



Promoting Social Inclusion Around Cultural Heritage Through Collaborative Digital Storytelling

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Abstract. We present a case study to understand how migrant communities embrace and connect with their host city's cultural heritage. To achieve this, we employed a study with ten adult migrants (first- and second-generation Lisbon dwellers) articulated into two stages: (i) a five-day photo-challenge involving storytelling elucidated by pictures and short textual descriptions, followed by (ii) a four-hour audio recorded co-creation workshop, in which participants explored the material they had captured and co-created stories around specific sites, linking them to their memories. This method enabled the participants to express their opinions and experiences on social, cultural, and historical matters. By exploring their connections with the places they inhabit through their own, personal narratives and sharing these with their peers, the participants activated a discussion process exploring the role of storytellers. This case study focuses on the lessons learned and the limitations of the practical work carried out.

Keywords: Cultural heritage · Immigrants · Urban challenges · Digital storytelling · Co-creation · Qualitative analysis

1 Introduction

Cultural heritage institutions are described as places that materialize and visualize knowledge [1]. Their goals are to collect, preserve and share that knowledge with the public. These institutions are slowly but surely moving away from being collections of exhibits, to become dynamic centres where people can engage and empower their knowledge by discovering and challenging themselves [2, 3]; visitors are turning from passive to active participants [4, 5]. Storytelling has been known to be an effective way to convey ideas and beliefs; museums and cultural heritage institutions not only tell us stories but also build those stories through the meaning-making process in which the visitors engage. This fact allows museums' audience to indulge in narratives that aid the construction of meaningful memories as well as providing the fulfilment of a complete experience.

This research was conducted under the European-funded project MEMEX promoting social inclusion by developing collaborative storytelling tools related to cultural heritage. MEMEX will deploy three distinct pilots to analyse different expectations from fragile

migrant communities in three regions of the European territory – in Lisbon, Barcelona and Paris. The project aims to give the communities a voice through an advanced but easy-to-use ICT tool on a smartphone for non-expert users to create their own stories. Capturing and mobilizing migrants' intangible heritage while hosted by foreign cultures is deemed essential to foster their social integration [6]. A problem arises when migrants' stories and attitudes towards the hosting country's heritage are misrepresented, ignored, or reinterpreted by our governmental systems. This paper aims to answer the following question: How do migrant communities connect with their host city's heritage, and how do they talk about it? To answer this research question and to inform the above ICT tool, we developed a preliminary case study with first- and second-generation communities of migrants in Lisbon, Portugal. This case study was important for the MEMEX team as it laid the groundwork to start understanding how migrants might capture and discuss Cultural Heritage in connection with their daily life in their hosting city, how they might relate to it, and how they might convey these experiences as stories, before MEMEX team starts creating the ICT tool.

2 Digital Storytelling Research Methods with Migrants

This section describes related work on digital storytelling research methods with migrant participants that inspired us.

Photo-elicitation and short textual descriptions were the means used to prompt the participants to connect their stories and memories to the hosting city and culture. England [7] explored how the photo-elicitation methods helped young immigrant women in Halifax, Canada, narrate the spaces they encountered in their day-to-day lives. Tinkler [8] outlines that photo-elicitation is “*a tool for social and historical research*” and that photographs can be “*deliberately ‘inserted’ into interviews to prompt discussion, reflection and recollection*”. In his study, England [7] proposes that photo-elicitation could express the participants' social positions and experiences by exploring their relationships with the urban spaces in which they dwelt. Yoon and Park [9] conducted four in-depth interviews with female Korean immigrants within the United States to understand their acculturation experiences. The same authors characterize acculturation as “*the process of reconstructing one's identity by negotiating between cultures in a foreign location*” [9]. They propose that identity can be shaped through a person crafting narratives about their experiences and that this process can give rise to a “*concept of temporal unity of the narrative identity*” [9]. With this statement, the authors suggest that in telling such stories, a narrator can create a sense of their identity by bringing together the past and the present, while contemplating their future. Gil-Glazer [10] used the dual methods of photo-monologue and photo-dialogue in a workshop with Arab and Jewish students in Israel to discuss family photo-albums and memories associations that they conveyed. This method inspired discussions about belonging to specific places and being uprooted from them and the experiences of people migrating to new locations and subsequently finding a sense of belonging. In their conclusion, the author outlines that the workshop highlighted the need for young people to engage in further discourses around the experiences of being uprooted, migrating, and belonging to a place and sharing historical knowledge contained within family histories. Moreover, Bødker and Iversen [11]

