valid, while others require more in-depth justification. This paper aims to highlight the peculiarities of the observation method and its relationship with other qualitative methods commonly used in audience behaviour research. Even though observation is identified as the most fundamental and oldest method of collecting systematic knowledge (Wilson, 2024; Tidikis, 2003), the use of observation as the main method of choice in audience behaviour research, which is not compatible with other qualitative research methods, still raises a debate about reliability and validity of data. A review of the articles presenting the research shows that the observational method is much more often complemented by a multimethod research approach, combining qualitative observation with qualitative interviews, surveys and focus groups. However, none of the latter approaches uses additional data collection methods in audience behaviour research. Interviews, surveys, focus groups or other methods, conducted separately as the main data collection methods, do not require additional validation. This trend reveals a methodological problem with the reliability of a single method, which is particularly evident in the case of the observation method. However, audience research in the field of museology makes it necessary to highlight this methodological problem and to assess the particularities of the method and its relationship with other qualitative data collection methods.

The relevance of research on the behaviour of audiences, or visitors, has been shaped by the conceptual changes brought about by the new concept of museology. Perez Lopez refers to it as an epistemological turning point in museology, caused by the influence of critical pedagogy and postmodernism on learning theories and models of communication channels (Lopez, 2021). Cultural anthropologist K. F. Kreps, a researcher in cross-cultural and comparative museum practices, calls this transformation a global ‘age of engagement’ (Kreps, 2020, 1), where the learning process in all informal settings is beginning to be seen not as the result of the acquisition of academic information or knowledge, but as a multidimensional process that takes place in many different ways and is inextricably linked to feelings, values, actions, or places (Hooper-Greenhill, 2004). Spaces based on experiential learning theory provide opportunities for audience creativity, productivity in terms of learning, and engagement through play (Kolb and Kolb, 2010; Dancu et al., 2011), while informal environments are seen as significant conditions for learning and for the initiation of particular social laboratories for cognition influenced by social interactions (Walker and Froese, 2011). The significant shift in the approach to the learning process from the transmission of information to the active understanding of processes has led to a need to rethink and clarify not only personal methods of knowing and perceiving, but also ways of studying audience behaviour and its impact on learning. Human knowledge

is shaped by multilayered processes that actualise not only the visitor's ability but also the right to actively participate in the cognitive process and to create individual learning experiences (Callanan et al., 2020; Aguayo et al., 2020; Cotter et al., 2022). It is therefore important to assess the methods and conditions under which research on museum audiences is carried out, or what significant constraints affect the possibilities to investigate these processes. This problem of choice and realistic implementation is particularly relevant for field research in real exhibitions, in order to maintain the natural conditions of the action and minimise the impact of the intervention. It is worth noting that in an article published in 2012, the authors point out that despite placing visitors at the centre of museum activities, their review of articles published over the past 20 years lacks extensive empirical research on visitors' experiences (Kirchberg and Tröndle, 2012). The authors attribute this gap to the resource costs of conducting the research itself, the fear of loss of authority and control of museums, and the methodological difficulties of analysing experiences. Boote and Mathews, in their review of consumer behaviour research from a marketing perspective, also point out that the monitoring approach is less commonly used and is often seen as time-consuming or as providing less comprehensive and qualitatively rich data (Boote and Mathews, 1999). The relevance of methodological issues in visitor research is confirmed by an article published in 2021, in which the author identifies the problems of discussing methodology (Abdel, 2021). The author argues that the sections of heritage and mainstream museum studies articles devoted to presenting research methodologies lack a more in-depth discussion of the opportunities and challenges of conducting qualitative research.

Thus, the aim of this article was formulated as follows: to reveal the advantages and disadvantages of the observation method used to study the audience behaviour by focussing on the methodology used in the empirical study of the behaviour of museum visitors (done for a doctoral dissertation). To this end, we will also look at the valid, objective and problem-solving methods that researchers have used in empirical studies of museum visitors to study visitor behaviour and engagement. Since we have combined the observation method used in the empirical study discussed in this paper with a semistructured interview and a qualitatively analysed questionnaire survey, we have not only the opportunity to focus on the features of its application, but also compare the results of observation with those obtained by other methods.

To achieve this, the following research questions are formulated:

1) Which methods are used to empirically investigate the behaviour and engagement of museum visitors and what is the place of observation among them?
2) How are observational methods used and evaluated in museum visitor behaviour research?
3) What are the advantages and disadvantages of the observation method compared to other methods used to study museum visitor behaviour and engagement?

