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Digital Storytelling in Cultural And Heritage Education: A Pilot Study as Part of The ‘DICHE’ Project

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ABSTRACT

DICHE - Digital Innovation in Cultural and Heritage Education in the light of 21st Century learning is an EU funded project that involves museum professionals, ICT experts and academics to develop a set of digital tools to assist with the changing demands in heritage education. In this chapter we explore how Digital Storytelling can be applied as a method to enhance the defined 21st Century skills of communication, collaboration, creativity and critical thinking. As suggested by Bernajean Porter (2015), ‘the digital storytelling process helps us transform isolated facts into illuminated, enduring understandings’. Hence, we propose ‘*storying*’ *the cultural heritage* as a way of making information come emotionally alive in a learning process aimed at improving the 21st Century skills.

KEYWORDS: digital storytelling, 21st Century skills, heritage education, digital innovation

1. Introduction

The innovative work of the DICHE project in heritage education has been recognised by the European Commission as it brings together three fields of research that are rarely interrelated in teaching practices across Europe: namely, cultural and heritage education, digital integration in education, and primary education.

The intersection of techniques and specialisms present in this project, through the project partners being engaged in various areas of heritage and education, are important in fostering innovation. For this project, audio and visual materials play a significant role in cultural and heritage education by conveying experiences, rather than just knowledge. In this context, digital tools offer new opportunities to present materials and adopt different approaches to enhance experiential knowledge.

DICHE project's partners perceive the skill classification, the KSAVE model, as the most useful model for investigating cultural and heritage education; this is due to the creation of "21st Century skills" which are at its centre, and which have been used widely in the scientific community. The KSAVE model defines ten educational skills which are grouped into four categories, as a means of identifying a set of attitudes, values and ethics which a 21st Century citizen should develop.¹ These four categories then translate into four individual skills, communication, collaboration, creativity and critical thinking. It is the combination of these skills which makes cultural and heritage education a suitable vehicle to integrate the "4Cs" of 21st Century skills into learning.

The project activities are driven by the recognition of the '4C' skills as cross-sectional attitudes that are necessary to make society ready for the complex realities of this century (Trilling & Fadel 2009). Moreover, as the output demand for cultural and heritage education is generally flexible, in terms of approaches and methodologies, the 4Cs may be the ideal contexts through which we can experiment with digital educational innovations.

There is the potential for integrating 21st Century skills into cultural and heritage education as digital resources can make learning more appealing to the students. However, until now schools and cultural educators have struggled to use these to their full potential, as digital learning tools present challenges in operation and integration. While they may invest in digital equipment, such as smart-boards and tablets, they often use it rather conservatively.

As underlined by LEU² – one of the project partners from the Netherlands – 21st Century skills are a 'hot topic' in policy papers, but they are seldom connected to cultural education. While this might be the case for policy papers, the DICHE Project has identified these skills as an important area of development for creativity and memory; considering it as a crucial step in the learning process. Thus, the project proposes a deeper reflection on the importance of 'meeting the object', interacting directly with a given historical artefact, to feel a sense of 'connectedness' to use the past as a stimulus to learn. We believe, therefore, that '*storying* the cultural heritage may give students the chance to use their imagination 'to evoke motivation'. As suggested by Barend van Heusden (Groningen University) in a theoretical framework applied in their extensive research programme 'Culture in the mirror', 'creativity' is 'the ability to use memories in a non-obvious way'.³

¹ The four categories defined by KSAVE are: Ways of Thinking: Creativity and innovation; Critical thinking, problem solving, decision making; Learning to learn, metacognition. Ways of Working: Communication; Collaboration (teamwork). Tools for Working: Information literacy (includes research on sources, evidence, biases, etc.); ICT literacy. Living in the World: Citizenship – local and global; Life and career; Personal & social responsibility – including cultural awareness and competence.