argued that shared “where-to” and “why” artefacts are essential to the successful design of interactive systems. Co-creation is an act of collective creativity, conducted by a group of people [12]. It encourages the development of collaborative knowledge from individuals, through the articulation of their creativity. While a designer-researcher mediates the process and provides tools to activate the process, participants ideate, conceptualize, and develop the final concept or output [13]. Although the co-creation process needs to be established through a focus group [14, 15], the method is usually determinant [10].

3 Participatory Design and Co-creation

This section describes the importance of participatory approaches in including dialogues and interaction between participants to establish an active and effective co-curation.

Participatory Design (PD) has developed from its Scandinavian origins (see [17–20]). PD incorporates several methods and theories, while the core philosophy is to include the final users as active participants in the technology design process [20–25]. Taxén [25] pointed out that PD is a strategic approach to producing user-oriented information technologies. Cesário and colleagues found that co-creation sessions can give participants a “voice” and engage them enthusiastically in the design process [22, 23, 27]. It allows the creation of collaborative knowledge from individuals, articulating their creativity. While it exists a designer/researcher who mediates the process and provides tools for activate the process, participants ideate, conceptualize and develop the final concept or output [13]. Although the co-creation process needs to be set up based on the focus group within the process [14, 15], the method used in the process is determinant [16]. Mutibwa and colleagues [28] found that the creation of a face-to-face dialogue and interaction helped to establish an effective co-curation. In turn, the comparison of pre-sential and remote collaborative experiments has been studied to understand the different stakeholders’ experience (i.e., creators, collaborator and viewers) [29].

4 Case Study: Promoting Social Inclusion

To engage and better understand local migrant communities’ cultural heritage [30] to inform the MEMEX project, we deployed a first case study in Lisbon, adopting a method of storytelling elucidated by pictures and co-creation, customized for the migrants’ time and spatial constraints. The experiment was conducted in collaboration with one local Non-Governmental Institution (NGO) – *Instituto Marquês de Valle Flôr* and a privately-owned company dedicated to the relationship between museums, audiences and communities – *Mapa das Ideias*. The NGO advertised the study through posters in their premises which caught the attention of potential participants. Those potential participants were informed about the nature and purpose of the study. Finally, ten young adults (first- and second-generation migrants with Brazilian, Cape Verdean and Mozambican roots) between 25–38 years old were willing to participate in this study articulated into two stages: (i) execute a five-day photo challenge in Lisbon, and (ii) attend a co-creation workshop in which they should explore each other’s photographs and co-create stories around the featuring sites, memories and experiences. The workshop was audio-recorded, and the researchers took notes. Next, a qualitative analysis on the transcripts was conducted.

Participants were asked to use their own smartphones to take photographs and a consent form about the aims of the study and explaining the protection and privacy treatment of the data was also delivered, explained and signed by all participants. Furthermore, we offered a €25 Gift Card to compensate each participant for their time dedicated to the activities described above.



Fig. 1. Examples of the photos taken during the five-day photo-challenge.

4.1 Photo-challenge

For the first stage, participants were asked to take five/six photographs of sites in Lisbon (buildings, public spaces, heritage objects) that they could relate to their past and family history over a five-day period. The participants were asked to provide a textual description per each photograph. This text contained the image's title and a short outline of a memory or story accompanying the photo. Participants sent the photos and their descriptions to a contact person at the collaborating NGO, before being forwarded to the researchers with details of authorship removed. Photographs were edited to deny identification of people and vehicles by means of blurring faces and car plates (Fig. 1). The dataset was anonymized, and each participant was coded with one letter, in alphabetical order.

4.2 Co-creation Workshop

One week later, the participants attended a four-hour co-creation workshop facilitated by the first author and an employee of the privately-owned company. The workshop took place in the NGO's premises. Each participant was given an envelope with a randomly chosen set of another participant's photographs, including the titles, but not the story descriptions. The participants were then split into two groups to discuss and co-create stories around the photographs assigned to them. They were asked initially to work on their own, before co-creating as a group. Care was taken to avoid placing participants in the group where their own photographs were discussed. Upon the participants' consent, the sessions were recorded through audio. The schedule of the workshop is outlined below.



