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Discover stories from the 20th century : interactive and multimedia exhibition evaluation

STUDIE/ARTICLES

DISCOVER STORIES FROM THE 20TH CENTURY: INTERACTIVE AND MULTIMEDIA EXHIBITION EVALUATION

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ABSTRACT/ABSTRAKT:

A multimedia, interactive exhibition about the Second World War was opened at the Memory of Nations Institute in Pardubice in February 2022. It was designed by an interdisciplinary team from the Post Bellum NGO, Charles University's Faculty of Arts and the creative studio 3dsence. The exhibition used interactive storytelling and visitor-centred design as its main means for sharing its content (messages). This article describes the exhibition and presents a qualitative evaluation (N = 26) conducted using a hybrid approach (observation, surveys, common reflection). The results showed that a highly technological exhibition is able to engage visitors. Moreover, 9 out of 26 visitors reflected on the topic in greater depth. The applied research resulted in a set of recommendations for improvements.

Odkryjte příběhy 20. století: Evaluace interaktivní a multimediální výstavy

V Institutu Paměti národa v Pardubicích byla v únoru 2022 otevřena nová multimediální a interaktivní expozice o 2. světové válce. Na výstavě se podílel interdisciplinární tým složený z neziskové organizace Post Bellum, Filozofické fakulty Univerzity Karlovy a technologického kreativního studia 3dsence.

Při tvorbě expozice bylo využito přístupu interaktivního storytellingu a návštěvnicky orientovaného designu. Článek představuje koncept expozice a kvalitativní evaluaci výstavy s 26 respondenty, pro kterou byl zvolen smíšený přístup (pozorování, dotazníky, společná reflexe). Zjistili jsme, že výrazně technologická výstava dokáže návštěvníky zaujmout a u 9 lidí dokonce došlo k hlubší reflexi. V rámci aplikovaného výzkumu byla odhalena slabá místa a navrženy konkrétní úpravy.

KEYWORDS/KLÍČOVÁ SLOVA:

visitor-centred design – Second World War – interactive exhibition – exhibition design – evaluation

návštěvnicky orientovaný přístup – 2. světová válka – interaktivní výstava – výstavní design – evaluace

Introduction

An interdisciplinary team was formed for this project financed by Technological Agency of the Czech Republic and realized during 2020–2023.[1] The team consists of members of the non-government organisation, Post Bellum, experts in technology, games and new media from the Faculty of Arts – Charles University (FACU) and employees at the creative studio 3dsence, which specializes in connecting technology with art and science. The Post Bellum organisation's main project is a database of stories from historical witnesses called Memory of Nations.[2] Our past experience at FACU allowed us to cooperate with students from different study programmes, putting an emphasis on using an interdisciplinary approach. The main outcome of this three-year-long project was the opening of the first Memory of Nations Institute (MNI) in Pardubice by hosting a new, interactive, multimedia exhibition about the Second World War (WW2).

Creating an entirely new exhibition allowed us to test current trends in museums, to experiment with new media and technologies, and to critique new ways of interactive storytelling. This particular exhibition also paves the way for ongoing exhibitions which are planned to open in Brno and Olomouc in the future. The Memory of Nations digital archive (collection) which consists of more than 7,500 published witness testimonies and almost 50,000 audio or video recordings

2 *Post Bellum* [online]. [accessed 2023-06-18]. Available from www: <https://www.postbellum.cz/english/>.

was the basis for our project. Application of a visitor-centred approach, through cooperation with visitors or potential visitors during the first stages of the design process, provided valuable and important insights. This approach aims to optimize museum content for visitors in order to reflect their real needs and to make the exhibition suitable for better engagement for cognition (cognitive activities) and learning.[3] To map visitors' needs we conducted qualitative interviews with Czech citizens (N = 10) and expats living in the Czech Republic (N = 16; a total of 26 interviews). The interviews were followed by extensive quantitative surveys (N = 808) focused on preferences regarding the themes and form of the displays.[4] Moreover, we tested games and activities offered to groups or families to validate their design from the point of view of education and entertainment.

The first part of this text will introduce the exhibition design and the exhibition itself. Results of the exhibition evaluation, realized using a hybrid research approach (observation, surveys, common reflection), will follow. The aim of the research was to find out how visitors interact with the highly technologically-advanced exhibition, what experiences and information they gain, and what kind of displays they prefer and why. Museums are often, somewhat stereotypically, understood as places where people re-evaluate their relationship to the world, which is what this text focuses on in the end.

The Discover stories from the 20th century exhibition

Reflection upon broad, common (historical) stories should take place in museums.[5] For the individual visitor, museums are places where people broaden their knowledge and search for new information. Simultaneously, visitors want to confirm what they already know about the world and to strengthen their identity and social role.[6] Current visitors prefer the self-guided or self-directed experience which allows them to control the scope and time spent viewing the exhibition.[7] Therefore, in museums, the public interest intermingles or interacts with a particular visitor's individual needs.

Post-modernism and rapid technological and sociological development during the 20th century influenced museums as well as the ways exhibitions are designed. As a consequence, a simple interpretation of universal history and culture is no longer sufficient.[8] More and more often history is told not only from the position of privileged classes and leaders, but also from that of ordinary people. This increases the pressure on an exhibition's authors. One of Post Bellum's missions is to collect stories from ordinary

people. Therefore, one of the stories in the exhibition is indeed a story that is not part of the greater narrative. The exhibition aims to connect facts with emotions and to form a bridge between the past and the present.[9] The collection itself and a focus on presenting objects is still the dominant approach in Czech museums.[10] Since the Memory of Nations' collection consists of digital materials, our project challenges the central role of objects. Understanding the exhibition as a complex medium was essential for exhibition design.[11] According to these circumstances, the exhibition was designed with several (educational) goals:

· to describe a more complex picture of historical events (e.g. ethnic composition of the population, role of propaganda),

· to enrich visitors' knowledge through detailed information from everyday life (e.g. anti-Jewish laws, travelling through wartime Europe, possibilities for helping people in concentration camps),

· to open a dialogue between the visitor and the stories displayed thanks to authenticity, real-life experiences, and the ability to empathize,

· to strengthen relations among visitors through collaboration and discussion.