² LEU is an organization which brings together heritage education and historical landscape. More information on their important work in the Netherlands can be found at: <http://www.landschaperfgoedutrecht.nl/>

³ This research aims to develop a theoretical framework for a culture education curriculum, and to translate this work into an outline source of tools which allow teachers and schools to develop a cultural education curriculum which fits their specific needs. The theoretical framework is quite complex. 'Culture in the Mirror' starts from a broad definition of 'culture': the cognitive process in which memories are used to deal with an ever-changing actuality. It proposes that

2. Starting from a Common Research Agenda

Six Institutions⁴ from four different Countries have been working together to identify some pending research questions which consider digital resources and learning methods in cultural and heritage education to draft an overview of the state of the art⁵. As a starting point, we have reflected on questions arising in early conversations within the partnership, as well as with local stakeholders from both sectors - Education and Cultural Heritage - interviewed in the Netherlands, Belgium, Italy and UK. After the identification of educators, who work both in museums and schools, as target group, we agreed that the main feature of the research agenda was to define the gaps in digital skills and in attitudes toward the 21st Century skill, and the connection between education and cultural heritage.

We have explored three main issues and moved the focus from tools to methodologies. The first issue considers integrating digital approaches in order to enhance the connection between the 21st Century 4Cs skills and cultural and heritage education. For the second focuses on the necessary attitudes and skills which should be defined and developed by the education to ensure the effective pedagogical use of digital tools, assuming that confidence is a crucial factor. Finally, the third issue is about specific practices which an educator should develop in order to promote the 4Cs in students' development.

One method of digital skill integration is digital storytelling, a technique which uses digital technology to share narratives for educational purposes. As Loughborough University has experience in the use of digital storytelling in education, DICHE Project utilised this specialist knowledge to analysing the effectiveness of the methodology in supporting school teachers and museums educators to integrate technology into learning. Educators' concerns regarding the integration of digital storytelling into learning were evaluated and the need to build and develop a reliable assessment model was discussed.

3. Why Digital Storytelling?

Digital storytelling has the potential to bring new voices into the public debate, as narrative and sharing stories facilitates the sharing of experiences and knowledge in order to directly impact a

only human beings are able to bridge the gap between memory and daily reality - because the reality is constantly new for us. This is achieved through four cognitive strategies:

- Perception: experience, remember, know, recognise, observe
- Imagination: invent, create, play, imagine, put oneself in someone else's situation
- Conceptualisation: interpret, label, name, estimate, evaluate, classify
- Analysis: explore, connect, think logically, test

⁴ Marnix Academie (NL), Landschap Erfgoed Utrecht (NL), ATiT (BE), Università degli Studi Roma Tre (IT), COOP Culture (IT) and Loughborough University (UK).

particular life, or make an important change (Polkinghorne, 1988). The School of the Arts, English and Drama at Loughborough University, UK, is involved in a range of projects which explore the role of storytelling in today's digital world, and has applied learning to the DICHE project to better understand what value it may bring to cultural and heritage education.

Our experience suggests that the role of emotion in the digital storytelling process is central to the promotion of 'embodiment', a specific form of knowledge that exists in 'the telling of stories with emotional meaning'. Furthermore, as we are utilising technologies in what is generally a 'seven-steps' narrative process (Lambert, 2010), we are keen to explore the process of transformation from data to information, and then to a form of knowledge which has a specific focus on the 'sharing' phase: a moment when students' voices, especially the voices of 'quieter students who do not speak up so readily in class' may be amplified (Lowenthal 2009).⁶

We propose, therefore, that digital storytelling can generate and facilitate a new kind of knowledge, especially when considering the distance between the contemporary learner and the historic object or event. For this, the ability to identify and differentiate between the five dimensions of historical learning (time, characters, representation, location, involvement) are important, and an opportunity to achieve this is presented in practice-based storytelling workshops where we can explore how people distinguish these dimensions differently. For this reason, we are arguing that digital storytelling enables us to share different perspectives, and collectively create a new knowledge.