Fig. 2. Participants taking notes during the introduction of the co-creation workshop

Welcoming and introductions (01h05m). Participants were welcomed in the premises and introduced to the MEMEX project aims and study goals (Fig. 2). Inspired by England's approach [7], participants and facilitators took time to introduce themselves and get to know each other. A facilitator presented the structure of the co-creation workshop, and the Informed Consent form was signed. At the end of this stage, each participant was given an envelope containing another participant's set of photographs (Fig. 3), as well as a pencil, and a small notebook.

Storytelling dynamics (01h40m). Participants were split into two five-person groups occupying two adjacent rooms. One group was alone, while the second group, due to logistical reasons, had to share the room with a collaborator from the NGO, who was doing regular work, and always kept her headphones on. Participants from each group were given 10 min to open their envelopes and individually create a story around those photographs – the pictures were numbered to know the order they were shot. Afterwards, participants had one hour to share and discuss their stories and photographs with the rest of the group. Part of the task was to co-create three new stories as a group, based on three sets of the given photographs. The final co-created stories were written-up on a flipchart. During this process, participants talked about how they related to each other's photographs, and how they perceived their host city. The timing was kept by the two facilitators, who waited outside the rooms.

Coffee-break (30min). During this time, participants broke out of their specific group's formations, although some kept discussing the topics that emerged during the session.

Plenary session (45min). Finally, during the plenary session, each group selected a spokesperson to present the co-created stories. Afterward, a facilitator asked the original author of the photographs to comment on the narrative and explain the rationale behind it.



Fig. 3. Envelopes containing the individual set of photos; and the numbered set of photos from participant A.

5 Results

This section presents the analysis of the recordings from the workshop and the notes gathered during the plenary session.

5.1 Thematic Analysis

The audio recordings of the session were transcribed in Portuguese and English. The researchers used thematic analysis to organise and describe the data, identifying, examining, and reporting patterns within the studied transcripts [31]. The analysis was performed through NVivo 12 software by the first author, and then discussed with the others. Firstly, the researcher became familiarized with the transcripts via multiple readings and defined codes. Codes across the whole set were then collated into broader themes and given exact names and definitions to capture the essence of each one. While codes identify significant phenomena in the data, themes are interpretations of the codes and the data. Two overarching themes were identified from the analysis: ‘Workshop dynamics’ containing four codes, and ‘Memories’ containing six codes. In the scope of this article, we will focus only on the latter.

The theme ‘Memories’ comprises six codes in total (Table 1) described in detail below.

(i) Daily lives: routine & transport. Participants talked about their everyday lives as a trajectory through a repetitive routine where they wake up early, use public transport, go to study at the university, go to work, and finally return home. Various forms of public transport in Lisbon (tram, subway, boat, and train) came up in their conversations and storytelling, while no one mentioned private means of transportation. Someone noted that a certain tram, serving the *Bica* area, has become a tourist attraction, hence too expensive for them to use, so they prefer to walk this route instead. Participants noted trams and subways that serve touristic areas are often very crowded. Public transport in general is also often late or out of service. Some participants use the boat to cross the river,

Table 1. Map of codes identified under the theme ‘Memories’ along with examples of the transcripts assigned to those codes.

Code	Transcripts
Daily lives: routine & transport	<i>C: At the end of the day, these are all routine. We are all made of routines</i>
Sites of interest	<i>K: (...) Have you been to MAAT [museum]? I never got in there. Is it worth it? C: Yes, I think it is, for those who love art and so</i>
Relationships with family, friends, and music	<i>B: Ah, this is my godmother’s house! Who took a picture of my godmother’s house? This is so cool!</i>
Immigrants’ challenges	<i>H: Varina’s life was very complicated. Luís’s mother’s life too, but what really mattered to her was [...] she could count on the support of her friends, equally immigrants</i>
Gentrification & solitude	<i>K: These really lovely pictures [...] I love the fact of representing gentrification, which is a reality here in Lisbon B: The fact that you’re with a bunch of people on the transports, but you’re alone. At least, I speak for myself. I make this journey always by myself... (...) So here, we could make a connection... D: Of a lonely journey</i>
Cultural Heritage from their country of origin	<i>G: And I started, from the assumption of this path... I thought about the persistence of these characters, from our past, what it took them to make their fight possible. (...) To conclude... bearing all these monuments, we can drive our lives to a good port if we have enough persistence in our dreams</i>

travelling from one side of the city to the other. The ferry was praised because it offered an important, restful moment of contemplation in their day. Contemplative moments and opportunities for relaxation were also considered valuable moments in the routines of the participants. In between going to study and work, participants also stumbled upon urban parks and gardens, where they spent time with friends and recharging their batteries.