Concept of observation

Observation is the act of looking closely, attentively, with the eyes, at objects and evolving actions and studying while looking. It is also described as a process that is defined in physical terms, i.e. even when observing invisible relationships, the observer is observing physical objects, and if the process lacks physicality, the activity is called hallucination (Torretti, 1986). Torretti argues that observation can only be a source of knowledge if the process also involves awareness and becomes meaningful. Bandura's social learning theory defines observation as an essential condition that allows people to see, replicate and adopt behavioural patterns (Bandura, 2009), which ensures socially validated knowledge and the ability to understand each other. Angrosino summarises observation as a unique way for humanity to make inferences about objects and to understand the processes occurring in its environment (Angrosino, 2013, p. 201). Researchers refer to the observation effect as an established relationship in which individuals, by observing and evaluating a task performed by others, perform better at that task themselves (King et al., 2018). Thus, conscious and unconscious observation of the environment and its processes is innate and unavoidable for humans. However, in the scientific sense, observation is not accidental, but a conscious and purposeful attempt by the researcher to gather data that allow the interpretation of the relationships between the objects under study or the results of a process and to generalise them from a theoretical point of view (Kardelis, 2002, p. 70).

Observation is called the oldest scientific method of inquiry, which is applied at different levels and to different extents in many disciplines: natural sciences, sociology, psychology, education, and other fields, where it is necessary to obtain data on phenomena, processes, and behaviour occurring in the natural environment without changing or influencing the flow of these phenomena (Tidikis, 2003, p. 448). According to T. Wilson, all research methods in all scientific disciplines are essentially based on observation (Wilson, 2024, pp. 141-151). Thus, observation becomes both an individual basis for the cognition of everyday human life and a systematic method for the cognition of everyday human life. An observation can be direct or indirect, i.e. when the researcher observes the object directly, or when the researcher relies on the observations of others. The structure of data collection determines the typological variations in research methods (ibid, 2024). Given that the structure can be either established (imposed by a researcher in some way) or emergent (derived from the collected data), T. Wilson develops four basic categories of methods: observation-direct-established; observation-direct-emergent; observation-indirect-established; observation-indirect-emergent. These categories allow the researcher to underpin the fundamental position of the research and to be guided by it in the search for answers to the research questions (ibid, p. 70). According to Wilson's typology of scientific methods, observation is identified as the basis for the study of any scientific problem. However, in the scientific literature, the method of observation is more often defined in a narrower sense, which corresponds to the categories of direct observation and emergent direct observation identified by Wilson. The main types of observation are: participant observation (involved observation) and nonparticipant observation (uninvolved observation),

overt and incognito ("covert") observation, standardised and nonstandardised, field and laboratory observation, systematic and nonsystematic observation (Tidikis, 2003, p. 452).

Observation is not only one of the most important qualitative research methods in the social sciences (Dźwigoł and Barosz, 2020), but it is also one of the most complex. This is due to the complexity of the method's implementation and the fact that observation can be the main method of a project or one of several complementary qualitative methods (Ciesielska et al., 2018). The researcher can be part of the research group or be detached, use pre-prepared instruments or be flexible, and observe in a controlled or natural environment (Farid, 2022). Overall, the concept of an observational approach is very broad, as it encompasses forms of inquiry ranging from a rigorously defined to a completely undefined process, but one of the greatest strengths of this approach is the ability to collect data in real-time, as it happens. Observation can undoubtedly provide valuable information and is particularly important in behavioural research when other research methods fail (Kardelis, 2002, p. 71). Observational methods are important because people's claims about their actions do not always correspond to their actual actions, and it is observation that helps to address this problem (Pope and Allen, 2020). The specific subject and research question then determine which form of monitoring is the most appropriate to achieve results. However, direct observation, especially if unstructured process observation is chosen, is a time- and resource-intensive approach, as it is designed to collect the most detailed and diverse data possible (Tinio and Specker, 2019, p. 220).

In the social sciences, the object of field observation is a real social process occurring under natural conditions, with the unique condition of the observer's role – the researcher must not influence the natural course of the process under investigation. And the aim of observation is to collect the most valuable data, as objectively reflecting the reality as possible (Tidikis, 2003, p. 452). In the case of laboratory (established direct) observation, the observation ensures strict control of the independent and dependent variables. According to Tidikis, this observation approaches the requirements of an experiment. However, in the social sciences, a major drawback of laboratory research is its low validity, as it does not correspond to real-life situations (ibid, p. 451).

Observation, inevitably referred to as a fundamental research method in the social sciences, remains one of the core methods, but there is an increasing focus on changing perceptions of the ethics of research and the relationship between the individual characteristics of the researcher and those of the subjects (Angrosino & Rosenberg, 2011, p. 467). As primary facts are obtained through sensory experience (i.e. observing, hearing, smelling, tasting, feeling, etc.) during observation, and data are inevitably filtered through the observer's interpretive prism, the aspect of objectivity must be continuously raised and understood throughout the research (Farid, 2022). One of the key challenges of the observational approach is the researcher's ability to distance himself from partially familiar circumstances and phenomena and see them as a new and unfamiliar research space (Cotton et al., 2010). In the social sciences, unlike in the natural sciences, the coproduction of observational knowledge relies not only on the characteristics of the observer but also on collaboration with the subject of the research, making observation in the so-

cial sphere a dialogue between the observer and the observed (Maas and Morgan, 2012). Therefore, when considering the advantages and disadvantages of different approaches to understanding and solving a scientific problem, researchers inevitably have to assess which limitations and contradictions would have less impact on the validity of the results and the interpretation of the data.