'Storytelling' relates to a form of teaching where narratives and experiences are shared to develop knowledge. In development, digital storytelling brings a new aspect to this learning through the potential to include media forms in that process. If we consider the centrality of interaction, with the assumption that 'storytelling' and 'story-listening' have equal 'status' in the process, then it's important to acknowledge that during the digital storytelling process the audience is never passive. Listeners are always involved in a sort of feedback-loop that is part of the digital storytelling approach, resulting in mutual learning between the creator of the story and the spectator.

In terms of the 4Cs which have framed this project, the reflection of digital storytelling in cultural and heritage education can be seen to enhance critical thinking. This can be identified, for instance, in the story-circle session of the digital storytelling methodology, which is the ideal phase to facilitate what Alaa Sadik calls 'the flow of ideas and thinking aloud', namely the interaction between students (Sadik, 2008). This is a crucial process in the encouragement of students to foster

⁵ The Common Research Agenda can be downloaded from DICHE Project website: <http://www.diche-project.eu/>.

⁶ As Joe Lambert defines, the seven steps of the digital storytelling process are: 'Owning Your Insights', 'Owning Your Emotions', 'Finding The Moment', 'Seeing Your Story', 'Hearing Your Story', 'Assembling Your Story', 'Sharing Your Story' (Lambert, 2010).

active learning, in which users discover and address gaps in their own understanding by explaining concepts to others (Kafai et al. 1997; Tyner 1998). As Coleborne and Bliss (2011) propose, ‘the story circle is a vital component of the workshop process where the students connect with each other to share their stories prior to creating them’, it is that stage of the process that gives a chance to define digital storytelling as ‘a way of building group rapport through emotional exchange and sharing ideas’.

Bernajean Porter contends that ‘the digital storytelling process helps us transform isolated facts into illuminated, enduring understandings. By “living in the story,” we make information come emotionally alive. By exploring “lessons learned,” we go beyond telling about content to find its deeper meaning’ (Porter, 2015). Meaning in heritage education becomes clearer when the classroom works as a ‘community of practice’ (Vinogradova, Linville, Bickel, 2011), in which ‘each student brings to the classroom community skills that are needed by others as everyone works to create a multimodal project requiring narrative, image, sound, and technology elements’. (Vinogradova, Linville, Bickel, 2001) The combination of community skills and creativity in this way, facilitated by the methodology of digital storytelling, can make learning more effective, collaborative and hands-on.

While digital storytelling presents many positive opportunities for learning, there are still some anxieties about its use in education settings that we can’t avoid mention. For teachers, digital storytelling presents issues around time and the amount of time that is necessary to integrate technology into learning plans, especially when considering long-term storytelling projects which may be more effective in increasing students’ understanding of curricular content and improve their skills. For these challenges it is worthwhile reflecting on the duration of the digital storytelling activity and potentially re-articulate the 'conventional' model of the StoryCenter.⁷

While time presents a key concern for teachers, budget constraints must also be considered for the larger institution. A particular challenge highlighted by Polina Vinogradova in a 2011 paper is that ‘in a time of constrained state budgets, students and instructors have had to learn to make creative use of available resources - human and technological’. (Vinogradova, Linville, Bickel, 2011) Therefore, being creative to make students more creative. As the paper reflects on her experiences of using digital storytelling in with University students in English language classes, we must consider that the monetary demands generated by working with instructors and students places some constraints on applicability of digital storytelling as an educational method of learning.

4. The 4Cs: Creativity, Communication, Collaboration, Critical thinking

⁷ The StoryCentre uses stories, and storytelling to change and enrich lives in the form of digital stories. For more information on the work of the StoryCentre, please visit: <http://www.storycenter.org/>

As each of the partners approaches the project from a different institutional background with unique skills and approaches, the definition of the 4Cs remained quite flexible.

