

Mini-museums as a nexus for Storytelling and Pedagogy in the Classroom

Introduction

This paper reports on the initial phase of a project which seeks to explore the ways in which teacher and pupil engagement with mini-museums and artefacts in a school setting can enhance teaching and learning. It is known that interaction with and co-creation of museum exhibits is beneficial for pupils, encouraging collaborative learning and critical thinking (Rogers & Rock, 2016), but many previous studies have tended to involve pupils with exhibition creation within a museum site, away from their school. By engaging pupils with school-based mini-museums and storytelling activity, we aim to investigate whether a greater level of sustained engagement with these, supported by digital heritage-related resources, can enhance a sense of collaborative learning and critical thinking skills. In addition, we also aim to encourage the embedding of storytelling and oracy within school teaching strategy, the advantages of which are well known, leading to improvements in comprehension, spoken language fluency, reading, and writing (Isbell, Sobol, Lindauer, & Lowrance, 2004; Campbell & Hlusek, 2015).

Through collective consideration of many diverse definitions, it appears that the concept of storytelling is understood as a representation of events via visual, pictorial, and/or oral media which tend to involve engagement with specific characters, history, traditions, cultures, and morals. It has been defined as a communication method and performing art (Craig, 1996; Zipes, 2004) while others recognise its importance as a pedagogical approach (Campbell & Hlusek, 2015; Isbell, Sobol, Lindauer, & Lowrance, 2004; Zipes, 2004). As an art, storytelling is seen as a creative process which involves various means of audience engagement, and while it can be performed in a range of contexts, we focus on its pedagogical application for the purposes of this paper, justified in part by suggestions that it can be an especially valuable teaching and learning method for pupils between the ages of three and nine (Isbell et al., 2004; Zipes, 2004).

The cultural value of storytelling has been investigated in a variety of contexts and from a wide range of perspectives but has been broadly defined as a process that involves communication between a teller and an audience within an environment that elicits democratic creativity of some kind (Craig, 1996; Campbell & Hlusek, 2015). The creativity that can be borne out of such activity is part of what makes storytelling a valuable pedagogical tool, with creative pedagogies and creative learning being characterised by: “generating and exploring ideas; encouraging autonomy and agency; playfulness; problem-solving; risk-taking; co-constructing and collaborating; and teacher creativity” (Cremin & Chappell, 2021, p. 325).

Storytelling through exhibits and activities in the museum and heritage sector is often sought out by educators and can be a useful tool for the development of pupils’ knowledge and skills, as suggested in a range of studies that explore the pedagogical benefits of school visits to museums and heritage sites, as well as the benefits of links between museums and education in a broader sense (see, e.g., Hooper-Greenhill, 2007). However, some of the research on this topic has identified that teachers can be concerned about the relevance of a museum’s offering to a school curriculum and teacher needs (see, e.g., Foreman-Peck & Travers, 2013), and so the co-creation of exhibits may be particularly advantageous within this educational context, allowing teachers to tailor exhibits, materials and pedagogical approaches to their own requirements. In addition to this, it has been shown that by engaging teachers and pupils with historical artefacts and sources within a classroom setting, rather than in a museum, a “highly inclusive and absorbing learning environment” is created (Bird, Wilson, Egan-Simon, Jackson, & Kirkup, 2020, p. 40).

It is clear, then, from the literature that there are pedagogical benefits to storytelling and to co-creation of exhibits, and that school-based engagement with artefacts and museum-related activity is also beneficial for learning, but these have not been explicitly applied together. The aim of the project which this paper introduces is to do just that, and to determine the extent to which such an approach can further enhance the learning experience. The focus on storytelling can improve language skills, concentration, and teamwork (Isbell et al., 2004), exhibit co-creation can ensure relevance to a school curriculum, and school-based engagement with museums and heritage can facilitate productive and absorbing learning (Bird, Wilson, Egan-Simon, Jackson, & Kirkup, 2020), and it is anticipated that a combination of these will therefore be pedagogically positive.