During the project's realisation, we opened the first multimedia exhibition with a set of displays

3 SIMON, Nina. *The Participatory Museum*. Santa Cruz: Museum 2.0, 2010.

4 The results of this research have been processed (addressed) in another article.

5 JAREŠ, Jakub, Čeněk PÝCHA a Václav SIXTA (eds.). *Jak vystavujeme soudobé dějiny: muzeum v diskuzi*. Praha: Ústav pro studium totalitních režimů, 2020.

6 YOSHIARA, Yuuki. Art museums and society after apartheid. *Museum Management and Curatorship* [online]. 2008, vol. 23, no. 3, pp. 281–293 [accessed 2023-06-18]. Available from www: <https://www.tandfonline.com/doi/abs/10.1080/09647770802234102>.

7 ALDERMAN, Christina. I Spy: Interpreting Artworks Through Games. In BEALE, Katy (ed.). *Museums at Play*: *Games, Interaction and Learning*. Edinburgh: MuseumsEtc, 2011, pp. 40–53.

8 SAVENIJE, Geerte M. and Pieter de BRUIJN. Historical empathy in a museum: uniting contextualisation and emotional engagement. *International Journal of Heritage Studies* [online]. 2017, vol. 23, no. 9, pp. 832–845 [accessed 2023-06-18]. Available from www: <https://www.tandfonline.com/doi/full/10.1080/13527258.2017.1339108>.

9 NEVINS, Elisabeth. The Past as a Brave Space: Reframing relevance. In MARK, Gold S., Rebekah BEAULIEU and Salerno E. DAWN (eds.). *The State of Museums: Voices from the Field*. Edinburgh: MuseumsEtc, 2018, pp. 17–20.

10 WANČOVÁ, Nina. *Role nových médií v muzejní prezentaci* [online]. Praha: Univerzita Karlova, Filozofická fakulta, Ústav informačních studií a knihovnictví, 2020, p. 128 [accessed 2023-06-18]. Available from www: <https://dspace.cuni.cz/handle/20.500.11956/125046>. PhD thesis.

11 DERNIE, David. *Exhibition Design*. London: Laurence King Publishing, 2006.

where visitors had to figure out (pave) their own way to the following (understanding) the included topics based on the same principle. Topics being considered for future exhibitions include, for example, the year 1948 and the terror of the 1950s, Prague Spring and the occupation in 1968, Normalisation (1968–1989) or broader topics like 20th century culture (official, as well as the dissent and samizdat movements) or sport. The exhibition is available in the Czech language only at the moment. However, an English-language version is being prepared. Based on the results of qualitative interviews with 16 people originally from other countries and now living in the Czech Republic, a mere 1:1 translation will not suffice. This is because potential foreign visitors will likely miss a lot of local background (context). They will have significant misconceptions. Thus, the exhibition texts are being translated and modified for international visitors. Subtitles are not suitable for the stories because reading would disrupt the experience and would be difficult, so a voice-over option was chosen. The English version is planned for summer 2023. The exhibition is highly digital; therefore, it was decided not to offer an online version. To provide a more balanced experience "offline activities" such as a board game, an exit game and workshops for school visits are offered.

Based on the findings from the quantitative and qualitative research among visitors, the Second World War (WW2) was chosen as the theme for the first exhibition. Apart from the digitalized materials from the Memory of Nation collection, we also used archive materials belonging to witnesses (photographs, letters, etc.), historical materials from Czech Television's archive, and available period photographs. We cooperated with historians from the non-profit organisation, Post Bellum, in order to obtain contextual information.

Exhibition space and technical solution

The MNI and the exhibition are located in the Machoň Arcade[12] in one of the main avenues in Pardubice's city centre. The exhibition is situated in the basement of the arcade. In the same space, MNI also has its offices; plus, there is a conference room for workshops and a studio for recording witness stories. Upon entering, visitors walk down the stairs where they can see motifs from the exhibition on the wall. They then enter into the foyer with a cloakroom, cash/ticket desk and a museum shop. The exhibition space itself (approx. 264 square

Fig. 1: The main exhibition room, lighting and furniture (Photo: Nina Wančová).

meters) consists of four interconnected rooms without windows or doors. The light is dimmed. Vertical, warm lamps

12 The building with the Machoň Arcade and its glass ceiling was built between 1924–1925. The building houses many commercial premises and there is an entrance to the residential part of the building and a separate one to the MNI.

stand on pillars and the brick walls have a rough finish. The furniture and display constructions are black and neutral in colour (figure 1).

Displays and visitor localisation

The exhibition consists of a set of displays which function as projection screens for its audio-visual content (figure 2). The displays represent each part of the storyline and they have different formats, shapes and styles; all with options for audio-visual projections and amplifying (augmenting) visitors' experiences. Visitors go through the exhibition with a tablet and they listen to the audio from headphones. Therefore, they do not disturb each other. The exhibition must localize (place) visitors properly in order to be able to offer a customized experience and to share the story in the proper sequence. We used the functions of tablet computers (especially the camera) to ensure a smooth flow of visitors. Contrasting black stripes were placed on the floor and the lighting was modified to support the camera function. These abstract stripes also make the space more

Fig. 2: Exhibition scheme with different displays (Author: Monument office).

Fig. 3: Visitor-couple with tablet, headphones and a synchronized smaller device (Photo: Nina Wančová).

interesting and boost visitors' imaginations.

Audio experience and interaction

The exhibition includes variety of audio materials which are listened to via headphones using a tablet. In cases where visitors arrive in pairs/couples (the majority of the time), they are also given a smaller device for wireless synchronized playing of audio elements from the tablet without any visual content. The couple then works together using a single tablet without being distracted by a cable (figure 3). We experimented with external wireless bluetooth audio transfers. However, it led to repeated spontaneous resetting of the programme, which disrupted experience flow for the visit. The tablet thus works as an audio guide, a navigation tool, and provider of multiple interactive elements. After scanning the QR code unique to each display, the tablet, headphones and the display start to play the content for the individual display.