(ii) **Sites of interest.** Participants recognized the photographed various sites and used them to organize their stories. Participants identified the university, as a place of personal growth where they study; museums, specifically the *Museum of Art, Architecture and Technology* as a place for art lovers and beautiful building; heritage sites such as *Mosteiro dos Jerónimos* were highlighted by defining the local residents as lucky, as they can enjoy the sight of these places and (specifically for the *Mosteiro*) attend mass there; and family dwellings. In particular, one participant recognized her godmother’s house in a photograph and recalled memories related to that building. Finally, participants identified specific areas of Lisbon such as *Baixa*, *Martim Moniz*, and *Rua Augusta* as places of great diversity and multiethnicity of people, where commerce and tourism flourishes. They also spoke about the *Tejo* riverbanks where they relax listening to the soothing sound of its waves, and *Rossio*, in which streets it is traditional to celebrate New Year’s Eve.

(iii) Relationships with family, friends, and music. When co-creating the stories, participants addressed family, friends and romantic relationships: the subjects of these stories ranged from a child's memories of his Mozambican mother and Portuguese father, a goddaughter remembering her godmother, to the blossoming love story between a boy and a girl at the university. Regarding music, some stories revolved around immigrant friends playing the drums together, in reference to the Cape Verdean tradition of the female drum playing, or a song from a famous Portuguese singer (*Rui Veloso*). Additionally, participants mentioned hearing from their parents that when they immigrated, the city of Lisbon was very different: less developed and less gentrified; there were not so many tourists, big malls or shopping centres. One participant also recognized a photo featuring her old house in Lisbon, sharing how the building is different from when they lived there.

(iv) Immigrants' challenges. Participants narrated about the difficulties of arriving in a foreign country. They highlighted the hardships of not having familiar support and an established network of people to overcome their daily lives challenges. They underlined how guidance and support from other immigrants is essential in helping people integrate into a new society.

(v) Gentrification and Solitude. Participants expressed how journeying through public spaces can be lonely, even if encountering many people along the way. They also underlined how it is not easy to integrate in a new culture. At the same time, they highlighted the value of solitude as these times can be used for reflecting, contemplating, and recharging.

(vi) Cultural Heritage from their country of origin. Participants often recalled their cultural heritage from their country of origin and expressed interest in its history from an autochthone perspective. A Cape Verdean participant focused on the African tribal drumming as an emotional expression of energy. By looking at photographs of monuments celebrating the Portuguese discoveries, one participant talked about the symbolism of the Age of Discovery connected this with the idea of freedom and adventure that setting off for the unknown might bring about.

To summarise, participants addressed memories of their daily lives in Lisbon, in various ways. From their daily experiences and knowledge of the urban area, from gentrification to solitude and how this affected their lives. Participants expressed themselves through memories regarding family, friends, and love, and highlighted a strong relationship with music. When organizing their stories for the exercise, they talked about specific places in Lisbon, which included Universities, museums, cultural heritage and family homes, and specific urban areas. The difficulties they encountered as immigrants in Portugal were also raised frequently in their stories, highlighting how the help of other immigrants was essential for their integration into their new society. Portuguese and African histories were mentioned and valued.

5.2 Notes from the Plenary Session

The plenary session at the end of the workshop highlighted how symbolic interactions can open up opportunities for meaning-making out of co-created stories. Such processes can help develop understanding about how participants relate to their hosting culture

as well as each other's cultural backgrounds and heritage, as the following examples illustrate:

Personal meaning and value were found in assets curated by others. One participant identified with someone else's co-created story, around her photograph: *"Yes, it's kind of my daily routine, but well... I don't stay in college till late night. [laughs] I just shot it when I had some availability, but yeah it's my routine!"*. Individuals found validation in the recontextualization of their photos by others; more than one author thanked the group for the stories they developed around his or her photographs, one of them saying *"I really liked the story because it's interesting to see how you saw what I shot. That's not the story I had in mind. I didn't have a specific story, though, I just wanted to connect the places that tell me something. And I was happy to see your interpretation of that."* One went as far as to thank them for their effort in making meaning out of a disconnected collection of unrelated photos: *"I'm very happy [...] I think it's spectacular. Thank you."*