In order to explore a common definition for creativity, for example, we used as a starting point the definition promoted by one of the partners, LEU, that defines ‘creativity’ as ‘the capacity to make up non-obvious ideas, solutions and results, by exploring it in your own and personal way, using your own *‘luggage’*. As this was developed for school-teams in order to understand how to describe a process starting from a definition, it seems to be a sensible place to start.

Moreover, at LEU they are piloting a model for a creative process which teachers may use in cultural education. This is specified below:

Table 1 – 4-step model of creative learning developed by LEU - Landschap Erfgoed Utrecht

	Phase 1: Orientation <i>Come in and get introduced!</i>	Phase 2: Diverging <i>Dive in and investigate!</i>	Phase 3 Converging <i>Choose and collect!</i>	Phase 4 Ready? <i>Present, look, evaluate and learn!</i>
What do you do?	Introduce an inspiring and meaningful task, connecting to the world and experience of the children	Explore, imagine, investigate, experiment, improvise,	Choose, select, structure, combine, ...	Present, reflect, evaluate and criticize
How?	Raise questions, change perspective, amaze, alienate, ...	Associate, use specific work forms, brainstorm, use design principles	Design, produce, realise, conceptualize, ...	Ask question about the process, product or solutions
Why? To create ...	An idea, a problem, rules, context and framing	Possible ideas, solutions, possibilities, chances	An answer, a solution, a product, a concept or change	Opinions, knowledge, insights, meaning

This model developed by LEU underlines how ‘storying cultural heritage’ may stimulate creativity in different ways: it stimulates what they define as ‘divergent thinking’ – as people who experience cultural heritage use their imagination to ‘shift to different times, places and meanings’ and ‘by exploring the heritage from all kind of viewpoints, with all their senses’. LEU’s model additionally stimulates ‘convergent thinking’. In our relationships with heritage artefacts we create our own opinion, we analyse and we evaluate meanings from our own different perspectives and draw conclusions that are potentially divergent, something supported by the LEU’s learning model. Significantly, it emphasises that all the 4Cs are inter-connected and embedded in the model, even if it has been developed to evaluate the creative process.

This model of creative learning is more widely recognised than just the LEU. The promotion of interdependence explicit in this definition of ‘creativity’, has been combined with ‘critical thinking’ by the Association of American Colleges and Universities in their ‘Creative Thinking Rubric’, where they write: ‘Creative thinking is both the capacity to combine or synthesize existing ideas, images, or

expertise in original ways and the experience of thinking, reacting, and working in an imaginative way characterized by a high degree of innovation’.

In considering the learning process, *The Partnership for 21st Century Learning*⁸ shifts the focus from the ‘creator’ to the ‘beneficiary’. In fact, echoing Morris Stein (1953), the proposed definition of ‘creativity’ stresses the importance of two characteristics, ‘novelty’ and ‘usefulness’, in which the audience or the recipient plays a role, and other skills, such as collaboration and communication, have to be involved: ‘a novel work that is accepted as tenable or useful or satisfying by a group in some point in time’. (Stein, 1953) And this definition seems to be complementary to another one where has been emphasised that ‘a creativity product must be surprising and non-obvious’ (Amabile, 1996; Boden, 2004; Simonton, 2012).

As part of the DICHE common research agenda, led by Loughborough University, UK, and the University of Roma Tre, Italy, a video-glossary was produced in conjunction with educators and museum professionals. To begin constructing this glossary, an Italian partner, Coopculture⁹, has stimulated a dialogue with museums staff members who have been working in the field of communication and cultural heritage education. During a series of digital storytelling workshops attached to the DICHE Project, we used some of these definitions already gathered¹⁰ as a starting point to look at the way we experience the cultural heritage through the lenses of the 4Cs. In the next two paragraphs we will recount a workshop conducted on behalf of the DICHE Project as part of the Heritage Symposium in Lincoln, UK. Aligning the workshop practice with the research and questioning of the DICHE project, we will reflect on experiences of current heritage learning discussed and recorded at the symposium.