A literature review of methods for studying museum visitor behaviour and engagement

In order to answer the first research question, an analysis of articles presenting empirical research on museum audiences was conducted. The bibliographic database Web of Science, using the search terms <engagement AND evaluation AND museum>, yielded 72 articles presenting research on the evaluation of engagement. The abstracts or methodology sections of the articles were read to identify the object of the study, the research method, the type of museum and the outcome of the study. 10 of the articles were not directly related to museum audience research. Given the variety of terminology used in the studies, a search on the Web of Science bibliographic database for <participation AND evaluation AND museum> yielded 12 new articles presenting research on the evaluation of visitor engagement, of which 8 were either a review of the literature or on topics unrelated to the evaluation of visitors' direct engagement with the exhibitions. Google Scholar search engine was used repeating the same combination of keywords to supplement the literature review with new articles relevant to the analysis of visitor behaviour methodology, and therefore the search was limited to the period from 2022. The most relevant results found on the first three pages of the search included 28 articles not previously found.

A review of the 94 articles selected allows us to summarise that visitor engagement research relies on the following main methods: pre/post or post-questionnaires (physical or software); live monitoring protocols; video monitoring; observation with monitoring equipment; pre/post or post-interviews with visitors; mind maps; experiments with a treatment and comparison group in the museum and in the laboratory; focus groups; and case studies. Data collection methods typical of behavioural research with different age groups: written surveys, targeted observations, personal meaning maps, interviews, children's written reflections, children's drawings. Thus, a review of 62 articles on the methodologies of visitor engagement with museum exhibitions indicates that 47 empirical studies were based on methods or software that capture visitors' opinions, while 4 studies were carried out using only the method referred to as monitoring (corresponding to observation as defined in this article), and more often the monitoring method (11 studies) was combined with interviews and questionnaires or a focus group in order to collect data of different origins for a more comprehensive interpretation of the question under study. Although the review of studies identifies many different methods of data collection, the distribution is not even. In order to understand the research issue from the visitor's point of view, it is mainly based on visitor opinion research, i.e. methods that capture the opinions expressed by visitors: questionnaire, survey, interview (e.g., Nelson et al., 2020;

Long et al., 2020; Kagan et al., 2021). Meanwhile, the combination of the observational (monitoring) approach with other research methods partly confirms the aim of interpreting the main research method in the context of wider data.

The evaluation of participation in cultural and scientific institutions uses a combination of several methods using different forms of data collection: interviews, focus groups and questionnaires (Rössig et al. 2023); audio and video recordings, photographs, and field research notes (Seale et al., 2020); experiment with control groups of visitors (Zucker et al., 2024); mixed methods combining quantitative and qualitative data, while the choice of qualitative only methods includes focus groups, questionnaires, and participatory observation (Simo et al., 2017).

It is worth noting that from 2022 onwards, the visitor surveys introduce new themes of engagement forms and museum activities that have not been seen before as a result of the COVID-19 pandemic. A search of articles reveals that the choice of methods is also influenced by the nature of the object under study: action and impact are considered from the visitor's perspective or from the perspective of the museum's exhibition (Leister et al., 2016). While these two research approaches undoubtedly have many points of contact, one highlights the importance of individual characteristics for the process of engagement and its intensity, and therefore an observational approach would not be able to uncover this data, relying instead on the visitor's perceived and expressed opinion, or combining observation with questionnaires and interviews to identify visitor characteristics (Sheng and Chen, 2012; Packer and Ballantyne, 2002; Bamberger and Tal, 2007). In the second case, the significance of the institution/exhibit is analysed by modelling the engagement and intensity of the individual, and therefore observation, experimental simulations of the exhibit and technological tool data can help to understand engagement and interactions (Robin, 2005; Varano and Zanella, 2023). It models real and virtual elements that attract and hold attention (Knutson et al., 20016; Eardley et al., 20018; Haywood and Cairns, 2005), the duration of engagement and the number of objects (Yalowitz and Bronnenkant, 2009; Serrell, 2010), and the effect of space on engagement (Choi and Kim, 2006; Forrest, 2013).