Project background and design

The application of these approaches presented itself as a possibility following conversations with *Mythstories*, a Shrewsbury-based charity which aims to engage interested parties in myths, stories and traditional tales from around the world through related physical artefacts. The opportunity arose to provide some of these artefacts to primary schools, and it was anticipated that they would be displayed within these settings and used for storytelling in appropriate lessons. In order to determine the value, benefits, and challenges associated with this approach, the research team worked with two schools involved in an initial scoping exercise, in which sessions were observed and the opinions of teachers were sought in interviews, also with the aim of using feedback to fine-tune the approach so that its impact on the teaching and learning experience can be maximised in future applications.

With an emphasis on emancipatory practices and learning experiences, this research engaged with the school communities to support them in establishing mini-museums, as well as generating their stories and creative responses about artefacts from *Mythstories*. An important consideration when establishing a mini-museum, and in the development of all projects which seek to measure the benefits and impact of innovative approaches to pedagogical development in primary schools, is the extent to which the methods and aims align with a school's curriculum and teaching policy, to ensure that the staff are enthusiastic about the mini-museum and its potential benefits. Therefore, this research is underpinned by a participatory action research (PAR) methodology (see, e.g., Chevalier & Buckles (2013) and Reason & Bradbury (2008)). The aim of PAR is to involve those people and communities who will be affected by the results of research within the research process itself. This ensures that the nature of the research is tailored to address the desires and needs of those people (in this case, teachers, and school pupils) who are intended to benefit from it.

The PAR methodology was employed to facilitate co-creation of the research activity itself as well as outputs (i.e. storytelling activities and mini-museum exhibits). The participating schools were provided with artefacts from the core collection of *Mythstories*, creating mini-museums for their school community, and the research sought to assess the impact of using collections in this way on learning and teaching for teachers and children during Spring/Summer 2022. One of the central aims was to explore the cultural impacts of creating mini-museums for school communities and to investigate how effective these mini-museums are for teaching and learning, while assessing children and teacher's empowerment as collaborators in the research process.

As the activities reported in this paper reflect an early scoping stage of a larger research project, formal and targeted research questions are not fixed. It is anticipated that they will be developed and designed differently for each school that engages with this project in the future, in line with the democratic and co-creative principles of the project, in order to ensure a research environment that

aligns with the aims and approaches of particular teachers and educational settings. However, in broad terms, from a pedagogical perspective, we hoped to explore the following:

- Can the co-creation of mini-museums with schools aid teaching and learning?
- Can the co-creation of mini-museums encourage teachers to embed storytelling pedagogies within their curricula?
- Can the co-creation of mini-museums enhance a school's capacity to develop oral and creative pedagogical strategies for the benefit of pupil attainment?

Alongside this approach to the research, a digital component to the school mini-museums is also planned, in an effort to increase accessibility and the range of ways with which students and teachers can engage with artefacts and stories.

User Centred Design, Usability, and Digital Heritage

Digital materials are now an essential part of education across almost all age groups, and even very young children are often quite skilled at using digital technology (especially smart phones and tablet devices) for a variety of purposes. A wide range of apps, games and other software products are available that are aimed directly at children and young people (e.g. games such as Roblox, Pokémon Go and Minecraft), or marketed to caregivers and teachers for educational purposes (e.g. BBC Bitesize, Khan Academy Kids, Scratch, Phonics Hero – among many others). Schools are required by governments to include digital resources in teaching and learning activities, and to provide sufficient IT infrastructure to support these activities. Lockdowns and enforced remote digital learning due to the COVID-19 pandemic embedded the use of technology by school students even more firmly – albeit not to anything approaching equal levels across the country (Adams, 2021).

Since digital educational materials are required by governments and expected by parents and can be useful for teachers and exciting for children, therefore it made sense to include a digital element in this project. However, creating successful digital materials for education requires the fusion of different areas of expertise, including pedagogy, software design, and programming, as well as various visual and interaction design and psychology specialities. Modern hardware and software can make producing digital materials much quicker, cheaper, and easier than it would have been in decades past. However, on their own they do not guarantee that the materials produced will meet the requirements of the learners, parents or schools concerned. To create materials that will work effectively and enjoyably for a specific audience, it is important to involve that audience in their creation.