⁸ P21, The Partnership for 21st Century Learning (formerly the Partnership for 21st Century Skills) founded in 2002 in US, has published a 4Cs *Research Brief Series* on key aspects of conceptualizing, developing, and assessing creativity, critical thinking, collaboration, and communication. The series was edited by Helen Soulé, Executive Director at P21, and Jonathan Plucker, Neag Endowed Professor of Education at the University of Connecticut. P21’s Report also provides links for useful ‘additional research’: *Creativity Research Journal* (<http://www.tandfonline.com/loi/hcrj20#.UydVME1OWM8>) *Journal of Creative Behavior* ([http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)2162-6057](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)2162-6057)) *Psychology of Aesthetics, Creativity, and the Arts* (<http://www.apa.org/pubs/journals/aca>) *Empirical Studies of the Arts* (<http://www.baywood.com/journals/previewjournals.asp?Id=0276-2374>) *Gifted Child Quarterly* (<http://gcq.sagepub.com>) *Roeper Review* (<http://www.tandfonline.com/loi/uror20#.UydVqE1OWM8>) *Thinking Skills and Creativity* (<http://www.journals.elsevier.com/thinking-skills-and-creativity>) [links checked on 23rd October 2015]

⁹ CoopCulture is a cooperative operating in the heritage and cultural activities sector in Italy. For more information: <http://www.coopculture.it/>

¹⁰ For instance, Paola’s definitions are: Critical Thinking: Go and look under the rug *as well*. Communication: A gentle stroke that is pleasant and good for the skin of the person that does it and not only for the skin of the person that receives it. Collaboration: Start from different points in space to then arrive at the same time in a new space and perform a movement together. Creativity: Be inspired by, or rather, copy a simple process to make it become something else that can be very complex.

Sara’s are: Critical Thinking: The ability to have a personal opinion, one’s own thoughts, on everything that is given to you. Communication: Knowing how to talk to everybody, how to be clear, how to talk knowing the capacities and

5. Exploring Research Questions in a story-circle session

The format of the symposium at Lincoln require a flexible approach, and an amendment to the usual structure of a storytelling workshop, the participants were therefore split into smaller groups to share their experiences around one of the 4Cs skills. Their first task was to create a story circle, the opportunity for personal narratives to be shared with the workshop group, are an important way of developing narrative structures, sharing experiences and building relationships between the participants. As highlighted by Steve Bellis,¹¹ in an interview given in October 2015, the ‘storytelling circle’, as part of the writing session, is a crucial step when we apply digital storytelling in education as it allows the teller to develop a central narrative from their personal experiences. For the DICHE Project the digital component of storytelling is central, and from our perspective is also implicit, as we are working with *digital natives* (Marc Prensky 2001); this is why, especially at the beginning of the research process, we are giving most attention to the story-circle session to receive feedback about how to how to apply Digital Storytelling in Cultural and Heritage Education in the light of 21st Century learning.

Following an overview of the research agenda and project work, participants were invited to take part in a narrative formation activity centred on their own personal experiences of heritage and education. Through the sharing of personal stories, the activity was designed to engage the participants in ‘experiencing’ cultural heritage, and consider how this might have enhanced their creativity, critical thinking, ability to communicate and their attitude to collaborate with people with different backgrounds, in line with the 4C at the centre of the DICHE project.

For this activity participants were asked, in groups, to share, select and develop a chosen personal narrative using a storyboard template, which encouraged participants to connect images and descriptions in order to start formulating their heritage and education narrative. The storyboard asked them to: reflect on one of the 4 skills of 21st-Century learning (communication, critical thinking, creativity and collaboration) which was posed as a question as a means of framing the narrative towards a reflection of the 4Cs.

By completing the following, the storyboard activity was designed to be a reflective process of past experiences and future ideals:

- Creating your story in 4 sequences
- Describe or draw an image for each sequence

limits of who’s listening. Collaboration: Being able to divide the work well in a group, highlighting the abilities of each single person. Creativity: The ability to invent.