The literature reviewed indicates that the observation method is characterised by its unobtrusive nature, which minimises any interference in the behaviour of those being observed, without manipulating or encouraging them (Adler and Adler, 1994). The group remains unaffected by the research question being asked, nor by the deliberate targeting of behaviour by cues or explanations (Scott and Medaugh, 2017). If the observation is carried out discreetly, it is innocuous and nonintrusive, and does not require physical contact or proximity to other people (Kellehear, 2020, p. 6). Therefore, the observational approach can be seen as a reliable method in the museum research field, provided that the conditions of minimal researcher involvement, facilitation of processes or purposeful modelling are maintained. As targeted human involvement (i.e. experts, guides, information providers) and professional expertise have a significant impact on the visitor experience (Pan et al., 2020; Huang et al., 2022), understanding the conditions of the object of study and the

possibilities of the method is crucial in audience behaviour research. By conducting audience behaviour research and capturing externally observable expressions of cognition or engagement, observation allows us to distance ourselves from influencing the natural process of exploring the exhibition and the typical behaviours. If this condition is essential for the object of the study, then observation, both direct and through video/audio technologies, should be considered as the main method of data collection. A review of the literature reveals that the most typical and universally accepted is the observation of time and movement trajectories (Yoshimura et al., 2012; East et al., 2017). Researchers recommend including a quantifiable time category when observing visitors, as the amount of time visitors spend at a particular exhibit can be indicative of visitors' level of interest and engagement (Rollins and Watson, 2019). In the authors' view, the measurement of the time dimension becomes even more effective and significant correlations are possible if it is combined with other dimensions. Falk (1982) views the time variable not only as the most historically used variable for assessing exhibit effectiveness and visitor behaviour, but also as an easily measurable, inherently objective and theoretically nontrivial measure. To be valid and valuable, the value of time needs to be understood and linked to behavioural determinants (Falk, 1982). However, the identification of other variables or factors that are relevant to the study of audience behaviour can be highly individualised according to the subject and conditions under investigation (e.g., Bardes et al., 2001; Zhau et al., 2013).

A group of researchers who conducted audience research in 2019 point out that surveys are suitable for collecting demographic profiles of audiences, but that each questionnaire has biases due to the informant's willingness to express preferred opinions and incomplete emotional responses, and they see targeted audience observation as a more appropriate way of collecting deeper meaningful data (Tan et al., 2019). The research team highlights the benefits of observation (especially at a distance with binoculars) when analysing the behaviour of visitors to protected areas. Direct questionnaires may not always reveal intentions of damage to protected areas or rule-breaking. Meanwhile, although direct observation is a time- and resource-consuming method, its effectiveness under certain conditions becomes a decisive argument for the choice of the method (Muhar et al., 2002). The aim of the study presented in 2001 was to compare the data collected by means of a survey with the recollections of informants and the data collected through individual and group interviews (Breen et al., 2001). The research team identified and confirmed previous findings on the effects of memory impairment and peer/cooccurring pressure. These are characteristics that can significantly affect the results of a survey. Visitor tracking published in 2005 and additional interviews allowed the researchers to compare visitors' perceptions with actual actions, especially with regard to the length of the visit. 53% of the respondents incorrectly estimated the length of their visit, mostly overestimating it. Observational studies do not reveal visitors' cognitive processes or socio-cultural characteristics, but they do help to assess actual behaviour in a given environment (Bollo and Pozzolo, 2005).

Empirical study on visitor behaviour and engagement

In order to reveal the methodological characteristics of the use of observation in the study of museum audience engagement and the relationship of data quality with other qualitative methods, we have used the experience and data from a two-month field study on the information behaviour of visitors related to a cultural heritage exhibition, conducted in 2023. This study was chosen as a relevant and illustrative empirical example of the method. The visitor behaviour study was carried out in order to investigate the forms of engagement of independent museum visitors of different ages with the exhibition and the role of play in activating physical, emotional, cognitive, social and social learning engagements. This study is important not only because of the new knowledge on the interactions between play and engagement in communicating cultural heritage content (presented elsewhere), but also because of the choice of research methods and their relevance for the assessment of personal information behaviour.

Choosing a method to study visitor behaviour: observation and self-report

A review of the scientific literature indicates that despite the fact that audience participation, engagement, and cocreation have been central topics in communication, economics, education, psychology, and other social research over the past few decades, the methodologies used in these studies predominantly rely on capturing audience opinions (Sterry & Beaumont, 2006; Martinez et al., 2019; Coffee, 2007; Kirchberg & Tröndle, 2012). The prevalence of opinion-based research is not only influenced by the nature of the issues being studied but also by the complexity of implementing certain data collection methods, such as video recording, and the evolving requirements for data protection, involvement of minors, and obtaining adult consent. However, we assumed that to thoroughly assess and understand the manifestations and reasons behind audience behaviour, relying solely on informants' opinions may only partially provide the necessary data for interpretation. The earlier research shows that individuals may not always be able to accurately evaluate, summarise, or communicate their behaviour, motivations, or emotions. This limitation suggests that opinion-based data collection methods, when studying behaviour, are incomplete and require the use of observational methods or a combination of multiple research methods to analyse the same phenomenon (Taylor et al., 2008; Sutcliffe & Kim, 2014; Kim et al., 2015).