Prototyping and evaluation

The exhibition's concept has evolved and it was thoroughly tested. The results from the quantitative survey (N = 808) and qualitative interviews (N = 26)[13] were used for ideation and for formulation of the main approach to the exhibition. The temporary pilot exhibition in Pilsen called *Liberation without Freedom* was prepared for testing the functionality of the displays and of the whole concept. This temporary exhibition was installed at the Pilsner Urquell Brewery Visitors Centre from 1 June to 16 September 2021. It included prototypes of all the displays and offered 4 different witness stories, using the standard approach of a documentary film with audio, voice-overs and archival materials (photographs and historical recordings). We discovered that sharing 4 stories in 90 minutes led to a situation where visitors were overwhelmed by the speed of the narration. They were not able to connect with the life story shared. Nor could they connect on an emotional level. Also, there was not enough time for

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13 The results from the quantitative surveys and the qualitative interviews are discussed in a separate article.

sharing or processing contextual information. These findings were discovered using a short exit survey (N = 80) and based on discussions during a collective reflection exercise by the realisation team along with other Post Bellum members who were not involved in the project. The data showed that this particular exhibition attracted mostly middle-aged visitors (36–50 years, 35 %) and younger visitors (20–35 years, 32.5 %) who did not have problems with the technical aspects of the exhibition. These mostly younger visitors were probably more confident about digital technologies and information literacy. Overall satisfaction with the storytelling methods and interaction (very satisfied – 64.6 %; satisfied – 35.4 %) stood in contrast to the internal team evaluation.

Visitors appreciated the authentic stories (videos) most, and the results showed that this exhibition was able to intensify historical empathy. 80 % (64) of visitors "*felt moved by the stories' authenticity*". More than 61 % of visitors said they were able to gain new information and knowledge. More than 80% of visitors declared they gained a better understanding of historical events. However, they also reported that the exhibition lacked contextual information and background. The exhibition's approach and its digital nature is innovative act for Czech museums. An overall social desirability bias led to visitor satisfaction with the exhibition. The other factor which influenced the survey results was that visitors are not largely equipped to provide quality feedback on exhibitions in the Czech Republic. Problems occurred with navigation and playing the content after scanning the QR codes. We decided to fix the navigation system and to fix technical problems. We reduced the

number of stories to two, provided more sufficient background, enriched the ways the stories would be told, and added interactive elements to immerse visitors more deeply in the topic and to challenge their prior knowledge. We have begun to discuss the needs of other visitor groups (except adults and young adults) who visited this exhibition.

Visitor engagement and interactivity

When buying tickets, visitors choose whether they are going to visit the *Discover Stories from the 20th Century* exhibition alone or as couples. Based on the number of physical displays, the exhibition can accommodate a maximum 16 visitors at a time. This relatively small number allows for a more private experience, but it also puts school groups at a disadvantage. The latter represent an important visitor target group for the MNI. An average group from a Czech school consists of 25–30 students. Current visitor number constraints mean that a school group has to be divided into two separate groups. The workshop part of the visit is then held in the lecture/conference room on the building's upper floor.

Based on the pilot project, the exhibition's dramaturgic design was reconsidered. Its interactive part was strengthened with the goal of enhancing the quality of the learning process and supporting more active discovery (understanding) of the story. An external screenwriter with a theatre background (Karel Kratochvíl) and a visual artist (Josef Lepša) joined the team. Different types of interaction were developed to provide a multi-layered experience. Interactive fact-checking elements included quizzes for individual or collaborative participation to support the visit's social dimension.

Fig. 4: Creating propagandist poster (Photo: Nina Wančová).

There is a creative task which is an interactive element where visitors try to make their own propaganda poster and share their thoughts (figure 4). Although the exhibition is predominantly digital, it also includes several hands-on activities which mediate the experience with the authentic historical artefacts (figure 5).

The 90-minute-long visit is divided into 4 parts. The main characteristics and goals of each part are described in table 1. The exhibition design is constructed as a balanced experience with two main parts: free interaction and storytelling. Compared to the second part of the visit, which has an exact order due to the witness' life storyline, the first part offers visitors a self-directed experience. Because of the specific order of the story, visitors cannot start following the story at the same time. Before the tablet they are using instructs them to begin the journey through the story, they have interactive content they can look at available on the tablet. The same content can be used by visitors who finish the story early. During the visit to the

Fig. 5: Hands-on activity (Photo: Nina Wančová).

revealing problematic areas. For the purpose of this article, the findings and conclusions are generalized for broader application.

Methodology and data collection

Getting quality feedback from museum visitors is quite difficult: it is time consuming and it relies greatly on visitor motivation. If the museum aims to gain credible, useful information, this cannot be done using simple testing via an emoticon-based survey or a small number of questions.[14] According to the tested pilot exhibition in Pilsen, visitors tended to share positive feedback even though

The Exhibition Scheme				
Time (90 minutes in total)	15 minutes	11 minutes	38 minutes	3 minutes
Exhibition Part	Free Interaction	Collective Projection	Witness Story	Collective Projection
Explanation	The first part of the exhibition allows visitors to familiarize themselves with the exhibition's technical aspects, to learn how the tablet and displays work, and to learn about the space. The interactive quizzes and games allow visitors to delve into the topics and introduce them to basic facts. This part is based on a self-guided experience and it supports cooperation and dialogue between visitors.	After the gong rings, visitors meet and sit around the sphere projection which introduces Post Bellum and its mission. It also provides background about the local history. The projection uses historical photographs, expressive sound dramaturgy, as well as graphic elements. The instructions about the story part are provided at the end.	Two different witness stories are the core part of the visit. In this particular exhibition, these are the stories of a soldier named Tomáš Sedláček and a young woman named Jaryna Mlchová who was part of an anti-Nazi resistance group. This part of the exhibition has a fixed order, and the visitor follows the journey from one display to the next. The story parts alternate with contextual displays.	When the story ends, visitors meet again for another projection which is significantly shorter. This projection consists of photographs of the witnesses and their voices. The material comes from the Memory of Nations collection; the latter group was asked to convey a message to future generations. This final part is devoted to personal reflection, to generalisation of the experience, and to emphasising positive values.

Tab. 1: The exhibition scheme.

exhibition, all visitors meet twice for collective projections: one at the beginning and one at the end of the visit. The exhibition covers different types of experiences. It works for individuals as well as for couples/pairs, and it also supports collective experiences for entire groups via the full-audience projections.