¹¹ Steve Bellis, Lecturer in Media, and a Digital Storytelling facilitator was interviewed by Antonia Liguori (Loughborough University) to discuss about challenges and opportunities of using the digital storytelling methodology in education (October 2015): <https://www.youtube.com/watch?v=YmEZtUynvVI>

- Write a few lines for each sequence to build the narrative
- Add sticky notes to highlight where the other 3 skills may be linked to your story

To explore creativity, the participants were asked to think about a heritage event, which they had either organised or attended. By sharing their narratives, they were asked to reflect on what made it creative, if anything could have been improved, and how adding creativity to the project affected enjoyment and understanding.

Outdoor heritage sites present interesting issues around communication. We asked the participants to think about their last visit to an outdoor heritage site, and consider what forms of communication were used in order to share information and knowledge about the site. It was important to establish if the participants thought there was anything that could have improved this, or have attracted more visitors.

The purpose of the project is to reflect on the processes of heritage education. For the purpose of critical thinking, we asked the participants to remember their own heritage education as a means of framing the processes currently used in schools. We asked them what they took from their education and the way in which it was taught, before reflecting on what they might do to change it/engage students in a new and interesting way.

Collaboration is an important part of heritage and museum events and education. Working in collaboration with other heritage organisations may increase audience numbers and participation. We asked the participants to share with us a project they have worked on where heritage has represented a common goal between your own organisation and another? How might collaboration be developed in order to collaborate with the general public, schools, non-heritage organisations, etc.?

6. Reflecting on the process

Reflecting on the process was an important part of our workshop in Lincoln. In the last 15 minutes a discussion about how to use Digital Storytelling in heritage education was facilitated to gather answers to the research questions delineated at the beginning of the workshop and to co-design further lines of inquiry.¹²

In order to prompt discussion, targeted questions around the validity and capabilities of ‘storying’ the cultural heritage was posed to understand if the participants considered the methodology to be a useful way of enhancing students’ creativity, critical thinking, ability to communicate, attitude to cooperation. In this discussion we considered the some of the challenges and limitations of the methodology, before sharing the outcome of the task. For the most part, participants’ reflections

¹² Participants interested in developing and publishing online their digital stories will be supported via a web-based video-editing platform afterwards.

supported the use of digital storytelling as a methodology as it allowed them to reflect and develop their own ideas and thinking. However, there were issues raised around time, generating a story from your experiences and expertise in creating digital stories. The strength of ‘storying’ these experiences in a digital way though, was captured by a participant who reflected that these narratives have the opportunity to change, evolve and be contributed to by the original storyteller and their listeners.

On their reflections of the 4Cs particularly, the participants were all able to identify heritage events where they have experienced at least one, if not more of the 4Cs. A group of participants re-thinking of a heritage event through the lens of **creativity**, highlighted the impact of Social Media (immediate link to communication) has on their experience, suggesting that social media enabled a sense of ‘I was there’ through the immediacy of ‘recording history’ which could be accessed on mobile phones.