Behavioural studies based on individuals' opinions typically employ qualitative data collection methods such as semistructured surveys, questionnaires, and semistructured interviews (Pan et al., 2020; Taheri et al., 2014; Fan & Luo, 2022). In these cases, the informant can reveal their experiences and individually articulate the motivations, goals, and methods behind their behaviour (Skov et al., 2019; Guthrie & Anderson, 2010). These methods are particularly significant when the aim is to understand the informant's personal relationship with cognitive processes and learning or knowledge outcomes. These opi-

nion-based research methods can be defined as ways of capturing behavioural expressions grounded in subjective self-observation. An external observation method conducted by the researcher in this context does not allow for the identification of the informant's thoughts or the depth of learning, understanding, or information retention achieved. Nevertheless, studies of visitors' informational behaviour are relevant when assessing the ability of the observation method to capture what the informant cannot or does not intend to articulate when filling out a survey or answering interview questions. These methods record verbally expressed opinions and/or impressions after a certain period, but the data may be limited by the informant's reluctance to disclose certain evaluations or their attempt to please the researcher [e.g., "we are not experts," "we don't understand... our opinion won't be valuable to you," "we quite liked it..."]. The application of multiple methods is undoubtedly significant in striving to understand a phenomenon more comprehensively, so both informant observation and opinion-based research methods should be considered effective ways to collect qualitative research data (Barron & Leask, 2017; Leister et al., 2016; Taylor et al., 2008).

Given these methodological features and the research objective to understand the impact of play on engagement in a free-choice context, while maintaining minimal researcher intervention and collecting diverse engagement-related data, the dissertation's empirical research employed observation, interviews, and survey methods. The primary method falls under the category of emergent direct observation according to Wilson (2024) and aligns with Tidikis' categories as nonintrusive, semiopen (visitors are informed of the observation but do not know who is observing), nonstandardized, field observation. The main observation was supplemented with data from semistructured interviews conducted with visitors who voluntarily agreed to participate. Some visitors also chose to complete a questionnaire, which, due to the characteristics of the sample, was analysed qualitatively. Thus, a multimethod qualitative study was essentially conducted, employing both external observation and self-report methods.

During the research, a total of 792 visitors were observed in the archaeological exhibition of the Old Arsenal of the Lithuanian National Museum. 62 individual groups of visitors were observed with the exact duration of the visit: 150 visitors, of which 114 were adults and 36 were children. Only 11 visitors visited the exposition alone, 139 visitors visited in twos, threes and larger groups. 642 visitors, 203 of whom were children, were observed without an exact start and end time. The data on informants' opinions (semistructured questionnaires and semistructured interviews) includes 86 questionnaires, which summarised the experiences of 249 visitors who came together, and 12 interviews. All research data was compiled into separate data blocks in Microsoft Excel, with the aim of first analysing them separately and then assessing the possibilities for data integration.

Application of observation and its results

To understand the reliability and applicability of the method and having in mind the subjectivity of a single observer two additional researchers participated in the evaluation

of the observation protocols in the study presented in this article. It helped assess the validity of the data collected through observation method. The data collection protocols of multiple observers allow for an evaluation of whether distinct phenomena identified by different observers and the externally observed behavioural expressions of visitors align. Excerpts from the protocols of different observers show that both observers essentially record the same obvious, externally visible phenomenon, even if they use synonymous words to describe it verbally:

- First observer: "13:04 A family with two school-aged children (likely 4th-6th grade), the girl is older. They all go together to the swords, enjoyed measuring the brother's height, commenting on the size of the swords. The sister is the first to leave, heading directly to the puzzle in the first area. The mother goes separately, the father stays with the son. The brother joins the puzzle, but something doesn't work for him. He calls the mother several times, the father comes to help, and they work on the puzzle together. The father speaks particularly loudly, commenting to the children."
- Second observer: "13:04 Family 2 (mother, father, girl about 12 years old, boy about 10 years old). They examine the sword exhibition, measuring the boy's height against the sword. 13:06 The girl starts working on the puzzle, the brother joins, and they arrange words together. The boy calls the mother, 'Mom, come here.' He calls her three times. The girl leaves the puzzle. The boy sits down on the chair next to the puzzle. He couldn't finish it. The father approaches, trying to complete the puzzle, the child joins in, and they work on it together (13:09). The mother and daughter move on to the display cases on the right. They are talking to each other. The father speaks loudly with the son, the daughter joins in."

This juxtaposition of observation protocols from several researchers allowed us to confirm that the essential, the most striking and the most objectively distinctive can be captured. Thus, the observation method allows for the recording of clearly expressed audience behaviour that occurs in real-time, unaffected by the subjectivity of self-reporting and/or reflection. The study shows that while it may be physically challenging for a single researcher to do this, one of the things that is most easily externally recorded is the amount of time spent in an exhibit or interacting with a particular object (e.g., a couple on the ground floor, a woman rushes forward, a man examines exhibition more closely, stops at the copies of the tools, starts to play with them, a woman stands at the exit, wants to go to the second floor, sees the man and goes back to see what he is doing. They spend two more minutes at the table with tool copies; the child saw the sandbox with the finds, started digging, the mother watched him, then walked around and explored the displays, talked to the child about the archaeologist's work, apparently waiting for him to finish, spent about 10 minutes at the display site).