As Power et al. (2017) point out, technology which stops users from achieving their goals, or delivers a negative experience, is destined to go unused, or - if compulsory - to be used reluctantly and ineffectively. Software which fails to meet the requirements of its users can be the cause of significant problems, ranging from inconvenience and expense (e.g. flight delays), to risk to life (e.g. incorrect dose delivery in radiotherapy) (Charette, 2005; Fitzgerald & Russo, 2005). As Still and Crane (2016) put it, “no product is cheap if it does not work for its intended users”. Various software development methodologies are in use in the IT industry. For educational software, though, it is particularly important that the methodology chosen gives particularly high priority to user needs, abilities and preferences, since it is particularly important that educational materials are both appropriate from an

educational standpoint, and also easy enough to use that students and teachers will be able to focus on the topic being learned, rather than the hardware and software delivering the information. One such approach is Human-Centred Design (Fig. 1), as encoded by ISO 9241:210 (2010), which lists four activities required to establish user needs and requirements when developing software systems. These are: to understand and specify the context of use; to specify the user and organisational requirements; to produce design solutions; and to evaluate designs against requirements.

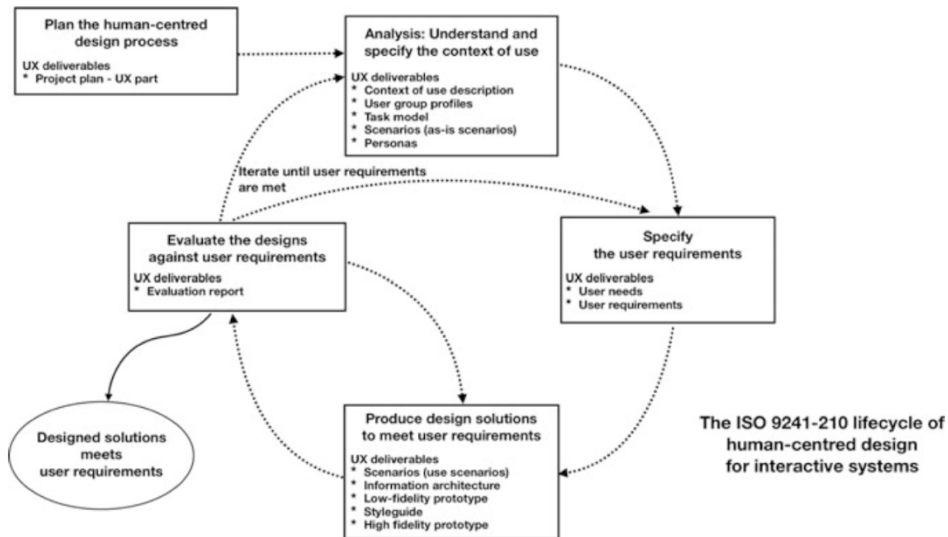


Fig. 1 The ISO 9241-210 lifecycle of human-centred design for interactive systems

A widely used methodology with its roots in Human-Centred Design is the Design Sprint process, originally developed by Jake Knapp and John Zeratsky while working at Google Ventures (Knapp et al., 2016). Knapp’s design sprints follow the principals of human-centred design, validating design proposals by involving typical users at a very early stage, before committing to full-scale development of the proposed system. The purpose of a design sprint, as the name suggests, is to achieve validation quickly. Design sprints also fit in with a wider trend in the IT industry away from traditional technology-centred design approaches, and towards cyclical approaches such as Lean and Agile.

Design sprints in their original Google Ventures form involved bringing together a carefully chosen group of people, including experts in the field of use, to work together using a prescribed set of research and development steps for five consecutive days. The goal is to produce a very clear vision of exactly what users, operators and sponsors would require from the planned software product, and to test this vision by creating a ‘prototype’ – that is, a model or mock-up of the final product, focusing in particular on the user interface. Day 5 of a design sprint culminates in detailed testing of the prototype by typical users, and evaluation of their feedback. It’s not unknown at this point for a project to be abandoned entirely, but more often the feedback obtained helps to guide the activities of those responsible for producing the ‘real’ product, giving them confidence that users need its capabilities, and – just as importantly – will be able to use the interface effectively and comfortably. Obtaining this information early in a project can save a great deal of time and money that would otherwise be wasted on building software which does not meet the needs of its users. However, getting a team of 5 to 10 often very busy or senior people together for a full week isn’t always practical, especially for smaller projects (Southall et al, 2019). For this project, we drew on the principles of Human-Centred Design, and the approach and techniques of the design sprint methodology, but did not attempt to run a full 5-day sprint. Our goal was to collect initial information from teachers and