The exhibition evaluation

The aim of the evaluation with its three research questions (RQ) was

to discover how visitors work with the exhibition displays and if the UI (user interface) is comprehensible (RQ 1). They also explore what kind of experience and information visitors gain (RQ 2) and whether the overall concept of the exhibition, in particular the setting, is meaningful (RQ 3) during a standard visit. This applied research has led to the formulation of set of specific recommendations for improving the exhibition. It was also designed with the intention of

the exhibition contains serious mistakes in its content as well as its functionality. Therefore, we cooperated with students from Charles University's Faculty of Arts who acted as respondents during their study excursion. The exhibition was evaluated once on 5 May 2022. For the qualitative

14 RICHARDS, Greg. The traditional quantitative approach. Surveying cultural tourists: lessons from the ATLAS cultural tourism research project. In *CABI Digital Library* [online]. 19 May 2022 [accessed 2023-01-04]. Available from www: <https://www.cabidigitallibrary.org/doi/10.1079/9781845935184.0013>.

Data Collection Scheme				
Time	1st part: 90 minutes	2nd part: 90 minutes	3rd part: 25 minutes	4th part: 65 minutes
Group 1	Visit (The respondents come to the MNI as regular vistors. They are provided with standard information and instructions.)	Lunch break	Respondents complete the questionnaire individually.	Discussion and reflection period between observers and respondents. Sharing thoughts and finding solutions.
Group 2	Lunch break	Visit		
Observers	Observation	Observation	Lunch break	

Tab. 2: Data collection scheme.

research, a hybrid approach was applied and surveys, visitor observations and semi-structured reflection periods (in the form of common discussions) were used. Physical and cognitive needs were taken into account when designing the research. Therefore, the evaluation itself was realized after respondents were allowed to take a rest and get a meal.

The combination of several methods provided us with more complex data which described visitors' opinions about the exhibition in greater depth. The research design is shown in table 2. The safe space between students and their relationships along with the ability to share thoughts freely were crucial for data collection. The research weakness was limited only to the number of respondents (N = 26) and the homogeneous sample: mostly young people.

The survey was created for individual evaluation and was to be completed in-person after the visit. The first part of the survey covered the free interaction section; the second was related to the story; the third part focused on the overall experience; and the last part evaluated the popularity of the exhibition displays (from most to least popular). The questions focused on the UI, difficulty of the interactive elements, the exhibition's ability to engage visitors, or the displays' stimulating effect. The survey consisted of closed-ended questions, Lickert scale questions, as well as open questions. During the visit, two investigators observed visitors and recorded their findings in a simple observational protocol with a set of clues and questions with free space provided for their own remarks. For the research final phase, the collective reflection period, 6 open questions were prepared and raised during the discussion. These questions focused on inadequacies anticipated by the survey designers. A recorded collective discussion might not be comfortable for everyone. Therefore, we added a "final word" portion to ensure that everyone got at least one opportunity to share their opinion.

The digitalized surveys were analysed in Libre Office. Moreover, a set of documents (an edited discussion record, notes from the observations, texts from the open survey questions) was collected for qualitative analysis in QualCoder software. A hybrid approach combining inductive and deductive coding was used for the analysis. Codes were used across all documents. Three research questions (RQ) formed the basis of the coding: UI (1), information and experience (2), and concept and space (3). Quotes from visitors used in the "Findings" section on this paper come from the observation report as well as from the discussion session and open questions.

Findings

The research was conducted in order to gain as much information as possible relating to visitor satisfaction. It also looked to reveal deficiencies in the exhibition design as well as in the UI of particular displays. The results will be used for changes in design and display structure. Therefore, this research will be widely applied. The results are ordered according to the three RQ and present findings from all methods used. All results are also presented in table 3.

The acquired data comes from 26 respondents, 23 of whom were students between 20–23 years of age. The remaining 3 were middle--aged pedagogues. There were 18 women in the sample, 3 men, and 5 respondents did not fill in the gender section or their name. The results were anonymized. The sample corresponds with the fact that more women in the Czech Republic study librarianship than do men. In the question regarding how often respondents visit museums, only two considered themselves to non-visitors. The other 14 respondents were occasional visitors (2–3 visits per year); 10 respondents visit museums more than four times per year.

Because of the exhibition's digital nature, we asked respondents to evaluate their digital skills by grading themselves as if "in school", i.e., on a scale of 1 (the best) to 5 (inadequate). The respondents considered themselves proficient with an average score of 1.8. 18 respondents gave themselves a grade of 2; 6 respondents with a 1; and only 3 of them graded

Research Findings Overview (N=26)		
Research Question	Findings	Method
General Statements		
	Most of the respondents (14) are occasional visitors (2–3 visits / year), 10 respondents visit more than 4×/year and 2 visitors are non-visitors	S
	Average self-evaluation score in digital skills is 1.8 (1–5 scale where 1 is excellent)	S
	The average self-evaluation score in the history section was 2.4.	S
Displays' user interface (UI) (RQ 1)		
	No significant problems with UI	S
	UI evaluated as intuitive even if there were small problems	S
	Lack of clarity if the there was more content or content not on the tablet	O
	Lack of feedback on already completed tasks and correct answers	D/O
	Mismatch of different functions for particular displays during the story and interactive part of the exhibition	D/O
	Missing Pause function	D
	Interactive tasks considered interesting and engaging	S
	Tasks deemed too simple and too few	D
	The hands-on activities evaluated as either great or very poor	D/S
	The sphere projection for collective participation proved to be very popular	D/S
	Displays with light and smoke effects considered immersive and appealing	D/S
Experience, knowledge and information (RQ 2)		
	New information and knowledge acquired from the story as well as from the interactive part	S
	New knowledge connected with previous knowledge	S
	The story was understood without the need for more background information	S
	Ability to make an emotional connection with the witnesses varied and was not universal	S
	Gender aspect important to younger visitors	D
	Big interest in the rest of the witnesses' life stories	S/D
	The exhibition itself and its technical solution were mentioned 29 times as the greatest experience	S/D
	For 9 respondents, the visit was an opportunity to think more deeply beyond the exhibition topic, even if the basis of their opinions did not change	S
Dramaturgy and exhibition space (RQ 3)		
	The entire exhibition dramaturgy considered sufficient	S
	Some parts of the exhibition require more time, pace was too fast	O/D
	Hands-on activities require more time	O/D
	Lack of visibility for exhibition progress and next steps	O/D
	Queues in front of the displays led to frustration, missing content for standing (waiting) time	D/O
	Space, lighting and atmosphere all reported to be very good	D
	Missing seats or a dedicated relax zone	D
	Headphones caused very little friction for visitor communications and discussions	O
	Visitors without tablets felt less engaged	D
	Visitors wanted more privacy	D
	Classic displays such as show/display cases with physical artefacts were neither missed nor asked for	D
	The navigation feature in tablet was not useful for all visitors	S
Methods: S (survey), O (observation), D (discussion)		

Tab. 3: Research findings overview.

themselves with a 3. No one gave themselves a mark worse than 3. This reflected a selection of respondents who feel digitally capable. Subsequently, we asked respondents to self-evaluate their knowledge of history. Here, the results were more uneven. Four respondents considered their knowledge of history excellent (gave themselves a 1). 11 visitors marked themselves as good (grade = 2); 11 respondents claimed average knowledge (grade = 2); and 2 others gave themselves a grade of 4. The average grade for history was 2.4, and those visitors who visit museums the most achieved an average score of 2.1; this even though they used all marks from 1 to 4. The occasional visitors achieved a score of 2.3 and non-visitors had an average score of 3.