The limitation of the observation method from the researcher's perspective is rooted in naturally occurring situations where the researcher physically cannot observe all visitors simultaneously, visitors speak quietly, or excessive noise is created, preventing the identification and connection of reactions, behaviour patterns, or ongoing social interac-

tions. However, it is important to emphasise that by systematically observing ongoing processes, behavioural expressions can be externally expressed and recorded.

When considering the application of the observation method in visitor behaviour studies, it's important to assess whether the research question requires data that captures real-time reactions and actions or the visitor's subjective opinions and evaluations of their experiences. Real-time behavioural expressions can only be captured through the researcher's systematic observation of the process, making a detailed and thoroughly completed observation protocol a significant database for forming insights. The conducted study illustrates that by recording and extensively describing ongoing processes, visitor reactions, emotions, social interactions, and distinct actions, it is possible to create a comprehensive map of behavioural expressions (e.g.: Three young men approach a table with replicas of Stone Age tools. One takes a hammer, starts to turn it around to look at it, comment on it, the others hurry to pick up one object at a time, and all three of them start to act, to imitate work or even a fight, laughing, making various sounds, and you can see that they are delighted with this element; two women are looking at an exhibition of jewellery, chatting, one of them is pointing with her hands to where things should be hung, how they used to be dressed up, she is talking a lot, explaining to her friend, bending over a table, pointing her finger at a particular exhibit; two women put together a jigsaw puzzle with words, work out how the pieces are to be placed, point to each other, and hear a sound accompanying the moment when they manage to match the shape).

For example, to understand the connections between elements of play and the intensity and expression of engagement, the observation protocol relied on unstructured recording of phenomena to collect the most detailed visitor behaviour data possible. Key aspects of the interaction between play and engagement were assessed by observing the visitor‘s actions: stopping and observing exhibits; bending down, picking up, and examining objects; calling others over; watching others; joining in; repeating an action; commenting; discussing; laughing, acting/imitating; waiting, etc. (e.g., the child enjoyed playing in the sandbox with the finds, his mother is exploring in another space. He starts to call his mother, she hurries, because the child comments to come soon because it is interesting. The mother joins in and together they briefly examine the pottery shards; a boy approaches a display case showing a model of a Stone Age house. He crouches down, leans in very close to the glass, and carefully examines it. He shifts his position to view it from another angle and tries to touch the glass, but his parents quickly reprimand him, and he immediately pulls his hand back; an adult couple watches as children play with pottery shards. They are interested but hesitant to approach, waiting for everyone to leave. The area is empty, but they still hesitate, waiting for encouragement. More adult visitors arrive, and only then do they join in, carefully arranging the pieces, commenting, and starting a discussion about historical periods with other visitors).

These actions were later grouped according to six identified forms of engagement: physical engagement, emotional engagement, cognitive engagement, social engagement, social learning engagement, and supportive engagement. Therefore, systematic observation, detailed recording of behavioural expressions, and consistent verbalisation of the

data become highly valuable material for analysing visitor behaviour and the expression of experiences.

Comparison with the self-reported data

When assessing the applicability of the observation method and the impact of its limitations on the studied phenomenon, it is essential to understand the nature of data obtained through different methods. The conducted study allows for a comparison of the data collected through researcher observation and the visitor's evaluation of the same phenomenon. Considering that visitor behaviour studies are based not only on the visitor's conscious evaluation of their behaviour but also on unconscious or unrecognised behavioural expressions (Marshall et al., 2016; Wollentz et al., 2023), it was important to review the relationships between data collected through different methods – observation, semistructured questionnaires, and semistructured interviews. These data relationships can help identify both the limitations of the research methods themselves and the value of combining different methods when evaluating the behaviour and information-seeking methods of visitors exploring through free choice.

The 12 interviews conducted during the study served as a basis for understanding how the data provided by visitors about their visit align with the observational data on the behaviour of these groups within the museum exhibits. The combination of data reveals that visitors only partially notice and understand this process, despite the observation protocols documenting physical engagement, supportive engagement, social engagement, emotional engagement, and social learning engagement. For instance, one significant aspect of the research findings indicates that visitors tend to associate elements of play with the youngest audience, often identifying them in interviews and questionnaires as the most engaged in the process. Meanwhile, the observation protocols record engagement across all age groups through play-inducing elements and examples of social learning, where adults observe children to understand how the integrated elements function. In these cases, the advantage of the observation method becomes evident, as interviewed visitors did not mention the influence of other visitors' behaviour on their own behaviour, exploration directions, or methods.