children about what they would require from digital materials designed to support the in-school mini-museums, and associated story-telling activities. Some requirements were broadly predictable in advance – for example, teachers would want materials which dovetailed explicitly with National Curriculum requirements, and student diversity would have to be catered for, ensuring that the materials were as accessible as possible to all students. However, our aim was to go beyond these general requirements, to find out what the teachers and students involved in these specific mini-museum and storytelling projects would require.

Methodology for school engagement

Having planned the PAR approach and prepared a catalogue of *Mythstories* artefacts that could be used within school settings, a number of primary schools were contacted, and two in the Northwest of England agreed to be involved in the initial scoping phase of the project. Alongside discussions with teachers about their expectations and curriculum-based requirements, teachers were trained by a professional storyteller on how to effectively engage students with the artefacts and were asked to select the items for their school that they envisaged being particularly appropriate to their own curriculum themes, setting, and pedagogy.

At this stage, primary data collection, with the aim of identifying the teachers' experience of storytelling in education and their plans for the artefacts, was carried out by two research assistants attached to the project. This involved conducting interviews which explored the following themes: teachers' general knowledge of storytelling and myth; extent of previous collaboration with museums and storytellers; envisaged benefits for pupils and school; envisaged challenges; how the artefacts relate to the school curriculum; experience in using educational websites for storytelling- and heritage-based teaching. The discussion in these interviews elicited information on the teachers' prior knowledge of storytelling and museum exhibits and pedagogical tools, providing key context for the level of success of, and engagement with, the mini-museum. Through this data collection process, we aim to refine plans for the introduction of artefacts and storytelling methods in other schools, which can be rolled out through co-created resource packs.

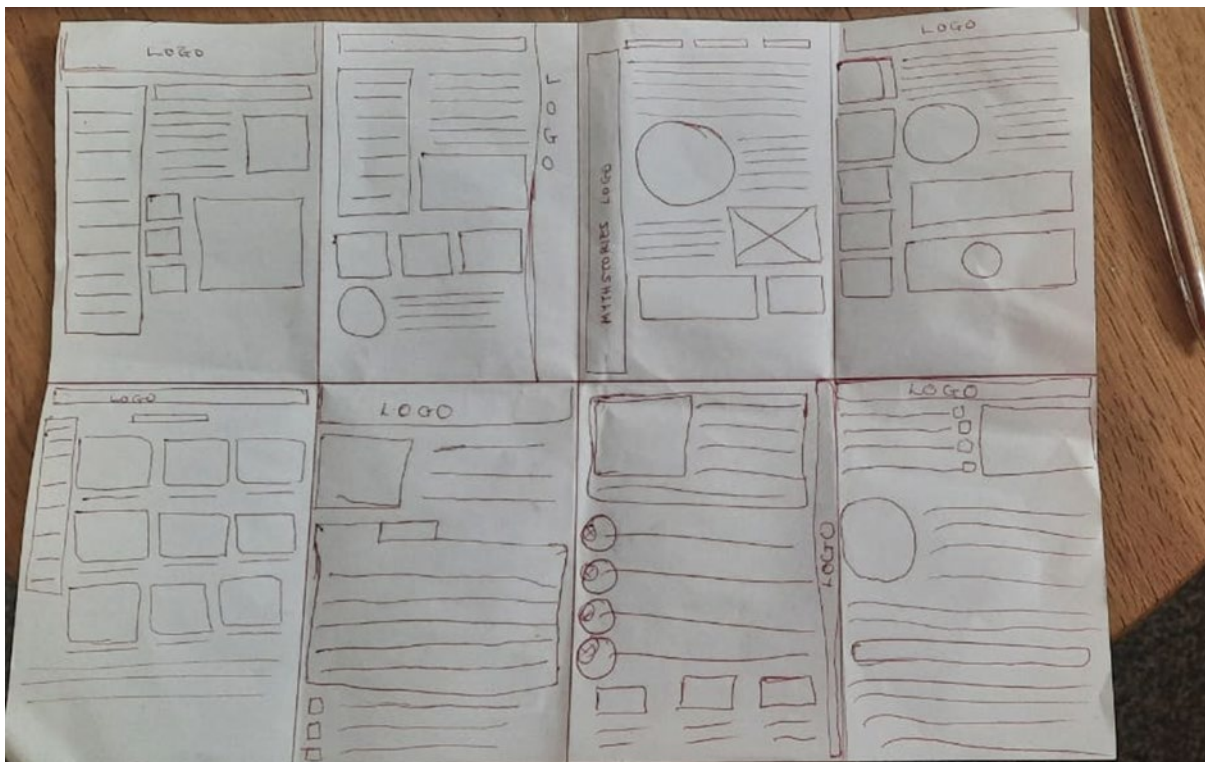
The research assistants also investigated what staff and students would require of any digital materials associated with the mini-museums. They collected information about typical users, preferred type of product (e.g. website or tablet app), preferences regarding colour schemes and visual design, typical contents (e.g. text, images, audio-visual materials, mini-games or puzzles, other interactive elements), accessibility aspects (e.g. text font, text colour scheme, subtitles, image labelling, readability by a screen-reader, requirements for neurodiverse students), access and security issues, and other requirements specific to the school, or the contents of the mini-museum. To help crystallise some of the information obtained in visual form, the research assistants also used the 'Crazy 8' sketching technique (from the Design Sprint methodology, see: www.designsprintkit.withgoogle.com).