Individual narratives and co-developed stories can sometimes coincide. The author of the photos received one of the co-created stories as a similar narrative as the one imagined during photo collection process: *"It's all about it! There's one picture that says 'I won't Move Out' on a wall, which is this one. And then I was inspired to write a poem about gentrification."*

The creation of fictional characters through empathy and imagination can be the starting point of a co-created story. One participant proposed to compose a story from the point-of-view of a young second-generation migrant boy asking his mother questions about life as an immigrant, facing a new city and a new culture. The group accepted this imaginative perspective as a legitimate starting point for a collective narrative: one of them pointing out *"I really like this story [perspective]."*

Storytelling is often an entirely subjective task. Two participants happened to photograph the same site, focusing on different facets of the place, effectively telling different stories from different perspectives about the same material space. One of them stated: *"I also took a picture here, she took in landscape mode, and I captured only a female statue that it is this one here [pointing to the photograph]... But then, look, both of us, in the same place, I mean, I just focused on her statue..."*.

6 Concluding Remarks and Lessons Learned

An individual's act of sharing information in a collective activity implies self-expression and personal reasoning. The process of storytelling entails a reflection about what information to deliver and in which format. Furthermore, when this process takes place around images, even if captured by another person, the storytelling process takes the form of recognition and reflection starting from another person's experiences. These findings open avenues for a co-creation process that stimulates creativity through abstracting a common collaborative discourse. Specifically, for immigrant communities, the participatory and co-creation process mediated by images presents a valuable and practicable framework to contrast and develop connections between old and new places related to a person's heritage. Such approaches also allow us to consider a migrant's relationship with their new urban environments, as well as offering a view into how the process of

co-creation between different cultures can develop. This case study focused on understanding how ten young Lisbon dwellers (first- and second-generation migrants) connect with their host city's heritage and highlights their attitudes towards their hosting country's heritage that is usually ignored or reinterpreted by our governmental systems. Below we specifically reflect on the lessons learned of the method, illuminating how institutions and researchers could appropriate it to engage migrant communities in sharing their stories and appreciation of cultural heritage.

Localisations of the photographs. Out of privacy concerns, participants were asked not to annotate their pictures with the GPS coordinates of the location where they were shot. However, having access to the photographs without knowing their location prompted exciting discussions amongst the participants about the sites and their neighbouring areas. These conversations also acted as an icebreaker, fostering introductions and new connections among the participants. Something that we feared could have been a limitation of the methodology ended up working as an advantage.

Timelines and sequence of photographs. The photo-challenge offered the participants freedom to take five/six photos in any location as a sequence over five consequent days. The window of time between photographs allowed the participants to reflect and eventually plan how to capture the desired places. However, as no photograph time stamp was required, we do not know if the participants stuck to these rules. The conversations captured during the recorded sessions revealed that most participants took their time to think about the photographs and places they wanted to capture. Some expressly displaced themselves to capture specific places. These conversations highlight how participants reflected and took their time to execute the task. This level of care is encouraging and might suggest that the participants found the exercise engaging. Nevertheless, the very personal, almost diaristic style of the narratives highlighted a lack of plotting or characterization, which are often considered critical to a storytelling activity. Future studies could reconsider the structure of the task, perhaps starting from the writing of a narrative first, before illustrating this.

The co-creation activity. Different participants took photographs from the same location, denoting an interest or relationship to essential urban sites and connections. It is important to note that when shooting the photos, participants were not asked to construct an overall narrative and connect the descriptions/memories of each picture to the next one. However, in the workshop, participants were required to co-create a story following the sequence of the author's photographs. Participants were encouraged to imagine a tale following a sequence shot by someone else and wondering about the site's location where the photo was taken. As a result, participants embraced each other's views of the city and came together in a collective effort to create meaning out of a sequence of images, consciously, or subconsciously trusting the original author's sequence. The collaborative effort, the overall respect between the participants, the creativity that emerged from the workshop, as well as the sense of gratitude of the pictures' owners to the storytellers, generated respectful and genuine atmosphere of interest in each other's experience. The workshop thus demonstrated that co-creation can be a successful exercise to generate inclusive meaning for migrants.