When evaluating the role of play in communicating museum content and engaging visitors of different ages, the observation method proved to be the primary data collection tool. It provided the opportunity to understand visitor engagement expressions and their connections to play. For example:

- "A woman walks through the first floor but hears children. She starts watching as they take the headphones, waits for them to try everything, and then leaves, but soon returns and repeats the actions herself." (When interviewed, she doesn't recall other visitors in the exhibit, mentioning that she wanted to check if the exhibit would appeal to her grandson.)
- "A man and woman observe children at the sandbox, wait until they leave, look around hesitantly, and then ask the staff if they too can participate." (In the ques-

tionnaire, they indicate that they actively explored the exhibit but do not mention other visitors.)

These examples highlight how the observation method allows for a deeper understanding of how play influences visitor engagement, often revealing insights that visitors themselves may not consciously recognise or mention during interviews or in questionnaires.

The significance of the observation results became evident in a case where interview participants, visiting the exhibit with two young children, were observed in the exhibition space. The observation protocols recorded that the children were engaged in activities on the first floor, but the parents themselves would interrupt these activities and hurry the children along. In this instance, elements of play were noticed by the visitor group, with several forms of engagement identified, and play served – and could have continued to serve – a role in occupying the visitors. However, these activities were cut short by the group's own members. Therefore, the children mentioned as a reason for rushing during the interview cannot be considered a hindrance to exploring the exhibit. In such cases, understanding the true motivations behind the adults' visit might help clarify the reasons for this behaviour in the museum. However, during the interviews, visitors either avoided directly stating these reasons or cited the children as the cause of their inability to explore the exhibit more thoroughly and for a longer time.

When analysing visitor behaviour, all three methods – observation, interviews, and questionnaires – are important for identifying the ongoing processes. Although each data collection method has its limitations, together, they significantly enhance the understanding of visitor behaviour and the individual's ability to summarise personal experiences. Just as the problems with observation mentioned earlier, surveys and interviews may also introduce bias due to consolidated responses, where individual evaluations are generalised.

However, in analysing the collected material, it was assumed that such limitations and issues with data collection are inherent to all social science research and that the resulting data inaccuracies would not fundamentally alter the key findings. Therefore, it is assessed that the empirical research conducted during the dissertation is significant for presenting new methodological approaches, which will broaden the perspective on the importance of the observation method in evaluating a specific condition for visitor experience formation – free--choice.

When evaluating data collected through different methods, the following key data correlations can be observed.

Visitors accurately summarise their experiences and behaviour, and these data align with observation data. For example, a woman and her daughter report that they equally enjoyed both floors of the museum, which is consistent with the observation protocol showing equal exploration time on different floors, along with a comment noting that they explored systematically and used the audio guide. Another example is a family with two young children who fill out the questionnaire consistently and in detail, while the observation protocol records the family's engagement, a long visit duration, and the parents' involvement in explaining the exhibit to the children.

Visitors describe their experience differently in interviews or questionnaires compared to what is recorded in the observation protocol. For instance, a father mentions that it is challenging to visit and explore the museum exhibits with children, whereas the observation protocol indicates that the children were visibly engaged in play in the first-floor area. Similarly, a mother and her adult son rate the exhibit as very interesting and informative in the interview, while the observation protocol records a quick transition through the exhibit, aimless looking around, with the mother reading a bit more, the son walking with his hands in his pockets, staying at a distance, and rarely approaching the displays.

Discussion and Conclusions

The knowledge accumulated through literature analysis and the conducted empirical research allows for a discussion of the nuances of using observational methods to study visitor behaviour and the integration of qualitative methods to minimise the limitations of each method while emphasising their advantages. The observation conducted by the researcher, combined with additional methods such as questionnaires and interviews, highlights the significance of the observational method in evaluating visitor behaviour. The study confirms that using observation helps maintain a natural environment unaffected by additional factors, where visitors are not disturbed by the research question, conscious modelling, or contact with the researcher. If the researcher can discreetly blend in with other visitors, avoiding drawing attention as a distinct person engaged in unique activities, then data collection and behaviour recording become a very smooth process. The empirical research successfully highlights the strengths of the observational method, such as being unobtrusive, nondisruptive, and reliable for capturing behavioural expressions in a natural setting. Visitors behave normally, without attempting to demonstrate atypical modes of exploration, cognition, or learning for the sake of the study. The ability to document that visitors engage in activities not solely related to the museum exhibits reflects typical behaviour patterns, unaffected by the socially defined concept of cultural institutions and museum conduct. The research indicates that systematic documentation of processes occurring in the environment allows for capturing highly detailed data on visitors' physical actions, social interactions, emotions, and cognitive engagement, which in turn helps to understand the effectiveness of the relationship between visitors and the exhibit.

The researcher's ability to objectively capture the behavioural expressions of the studied subject is identified as one of the key limitations of the observation method. The recording of external behavioural expressions through observation and the reflection of behaviour based on self-reporting are contrasted by pointing out that the researcher, while observing, may be influenced by the research question, personal subjectivity, and/or limited ability to capture significant behavioural expressions. However, it is important to emphasise that self-reporting or opinion-based data collection methods are also influenced by subjectivity, the research question, the research environment, and the ability to identify, summarise, and articulate behavioural elements. Therefore, from the perspective of data collection, biases in ensuring objectivity can be considered a limitation of all qualitative research methods.