The research assistants (RAs) engaged in various activities as part of their role in the research project. These activities included the collection of primary data using photo-elicitation interview methods, with recorded and transcribed data. The RAs conducted inductive and deductive thematic analysis on the collected data, focusing on several key areas. These areas included the general knowledge of storytelling and myth, collaboration with museums and storytellers, potential benefits to pupils and schools, potential challenges to the Mythstories project/idea, subjects that the Mythstories project could relate to, experiences with educational apps/websites, and preferences for educational resources.

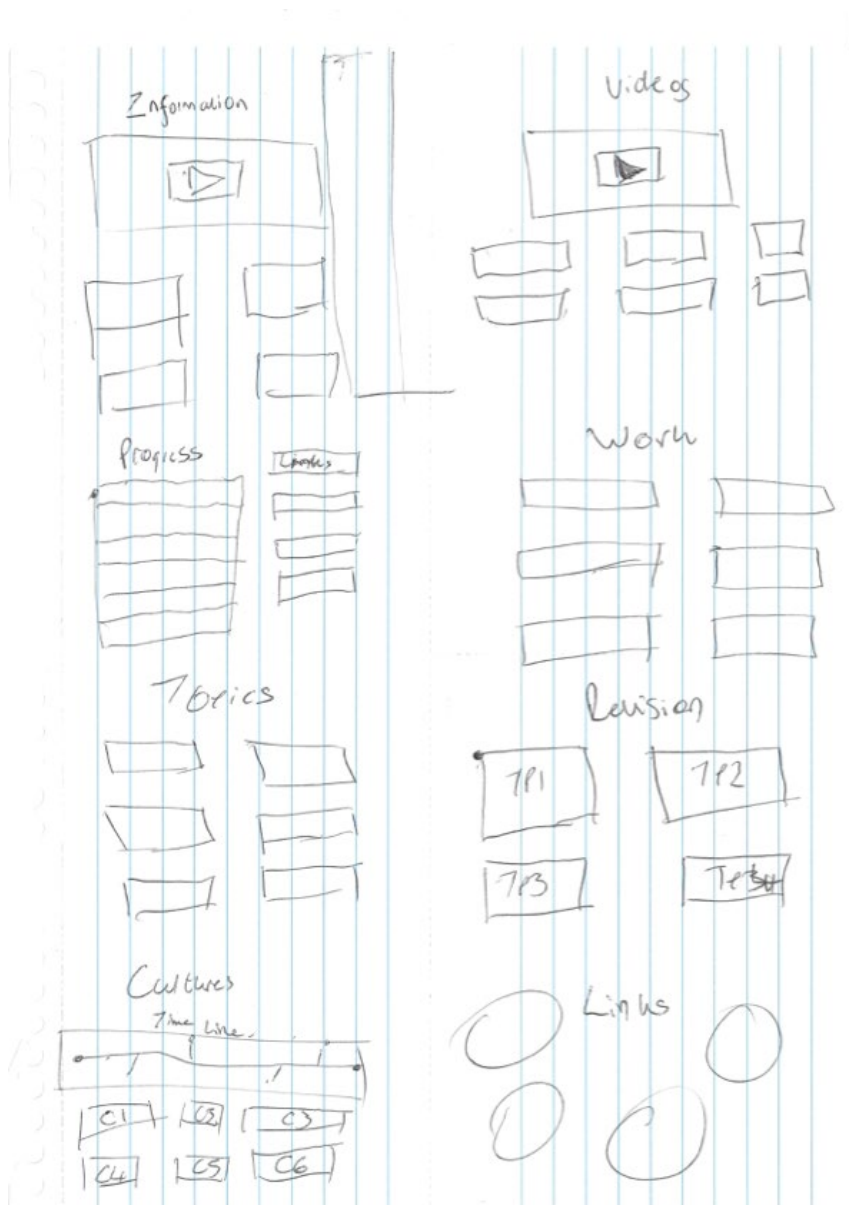
Furthermore, the RAs prepared a User Interface Report, which encompassed several important aspects. This report detailed the target users of the research project, the type of product being developed, considerations for colour and design, methods for monitoring user engagement, the type of content to be included, accessibility and security measures, and subjects to be considered in the development of the project. Additionally, the RAs utilized the 'Crazy 8' designs, based on the Knapp Design Sprint methodology, to further enhance the user interface and experience.