7 Limitations

The workshop innovative methodology raised some issues regarding its limitations. One of the two groups had to share the space with the NGOs staff. Although the staff had their headphones on, the fact of having other people in the room not taking part in the activity process might have disturbed the participants. This concern was not evidenced in the transcripts of the workshop, though this might be for reason that they feared being overheard.

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References

1. Fyfe, G.: Sociology and the social aspects of museums. In: Macdonald, S. (ed.) *A Companion to Museums Studies*, pp. 33–49. Blackwell Publishing, UK (2006)
2. Falk, J.H., Dierking, L.D.: *Learning from Museums: Visitor Experiences and the Making of Meaning*. AltaMira Press (2000)
3. Hawkey, R.: *Learning with Digital Technologies in Museums, Science Centres and Galleries*. NESTA Futurelab Research (2004)
4. Simon, N.: The Participatory Museum. <http://www.participatorymuseum.org/>. Accessed 24 Sep 2016
5. Mancini, F., Carreras, C.: Techno-society at the service of memory institutions Web 2.0 in museums. *Catalan. J. Commun. Cult. Stud.* **2**, 59–76 (2010). https://doi.org/10.1386/cjcs.2.1.59_1
6. Nisi, V., Oakley, I., Boer, M.P.: Locative narratives as experience: a new perspective on location aware multimedia stories. In: *Proceedings of the 5th International Conference on Digital Arts*, pp. 59–64. International Association for Computer Arts (2010)
7. England, S.: Picturing Halifax: young immigrant women and the social construction of urban space. *J. Undergrad. Ethnogr.* **8**, 3–21 (2018). <https://doi.org/10.15273/jue.v8i1.8620>
8. Tinkler, P.: *Using Photographs in Social and Historical Research*. SAGE Publications Ltd, London (2014). <https://doi.org/10.4135/9781446288016>
9. Yoon, G., Park, A.M.: Narrative Identity Negotiation between cultures: storytelling by Korean immigrant career women. *Asian J. Women's Stud.* **18**, 68–97 (2012). <https://doi.org/10.1080/12259276.2012.11666132>
10. Gil-Glazer, Y.: Photo-monologues and photo-dialogues from the family album: Arab and Jewish students talk about belonging, uprooting and migration. *J. Peace Educ.* **16**, 175–194 (2019). <https://doi.org/10.1080/17400201.2019.1587744>
11. Bødker, S., Iversen, O.S.: Staging a professional participatory design practice: moving PD beyond the initial fascination of user involvement. In: *Proceedings of the Second Nordic Conference on Human-computer Interaction*, pp. 11–18. ACM, New York, NY, USA (2002). <https://doi.org/10.1145/572020.572023>