The displays' user interface (RQ 1)

With a digital exhibition it is extremely important to make the UI (user interface) comprehensible. If the UI is not functional, it can impair visitors' ability to focus on the content. None of the respondents had significant difficulties with the UI. 10 out of 26 knew immediately what to do and they did not have any problems. 13 visitors were almost without any problems, and 3 had occasional problems.

14 respondents saw the UI as intuitive, which is four more than those who claimed that they did not have any problems with the displays' functioning. It is possible that small problems were considered normal and thus did not impact the UI quality for the visitors. For 9 of the visitors the UI was almost intuitive. Three considered the UI to have an average level of intuitiveness. On the contrary, during the observation

section, the following complaints about the UI were registered: "*What now? That's all*?" This means that the interaction and features of the displays are not transparent, and it is not sufficiently clear just how much content is available. Moreover, several other issues were revealed. For example, participants cited misunderstanding of features, lack of feedback about correct answers, and sound-related issues. Problems occurred with the hands-on chemistry task: "*We did not know which procedure was correct. I did not know what to do with it at all.*" Mismatches of functions in particular displays during the free interaction period and during the story occurred: "*The augmented reality display wasn't interactive during the story part, but earlier it was.*" The audio elements accompanying the other content at the same time seemed quite overwhelming: "*It should be possible to stop or pause the audio commentary. […] Sometimes I didn't know what I should focus on.*" During the reflection period, eleven visitors agreed that they would appreciate receiving a final score for the tasks and quizzes.

Motivation to complete the interactive tasks depended on the content as well as the UI and the UX (user experience). 19 out of 26 respondents had a strong willingness to complete the tasks. 6 had a significant level of motivation and 1 claimed having an average level of willingness. None of the respondents felt unmotivated to engage in the interactive sections. Visitors evaluated the displays during the free visit; this on a scale from interesting to boring. 19 respondents thought that the activities were interesting, while 4 considered the activities quite interesting and 3 respondents chose the middle value. At the same time, they considered the tasks to be trivial (8 respondents), quite

easy to complete (14 respondents), and only 4 visitors reported the tasks to be moderately demanding. 7 visitors asked for more tasks in their survey responses and this point was also repeatedly mentioned during the reflection period.

The free interaction as the first part of the visit allows visitors to adopt design principles and to learn how the exhibition works. This informs the rest of their visit. 16 respondents considered it quite useful for the story part. 7 respondents said it was very useful. One person claimed it to be moderately useful and another 2 thought it was quite useless. 12 visitors reported that they dealt with the exhibition during the story part without any problems. 11 encountered small problems, while 2 others experienced a medium level of difficulties. Only one person reported experiencing serious difficulties. This particular visitor was generally less satisfied (as can be seen in other answers). They were less able to understand the content and also did not consider the free interaction period useful for adopting the UI principles. During the discussion, the visitors pointed out several shortcomings and they often added this kind of comment: "*That's the only thing, but otherwise it's 100 % perfect.*"

Respondents were asked to identify the displays that were easy to handle and those for which engagement was particularly difficult: both during the free interaction period and the story. The data showed that in some cases visitors considered a display the best part of the free interaction section, even though the display's content was available only in the story section and vice versa. Consequently, the results were divided only into two categories

(positive and negative feedback) regardless of the particular part of the visit. This kind of evaluation shows overall satisfaction with the display because the content cannot be viewed separately from the UI. The overall evaluation was slightly more positive than negative. The most problematic display (with 16 negative comments) was where the visitors look through little holes at archival photographs; for example, the Sudetenland. According to visitor comments, this display fails from the UI perspective because its physical design does not take into consideration discomfort caused by visitors' different heights: "*When looking through the oculars (eyeholes), the holes should be placed lower.*" Also, the content does not always work well because visitors were left with unanswered questions: "*It's nice. In which village was it?*" or "*I didn't understand if there were the same images in the left and right oculars. I roamed between the oculars frantically, and it seemed different to me.*"

The hands-on displays, where visitors were able to pick up and examine physical items, complete their tasks and manipulate or handle the items, were evaluated inconsistently. For 11 visitors, this kind of interaction was the best. Another 13 said it was the worst. Part of the visitors also thought this activity was intended specifically for children: "*This is for kids. It may not be for us.*" This pair of visitors left quickly. Another visitor added "*In the kids' part of the exhibition, I missed some elements and the instructions were confusing.*" Three times the hands-on display was reported to be one of the best parts of the whole visit: "*The work with the authentic items from that era.*" On the contrary, visitors doubted that the items really belonged to historical witnesses: "*Were the items in the box really from*

Mr. Sedláček's belongings or were they only replicas?"

One of the popular displays was a tunnel with light design and smoke effects. It addressed the theme of anti-Jewish laws and visitors had to enter inside. One of the respondents reflected on this experience: "*I really liked the effects […] of the empty room with lasers or light, and I liked a lot the one with the fog. The immersive effect dragged me into it.*" Some of the visitors, both in theirs surveys as well as during the reflection period, stressed that the warning sign for epileptic persons was not sufficiently visible.