These activities were crucial in providing valuable insights and data for the research project. The primary data collection and thematic analysis conducted by the RAs allowed for a comprehensive understanding of the various aspects related to storytelling, myth, educational resources, and user preferences. The User Interface Report prepared by the RAs ensured that the project's design and interface considerations were well-documented and aligned with the needs and preferences of the target users.

Overall, the involvement of the RAs in these activities significantly contributed to the research project, providing a solid foundation for further analysis and development. The thoroughness and attention to detail exhibited by the RAs in carrying out these activities underscore their valuable contribution to the research endeavour.



'Crazy 8' page showing some ideas for general layout, but without specific suggestions re. content



'Crazy 8' page with more indication of how layout might relate to content.

Analysis

Drawing upon the reflections and observations of the researchers, research assistants and storytelling practitioner, as well as from comments that the teachers made during interviews the following points have been distilled and synthesised under three headings, to summarise the project. The first outlines the challenges that the project faced, the second the benefits that the project revealed, particularly in terms of learning, and the potential for similar future collaborations. The third considers these challenges and benefits, and offers some thoughts on the ramifications for schools, pupils and practitioners and possible future learning opportunities, given the findings.

Challenges

The challenges encountered in implementing storytelling practices in educational settings can be reframed as opportunities for growth and improvement. Adams (2013) noted that the length of time required for pupils to fully engage in creative practices is not always available. This did seem to be the case, in at least one of the partaking schools, leading to a lack of full appreciation for this pedagogical

approach among teaching staff. This highlights the potential for enhancing the integration of storytelling into the curriculum by ensuring adequate time for immersion in the learning mode.

Furthermore, while some school leadership valued storytelling practices, there was a lack of whole-school motivated engagement in certain settings. This kind of outlook was apparent from interviews conducted in schools, with one participant noting that they are concerned about being provided with a storytelling-related teaching tool and being expected “to know everything about it”, while also implying that time constraints make learning about a new approach difficult when they stated “that's additional work for me”. This was attributed to external pressures and the climate of performativity within the UK education system (Turner-Bisset, 2007). However, it also presents an opportunity for school leaders to deepen their understanding of storytelling pedagogy and actively support its implementation across all levels of the institution, developing a more critical understanding of storytellers as working professionals. As part of this, it will also be important to ensure that storytelling resources link to the curriculum, and are integrated within it at an early stage of planning, with one participant noting in an interview that, even though one particular story seemed “fascinating”, “to actually link that to the [school’s] curriculum when we already have our books set out for English and reading is going to be very difficult”.