However, the significance of the observational method in visitor behaviour studies is most clearly revealed through the comparison of behavioural expression data obtained through different methods. This comparison confirms the limitations of qualitative methods based on personal opinion and self-report, as identified by authors, which can significantly affect data interpretation. A clear limitation to highlight is the audience's ability to generalise and articulate their actions. The study revealed discrepancies between observational data and the information provided through interviews/questionnaires, where visitor groups spent time in the exhibition, explored, and engaged in all interactive activities but did not mention these experiences when recounting or filling out responses. Conversely, there were instances where observational protocols indicated a highly indifferent attitude towards the exhibition, brief visit duration, reserved emotions, and manner of speaking, while interview data showed that visitors found the experience very enjoyable and engaging. Situations were also recorded where behaviour during the visit demonstrated varying levels and forms of engagement, but questionnaire responses were filled out hastily, without much depth, or with a humorous tone.

Discrepancies in the data were observed when examining the influence of other visitors on an individual's engagement, where the persons themselves did not acknowledge or realize that they noticed museum elements only after other visitors started using them. This may be related to previous research findings about memory decay and the influence of peers/people present on opinion-based data. Such an effect was noted during interviews, where informants would wait for confirmation, approval, or help from others to express their thoughts before responding, or could not remember what they had been doing in the exhibition.

Comparing observational data with opinion-based data strengthens the significance of this method in studying visitor behaviour. However, like all methods, the observational method has significant limitations that must be considered in the interpretation of the research problem. One such limitation is related to the observer's physically restricted ability to simultaneously monitor multiple processes or groups of visitors, which was very evident during the study. It is clear that only a portion of visitor behaviour is consistently recorded, or simultaneously occurring processes are recorded fragmentarily. This limitation can be mitigated by increasing the number of observers and by utilising video/audio equipment for observation. However, ethical considerations must be addressed regarding data protection, the participation of minors in the study, and obtaining consent from adults.

Another limitation of the observational method is related to capturing visitors' cognitive/learning processes. Since only certain instances of information acquisition or comprehension by the visitor can be externally expressed (e.g., verbal comments, spontaneous discussions among the audience), relying solely on observation to assess the effectiveness of content communication would be insufficient. In such cases, observational methods should be considered one of several possible approaches to data collection on audience behaviour and should be combined with other audience research methods - such as questionnaires, interviews, or focus groups.

Therefore, summarising the literature review and empirical research data, and addressing the questions raised in the introduction about the methods used to study visitor behaviour and the characteristics of the observational method in recording externally identifiable behavioural expressions, the following conclusions can be drawn.

1. In empirical research on museum visitors' behaviour and engagement, qualitative research methods are used, which can be divided into two main categories based on the origin of the data needed to answer the research questions: data observed through the researcher's sensory experience (i.e. through seeing, hearing, smelling, tasting, feeling, etc.) and data based on the opinions, individual perspectives, and expressed experiences of the informants. Although the researcher's sensory experience is often cited as a limitation of the observational method, it should be regarded as an equally important and significant means of gathering knowledge about externally observable visitor behaviour. Methods that gather visitor opinions also face challenges related to the subjectivity affecting data reliability. However, comparing observational data with other qualitative data allows the observational process to be considered a highly reliable way of recording naturally occurring actions and expressions. Involving other researchers in the process can reduce the risk of subjectivity and enhance the reliability of data collection and analysis.
2. In visitor behaviour studies, the observational method is used to understand visitor behaviour and real-time processes. While the observational method is valued as a fundamental scientific research method, in museological field studies it is often combined with other methods (e.g., interviews, surveys, focus groups) to gather as comprehensive data as possible on the same phenomenon or research object. Thus, visitor behaviour studies typically involve a combination of several qualitative methods to collect both observational data and self-reported data from visitors.
3. Observation is considered one of the essential methods for studying audience behaviour because it allows for real-time investigation without affecting the research environment or the research subjects. The observational method is distinguished by its unobtrusive, nondisruptive data collection approach, which captures not what the visitor thinks or intends to say, but how they actually behave and respond. This is a significant advantage of the method that sets it apart from other qualitative methods. The personal characteristics of the researcher and their ability to objectively assess familiar everyday environments undoubtedly influence validity, data reliability, and ethical considerations, but it is the only way to study behaviour itself rather than opinions about behaviour. On the other hand, the limitations of self-reported or opinion-based qualitative research are associated with the individual's ability to record, generalise, and express their behaviour and personal experiences. Therefore, visitor behaviour studies rely on combining qualitative methods to gather as diverse data as possible about the same phenomenon while attempting to mitigate the impact of the limitations and shortcomings of different methods. Nevertheless, the application of the observational method is a very significant way to collect data that cannot be captured based on visitors' personal opinions or evaluations.

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