The sphere-shaped audio-visual projection, which visitors watch together, was evaluated 13 times as one of the best displays: "*Then I liked the most the sphere projection. That was probably the most impressive part for me.*" For 7 out of 26 respondents, it was important to gain new information about WW2 in the context of the local history of the Eastern Bohemia region. This was precisely the content shown during the opening sphere projection. Visitors' watching the projection together at the end of the visit served as a symbolic ending to their shared experience: "*Watching the projection together was better than if it had only been on the tablet. It was more official and this is how the journey ends.*"

The wide-angle projection on the tablet, accompanied by an interactive task, was evaluated positively eleven times. The related display on the story of General Sedláček presents how a young soldier went through the war in Europe on to the Eastern battlefront. This particular information was often mentioned as a new, interesting piece of knowledge. In the story

of Mrs. Mlchová, this display presents her family background. Five visitors viewed this display negatively: "*I feel dizzy*" or they felt overwhelmed: "*You listen the audio and something else is appearing in front of you at the same time. Sometimes you just don't know what to focus on.*"

Experience, knowledge and information (RQ 2)

The exhibition aimed not only to mediate facts and information, but it also had the intention to support emotional connections. Visitors were assigned either the story of young woman Jaryna Mlchová who was part of an anti-Nazi resistance group (12 respondents) or the story of a soldier and later general, Tomáš Sedláček (14 respondents). The displays covering the individual parts of the story were followed by further displays with contextual information and vice versa (depending on where which group was in the process). Most of the respondents stated that they had enough information to understand the story: 20 out of 26 stated they had all necessary knowledge, 5 of them almost everything, and only one visitor felt a significant lack of knowledge. The story of General Sedláček was slightly more comprehensible. However, the only visitor who encountered serious problems had been assigned this story.

Respondents assessed the degree of their ability to make an emotional connection to the witness. Here, answers were more varied. All possible response options were used. 9 visitors were able to make an emotional connection very easily; 9 encountered minor difficulties; 5 respondents considered themselves average in making a connection; 2 reported this to be quite challenging; and 1 visitor failed to establish

a connection. Inability to bond personally with the witness was not related to a lack of factual information. According to group sample size and the sample's gender imbalance, it is not clear whether the ability to make a connection is related to the visitor's gender. Acquired data also did not show whether it was easier to connect with one or the other of the witnesses. The witness' gender was mentioned during the reflection period: "*The visitor should be influenced by the gender of the witness. If he or she wants to perceive the war from male or female perspective.*" The authenticity of story was a key factor for visitors: "*It was admittedly just one story, […] subjective history. There was no intention to correct it. I liked that the witness was talking a lot […], I heard her real voice. […] It wasn't so austere.*"

After the visit, only 7 respondents felt that they did not have any unanswered questions about the story. 6 visitors had several questions, 2 had a medium amount of questions, 9 respondents had a significant number of questions, and 2 others had a great many questions. This issue was discussed during the common reflection period. Visitors agreed they had a lack of information on the witnesses' lives at the end of the story presented story: "*Maybe I was curious about what happened to Mr. Sedláček afterward. We were told that he was released from prison and then he died. We didn't find out if he had a family.*" Other respondents asked for the rest of the story – at least a brief summary: "*Even just one sentence would be enough.*" The influence of resistance activities on Mrs. Mlchová's life after WW2 also went unanswered: "*For example, [we wanted more information about] Mrs. Mlchová, i.e., what was known about her life and how [the war] influenced her future.*"

Respondents were asked to decide how much the story is based on emotions and facts using a 100 % scale. Data showed this to be very subjective. Only 3 visitors considered the story balanced (50:50). For 11 visitors, emotions played the most significant role; whereas, for 12 respondents information is crucial. As expected, the difference is bigger for some and less significant for others. The most extreme answer was that the story is completely emotional. Neither of the two stories was seen as being more emotional than the other.

Just under half of all respondents (10) were able to write down 3 experiences they gained. 9 visitors stated that they gained two experiences. 4 visitors declared having gained only one experience, and 3 more visitors left this open question unanswered. Even fewer respondents listed 3 new pieces of information. Mostly, they wrote down 1 new piece of information. 6 visitors filled in 2 facts, and 7 respondents were able to fill in 3 new pieces of information. 14 respondents said they acquired new, detailed information about WW2 (for example, about the battle at Dukla, travelling across Europe during the war, the stories of the anti-Nazi resistance, etc.). For 13 visitors, information about different ways of helping the Jews were new (food packages sent to concentrations camps, faking illness to avoid forced deportation, etc.). Respondents mentioned listening to a real story 8 times because the story could be connected to their previous knowledge: "*Historical facts we learned at school could be related to a real story.*" New information came from the story as well as from the free interaction section. Information from stories dominates slightly. It is more detailed than the contextual background; therefore, it may seem more interesting to visitors.

The exhibition itself was mentioned 29 times as being the greatest experience. Other answers are only marginal. Some of the respondents even mentioned more than one aspect of the exhibition and appreciated the interactivity: "*I admired that all the things were synchronized – great idea. I wouldn't have thought that an exhibition could work like that: the magic of interactive explanations, the option to go through and solve tasks with another visitor, the first-hand experience.*" One visitor compared this kind of exhibition to other museums: "*It is completely different from merely going to a museum.*"

The survey contained one open question: "Did you change your opinion about WW2?" This question tried to discover if this kind of exhibition, which offers real stories and which, thanks to its technical solution and video content, is more immersive than objects in displays, is able to change visitors' attitudes about WW2. 12 visitors simply answered *No*. Five more visitors added that their opinion did not change but that they are leaving with new information. For 9 respondents, the visit was an opportunity to think more deeply, i.e., going beyond the exhibition topic, even if the basis for their opinions did not change. One visitor wrote "*I'm rethinking my life and I am grateful for how we live now.*" In a similar way, a respondent said "*It reminded me that we should value freedom and the ability to travel more. Alternatively, [we should consider] how important it is to be interested in the events around us. I realized how history can play a big part in understanding our present and creating our future accordingly.*" Another two visitors emphasized the impact on their sense of "*how horrible era this was*". Finally, the experience confronted knowledge learned at school: "*I saw history through the eyes of the people who lived it, which is very*

different from memorising facts at school." It revealed that a simple open question is not suitable for discussing such complex topics as changing one's whole attitude to WW2. If visitors are meant to answer such questions, a complete new research design with different methods would be more appropriate (for example, analysing mental maps before and after the visit). In summation, we can report that visitors declared high overall satisfaction with the story as well as with the information provided.