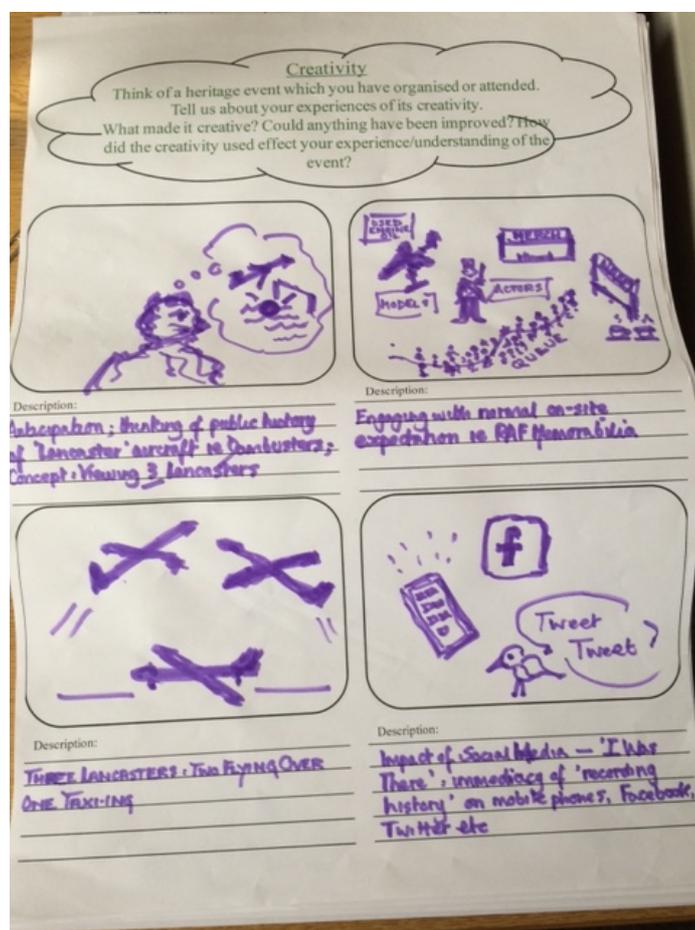


Figure 1 - One of the storyboard template created during the workshop to reflect on ‘Creativity’

For those reflecting on **communication**, the group reminisced of a visit to an outdoor heritage site in a landscape park and the presence of guidebook and maps with areas and points of interest identified. While this provided the visitor with some interesting guiding information, they

considered the improvements that could have been made to their learning through storytelling at key points, using sound narratives, reconstructions of past landscapes, and performances using drama and dance to tell how landscapes were made, who made them, how, why. This for them, would have created a more immersive and involved experience with communication at its centre. Interestingly, outdoor heritage sites seem to present a varying range of educational challenges to those inside, often being more remote, and weather dependant. This however, could be used to a beneficial means making the getting to the site part of the adventure of learning.

The reflection around '**critical thinking**' was driven by a memory related to how heritage was taught and the ways in which we may develop those experiences to teach differently, or to suggest different ways of engaging students in heritage education. In order to approach this reflection, it was important to establish 'what is meant by heritage' and how might this have been shared with the students through day trips, school education or oral history. The participants working on critical thinking related their memories to educational movies, visiting museums to look at artefacts, learning facts and figures. This reflection presents opportunities to develop the diversity of heritage education, using local histories and experiences of older people to feed our knowledge.

Additionally, the participants raised questions about what should be taught and how we engage with what we are taught through critical thinking, and in tern active learning, rather than just being taught what we always have been. There was a desire for comprehensive education to include all people and the engage all participants on an interactive level. By introducing more local knowledge into the storytelling process, we hope to shift away from the perceived concept of heritage as an 'Eurocentric' idea.

For thoughts on '**collaboration**' we asked participants to think of a project which they have been involved with where heritage education and representation was a common goal between an institution and how successful this was at engaging with the public. We also asked them to consider how collaboration in future projects might be further developed in order to collaborate with the general public. The participants presented brilliant ideas and descriptions for collaboration throughout the project making process: starting from the 'vision', then the 'reality check' (examining different needs within the group), to the actual 'collaboration' phase (brainstorming, developing connections, concept rising, partnership) and finally the 'vision cubed', the vision achieved but a four dimensioned vision (in time and space).

As part of this reflection, values such as respect and consideration were deemed to be common ground in developing heritage education and to take every viewpoint into consideration, in order to promote better collaboration. This, they discussed, could be through innovative ways of sharing stories through accessible platforms, such as digital storytelling.

The outcome of this workshop was a very positive one. While for many a new concept, the early narrative formation method of digital storytelling promoted idea generation and sharing of experiences which could be built upon. The integration of the 4Cs was seen throughout the completed storyboards and mutual benefits to organisation and learner were established.

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