12. Zwass, V.: Co-creation: toward a taxonomy and an integrated research perspective. *Int. J. Electron. Commer.* **15**, 11–48 (2010). <https://doi.org/10.2753/JEC1086-4415150101>
13. Nielsen, L.: Personas in co-creation and co-design. In: *Proceedings of the 11th Human-Computer Interaction Research Symposium*, pp. 38–40 (2011)
14. Frauenberger, C., Good, J., Keay-Bright, W.: Designing technology for children with special needs: bridging perspectives through participatory design. *CoDesign* **7**, 1–28 (2011). <https://doi.org/10.1080/15710882.2011.587013>
15. Theng, Y.L., et al.: Children as design partners and testers for a children’s digital library. In: Borbinha, J., Baker, T. (eds.) *Research and Advanced Technology for Digital Libraries. Lecture Notes in Computer Science*, vol. 1923, pp. 249–258. Springer, Heidelberg (2000). https://doi.org/10.1007/3-540-45268-0_23
16. Mazzone, E., Read, J., Beale, R.: Understanding children’s contributions during informant design. In: *Proceedings of the 22nd British HCI Group Annual Conference on People and Computers: Culture, Creativity, Interaction*, Vol. 2, pp. 61–64. BCS Learning & Development Ltd., Swindon, UK (2008)
17. Bødker, S.: Third-wave HCI 10 Years Later—participation and sharing. *Interactions*. **22**, 24–31 (2015). <https://doi.org/10.1145/2804405>
18. Brandt, E., Binder, T., Sanders, E.: Tools and techniques: ways to engage telling, making and enacting. In: *Routledge International Handbook of Participatory Design* (2012)
19. Halskov, K., Hansen, N.B.: The diversity of participatory design research practice at PDC 2002–2012. *Int. J. Hum Comput Stud.* **74**, 81–92 (2015). <https://doi.org/10.1016/j.ijhcs.2014.09.003>
20. Simonsen, J., Robertson, T.: *Routledge International Handbook of Participatory Design*. Routledge (2012)
21. Muller, M.: A participatory poster of participatory methods. In: *CHI 2001 Extended Abstracts on Human Factors in Computing Systems*, pp. 99–100. ACM, New York, NY, USA (2001). <https://doi.org/10.1145/634067.634128>
22. Cesário, V., Coelho, A., Nisi, V.: Co-designing gaming experiences for museums with teenagers. In: Brooks, A.L., Brooks, E., Sylla, C. (eds.) *Interactivity, Game Creation, Design, Learning, and Innovation. Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*, vol. 265, pp. 38–47. Springer, Cham (2019). https://doi.org/10.1007/978-3-030-06134-0_5
23. Cesário, V., Matos, S., Radeta, M., Nisi, V.: Designing interactive technologies for interpretive exhibitions: enabling teen participation through user-driven innovation. In: Bernhaupt, R., Dalvi, G., Joshi, A., Balkrishan, D.K., O’Neill, J., Winckler, M. (eds.) *Human-Computer Interaction – INTERACT 2017. Lecture Notes in Computer Science*, vol. 10513, pp. 232–241. Springer, Cham (2017). https://doi.org/10.1007/978-3-319-67744-6_16
24. Cesário, V., Coelho, A., Nisi, V.: An unlikely seamless combination - future curators designing museum experiences towards the desires of actual teenagers. In: *Proceedings of the 1st International Conference on Design and Digital Communication*, pp. 101–109. IPCA - Instituto Politécnico do Cávado e do Ave, Barcelos (2017)
25. Cesário, V., Coelho, A., Nisi, V.: Cultural heritage professionals developing digital experiences targeted at teenagers in museum settings: lessons learned. In: *32nd British Human Computer Interaction Conference*, pp. 1–12 (2018). <https://doi.org/10.14236/ewic/HCI2018.58>
26. Taxén, G.: Introducing participatory design in museums. In: *Proceedings of the Eighth Conference on Participatory Design: Artful Integration: Interweaving Media, Materials and Practices*, Vol. 1, pp. 204–213. ACM, New York, NY, USA (2004). <https://doi.org/10.1145/1011870.1011894>

27. Cesário, V., Coelho, A., Nisi, V.: Word association: engagement of teenagers in a co-design process. In: Lamas, D., Loizides, F., Nacke, L., Petrie, H., Winckler, M., Zaphiris, P. (eds.) *Human-Computer Interaction – INTERACT 2019*. Lecture Notes in Computer Science, vol. 11749, pp. 693–697. Springer, Cham (2019). https://doi.org/10.1007/978-3-030-29390-1_65
28. Mutibwa, D.H., Hess, A., Jackson, T.: Strokes of serendipity: Community co-curation and engagement with digital heritage. *Convergence* (2018). <https://doi.org/10.1177/1354856518772030>
29. Bhimani, J., Nakakura, T., Almahr, A., Sato, M., Sugiura, K., Ohta, N.: Vox populi: enabling community-based narratives through collaboration and content creation. In: *Proceedings of the 11th European Conference on Interactive TV and Video*. pp. 31–40. Association for Computing Machinery, Como, Italy (2013). <https://doi.org/10.1145/2465958.2465976>
30. Mohr, F., Zehle, S., Schmitz, M.: From co-curation to co-creation: users as collective authors of archive-based cultural heritage narratives. In: Rouse, R., Koenitz, H., Haahr, M. (eds.) *Interactive Storytelling*. Lecture Notes in Computer Science, vol. 11318, pp. 613–620. Springer, Cham (2018). https://doi.org/10.1007/978-3-030-04028-4_71
31. Braun, V., Clarke, V.: Using thematic analysis in psychology. *Qual. Res. Psychol.* **3**, 77–101 (2006). <https://doi.org/10.1191/1478088706qp063oa>