Dramaturgy and exhibition space (RQ 3)

The exhibition repeatedly starts with free interaction followed by collective audio-visual projections and the main story. It ends with a short final projection. Visitors were satisfied with this dramaturgy. They appreciate, in particular, the final projection. The results from a quantitative survey (N = 808) showed that visitors spent 60–120 minutes in the museum on average. Therefore, this exhibition takes roughly 90 minutes to visit. Timing and composition were not usefully evaluated in the questionnaires. However, duration, tempo, visit composition and also time spent on particular interactive elements were often discussed during the reflection period. Visitors seemed to lack control over what was happening during the visit and how many tasks they did or did not finish. It would be worthwhile to clarify the reasons for these issues and make the exhibition more transparent. Visitors would like to spend more time doing the free interaction part. After the sound prompt, they often said "*I want to do more.*" or "*So fast.*" They noted that the hands-on activities especially were more time demanding because visitors needed to manipulate the authentic objects gently and slowly: "*The whole thing*

was really beautiful, but I would need more time for it."

Two major issues were identified concerning the timing and dramaturgy during the reflection period: waiting and queues on one hand, hurriedness and a lack of time on the other. One visitor said "*I think that the exhibition was often cut off too quickly. It deserves more time.*" Both issues led to stress and negative feelings: "*We were annoyed by the waiting.*"; "*We didn't get done in time. I want to finish it!*" Lack of time is most often connected with the free interaction and the quiz before the story starts. The situation frequently arose where "*someone was waiting behind us and repeatedly asked when we would be done*". This could be resolved by adding curtains for more privacy. The curtains will also help with the moment of surprise and "*the visitor will not know what to expect*".

Visitors used the waiting period to think about the topic or to discuss it with their partner. 12 respondents asked for greater support for their own reflection which can be done by adding more furniture for sitting or by creating a proper relaxation zone: "*If you have to wait, at least you could sit down.*" According to that observation, couples were quite often talking, sharing their thoughts, and discussing their decisions on what to do. The respondents appreciated having company: "*I'm not alone. I can discuss.*" The headphones did not cause major difficulties despite the fact that "*We switched headphones depending on which partner was on the right or the left.*" During the reflection period, 7 out of 26 visitors agreed with the statement that they would probably talk to each other more without the headphones. It was also mentioned that when they went to the museum together, they would like to go through the exhibition with company. Nevertheless, an

opinion arose stating there is a disbalance between leading roles: "*The person who had the tablet was dominant and made the decisions. Honestly, I sometimes forgot I had a partner. I started to do the activity and then I remembered that there were two of us.*" These issues should be mentioned transparently by the MNI employee at the beginning of the visit. Visitors can be called on and asked to switch roles.

The space helped with understanding and received positive feedback: "*It is dark and nicely lit. It reminds me of a gestapo basement and the space supports the (historic) atmosphere and helps me to relate to the topic.*" Several respondents appreciated the option to walk freely in exhibition space: "*It was interesting that we were zigzagging around the rooms a lot. I actually assumed that the exhibition will be concentrated around the wall space.*" Visitors did say, however, they would like to have more options for sitting and also more content for review while waiting. For example, they suggested this could involve some content in the tablet or on the walls; or also books to look at or read. Classic displays such as display cases with physical specimens were not actually missed nor asked for.

Feedback regarding navigation using the tablets during the story part of the exhibition, i.e., while moving from one display to another, was not so unequivocally positive. Although the space is not large, two respondents stated it was very difficult (to navigate). One visitor said it was quite difficult and four referred to the navigation as moderately demanding: "*I have a poor sense of orientation and the map wasn't very helpful.*" For nine respondents, navigation was rather undemanding; 10 visitors said it was easy. During the free interaction section, there were several misunderstandings about

which display was occupied or not: "*It wasn't clear where we could go.*"

Discussion and recommendations

The results showed that this kind of highly digital and interactive multimedia exhibition conveying stories of witnesses is able to attract visitors in today's society. The majority of respondents were young people who are used to visiting museums. They have much experience with exhibitions and also have well-developed cultural habits. They spontaneously compared this exhibition with others. They considered the technical solution itself both interesting and valuable. Moreover, they consider themselves digitally capable, but they mentioned having problems with the UI. They struggled with some technical aspects or with the navigation. This led to the belief or conviction that we cannot assume that all types of visitors will be proficient enough in their digital skills and able to overcome minor or major problems by themselves and focus on the content. The results do not disprove the potential risk that technical demands could discourage some visitors from coming to the see the exhibition. To overcome this risk, the MNI employee should offer to help with the exhibition and provide an option to use private guides. Likewise, technical support should be systematic and also promoted both on the website and announced when selling tickets. This is important because the MNI's new spaces will be opened in the Czech Republic in coming years. It is necessary to avoid excluding any group of visitors from potential participation in these cultural activities.

The analytical process showed that important findings would be lost if questionnaires were used as the only research method.

Without observation and collective reflection, the results would not have been as complex. Plus, two main problems, long waits and hurrying, would not have been identified. All visitors, except for one, were satisfied and gained new knowledge and experience. Nonetheless, many specific ideas for improvement came from conversations with respondents during the reflection period. It seems that the exhibition balances the storyline and contextual background (facts and emotions) well. It also offers an interesting mixture of both, even if respondents described these two aspects on a different scale. Even younger respondents, who are used to working with digital media, spending leisure time online and multitasking, felt overwhelmed during the visit. They said they would appreciate more games and interactive elements. The number of visitors who lack background information has decreased significantly in comparison with the pilot exhibition *Liberation without Freedom*. Many respondents were not able to define three precise pieces of information they learned and three experiences they acquired. However, they said that they left the exhibition satisfied and better informed. This may have been influenced by the fact that they were not familiar with this kind of questioning and feedback. Still, discussion and supporting new ideas and ways of thinking are important in museums. In order to obtain feedback, the MNI employee could open a discussion session after the final projection; simply by asking several basic questions. This dialogue will help to build a connection between visitors and the MNI.

Emotions and attachment are among the key factors related to positive evaluation and better

experience.[15] The data showed that visitors know the WW2 era quite well. The emotional bond with the witnesses and with the exhibition topic in general should be covered in future research. It would also be useful to learn more about the relationship between witnesses' and visitors' genders, and whether the connection would be stronger if visitors could choose the story of a particular witness. This is something visitors often requested. This ability to establish an emotional connection with the topic can be influenced by previous experience; i.e., museums often being associated with providing information and facts. This reality can influence visitors' mindsets and expectations when they go to the MNI. Also, unanswered questions should be examined in future research, because based on this study the lack of information was mostly related to other aspects of witnesses' lives: not to historical facts. Research reports could call for proper endings and catharsis in the stories; especially in connection with the exhibition's narrative design.

One of the aims of the project was to initiate a discussion about history and its connection with the present. The project sought to encourage visitors to think more about the topic addressed, which is otherwise explained relatively vaguely. The results showed that this kind of exhibition is not able to change attitudes toward WW2, but the question remains whether it is ever possible to do so considering this is such a high profile topic. The visit was an opportunity for greater reflection for 9 out of 26 visitors. This is considered a good result.

15 ECHARRI, Fernando and Carmen URPI. Mindfulness in Art Contemplation. The Story of a Rothko Experience. *Journal of Museum Education* [online]. 2018, vol. 43, no. 1, pp. 35–46 [accessed 2023-06-18]. Available from www: <https://www.tandfonline.com/doi/abs/10.1080/10598650.2017.1384977?journalCode=rjme20>.

For other future exhibition themes[16] these findings should be taken into account. The aim of the exhibition should be described precisely and our expectations should be properly defined. Better formulated goals will facilitate evaluation of whether the exhibition design truly works with other topics which are not as well-known as WW2. Based on the analysis, we formulated the following recommendations and conclusions:

· Visitors appreciate freedom when viewing. It should be provided to them.

· Visitors do not have enough time to solve all tasks. Were they transparently informed about this, they would have a greater sense of control.

· Addition of an overall and ongoing tasks score will help visitors keep track.

· Negative impacts caused by waiting periods can be reduced by adding content to the tablet or to the exhibition space. We could also add chairs or a relaxation zone.

· Hands-on activities require more time and better explanations of how to handle them. Visitors feel it is not acceptable to touch the displayed items, so explanations need to be more motivating. Also, interactions that do not involve any touching should be added in the tablet. This is for visitors who do not want to participate in the hands-on activities at all. We ensure they are not excluded.

· Satisfaction would be higher if visitors were allowed to choose a particular story.

· Using curtains will provide a more intimate, individualized experience.

· The display with the small holes that visitors are meant to look through is the only malfunctioning display with critical UI faults as well as confusing content. It should be replaced.

Conclusion

Technology and interactive storytelling have expanded presentational options for museum exhibitions. The digital exhibition about WW2 at the Memory of Nations Institute in Pardubice is a case study which proved that this kind of exhibition can provide a quality museum experience and new information to visitors without "classic" items in display cases. According to feedback obtained from visitors, it is essential that this type of exhibition focuses on precise timing, dramaturgy, space design and also functional UI for each interaction. Visitors appreciated the experiences' variability (moving from passive to active, from individual to collective). Our mixed research approach allowed us to evaluate the exhibition beyond findings from common, shallow exit surveys. Visitors had enough time to think more deeply about their feedback. This research has resulted in a set of specific recommendations, as well as further questions for future research. Depending on the time and organisational demands of further research design, it would be appropriate to delegate the responsibility for ongoing evaluation to MNI employees. These employees could be trained in observation procedures with protocols and also in evaluation. This could be a reasonable way of getting useful feedback from visitors.

16 The Normalisation Era, 1968–1989 or The Culture of 20th Century are planned.

REFERENCES:

ALDERMAN, Christina. I Spy: Interpreting Artworks Through Games. In BEALE, Katy (ed.). *Museums at Play: Games, Interaction and Learning.* Edinburgh: MuseumsEtc, 2011, pp. 40–53. ISBN 978-1-907697-13-5.

DERNIE, David. *Exhibition Design.* London: Laurence King Publishing, 2006. ISBN 978-1-85669-430-8.

ECHARRI, Fernando and Carmen URPI. Mindfulness in Art Contemplation. The Story of a Rothko Experience. *Journal of Museum Education* [online]. 2018, vol. 43, no. 1, pp. 35–46 [accessed 2023-06-18]. Available from www: <https://www.tandfonline.com/doi/abs/10.1080/10598650.2017.1384977?journalCode=rjme20>. ISSN 1059-8650.

JAREŠ, Jakub, Čeněk PÝCHA and Václav SIXTA (eds.). *Jak vystavujeme soudobé dějiny: muzeum v diskuzi.* Praha: Ústav pro stadium totalitních režimů, 2020. ISBN 978-80-88292-67-8.

NEVINS, Elisabeth. The Past as a Brave Space: Reframing relevance. In MARK, Gold S., Rebekah BEAULIEU and Salerno E. DAWN (eds.). *The State of Museums: Voices from the Field.* Edinburgh: MuseumsEtc, 2018, pp. 14–40. ISBN 978-1-912528-09-7.

Post Bellum [online]. [accessed 2023-06-18]. Available from www: <https://www.postbellum.cz/english/>.

RICHARDS, Greg. The traditional quantitative approach. Surveying cultural tourists: lessons from the ATLAS cultural tourism research project. In *CABI Digital Library* [online]. 19 May 2022 [accessed 2023-01-04]. Available from www: <https://www.cabidigitallibrary.org/doi/10.1079/9781845935184.0013>.

SAVENIJE, Geerte M. and Pieter de BRUIJN. Historical empathy in a museum: uniting contextualisation and emotional engagement. *International Journal of Heritage Studies* [online]. 2017, vol. 23, no. 9, pp. 832–845 [accessed 2023-06-18]. Available from www: <https://www.tandfonline.com/doi/full/10.1080/13527258.2017.1339108>. ISSN 1352-7258.

SIMON, Nina. *The Participatory Museum*. Santa Cruz: Museum 2.0, 2010. ISBN 978-0-615-34650-2.

YOSHIARA, Yuuki. Art museums and society after apartheid. *Museum Management and Curatorship* [online]. 2008, vol. 23, no. 3, pp. 281–293 [accessed 2023-06-18]. Available from www: <https://www.tandfonline.com/doi/abs/10.1080/09647770802234102>. ISSN 1872-9185.

WANČOVÁ, Nina. *Role nových médií v muzejní prezentaci* [online]. Praha: Univerzita Karlova, Filozofická fakulta, Ústav informačních studií a knihovnictví, 2020 [accessed 2023-06-18]. Available from www: <https://dspace.cuni.cz/handle/20.500.11956/125046>. PhD thesis. Supervisor prof. PhDr. Michal Stehlík, Ph.D.

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