The disruption of routines and learning environments, compounded by the challenges brought about by the Covid-19 pandemic, posed difficulties for teachers in embracing storytelling practices. Despite this, it is important to recognize the potential for growth in adapting to changing circumstances and re-instilling routine in the post-pandemic educational landscape.

In another instance, the lack of a staff briefing before the storytelling practitioner's work in a school hindered collaboration. However, the subsequent facilitation of a staff briefing resulted in stronger collaboration, mutual understanding, and shared enthusiasm for the project. This underscores the importance of advance communication and awareness-building among teachers to foster successful collaboration with storytelling practitioners.

Additionally, the impact of Covid-19 on school staffing led to the withdrawal of some initial participating schools and the rapid approach and briefing of new schools. While this presented challenges, it also highlighted the resilience and adaptability of educational institutions in responding to unforeseen circumstances.

In conclusion, these challenges provide valuable insights into the potential for enhancing the integration of storytelling practices in educational settings. By addressing these challenges positively, educators and school leaders can work towards creating an environment that fully embraces the benefits of storytelling as a pedagogical tool.

Benefits

The co-creation of mini-museums with schools offers several benefits that align with the research questions posed. Firstly, the shared experience facilitated by the co-creation process enables easier discussions about the experience, fostering greater synergy among teachers, students, and other stakeholders. This aligns with the research question on whether co-creation of mini-museums can aid teaching and learning. The facilitation of easy collaborations through access to resources, pre-visits, and communication with staff not only simplifies the organizational aspects but also encourages teachers to embed storytelling pedagogies within their curricula, as it allows them to focus more on the children and less on the administrative aspects of the process.

Furthermore, the co-creation process enhances a school's capacity to develop oral and creative pedagogical strategies for the benefit of pupil attainment. This is evident in the observed moments for reflection, where teachers and students alike had opportunities to reflect on their experiences and learning. The engagement of children in conversations around the story, their active problem-solving, and learning from one another also demonstrates the enhancement of pedagogical strategies, aligning with the research question on enhancing a school's capacity for the benefit of pupil attainment.

Moreover, the creation of a mini-exhibition to showcase the children's work not only reveals potential budding engineers and architects but also highlights unexpected connections with other disciplines. This aligns with the research question on whether the co-creation of mini-museums can encourage teachers to embed storytelling pedagogies within their curricula, as it demonstrates the interdisciplinary nature of the co-creation process and its potential to connect with various academic disciplines.

In conclusion, the co-creation of mini-museums with schools offers benefits such as facilitating shared experiences, fostering easy collaborations, enhancing pedagogical strategies, and showcasing interdisciplinary connections. These benefits align with the research questions and underscore the value of incorporating co-creation activities in educational settings.

Learning and Ramifications

Research Objectives

In the course of the project, several positive achievements were made in line with the research objectives. Firstly, the research questions were successfully developed in collaboration with partners from schools, aligning with the principles of democratic creativity that the project aimed to foster. This collaborative approach to formulating research questions not only enriched the process but also ensured that diverse perspectives were considered, thereby enhancing the overall quality of the research.

Secondly, the project effectively determined the pedagogical models of partner schools in developing children and teachers as collaborators in meaning-making processes. This achievement provided valuable insights into the educational practices of the partner schools and their approach to fostering collaborative learning environments. However, it is acknowledged that further exploration of this aspect could yield deeper understanding and more nuanced findings as the project progresses.

Furthermore, the project successfully determined how these pedagogical models generate new stories and knowledge about the artefacts in the museum collections. The involvement of a Storytelling practitioner facilitated the sharing of experiences wherein museum artefacts effectively stimulated teacher and pupil engagement in specific storytelling pedagogies, which were then applied to curriculum areas for which they were not originally intended. This outcome demonstrated the practical implications of the research findings and their potential to inform and enrich educational practices.

Additionally, the project provided a platform for the Mythstories museum collections to be utilized in generating new stories and creative responses outside of museum settings. This achievement expanded the reach and impact of the museum collections, thereby contributing to the preservation and dissemination of cultural heritage through innovative educational approaches.

However, the final research objective, which aimed to assess the empowerment of children and teachers as collaborators in the research process and knowledge exchange, proved to be the most challenging to achieve. Several factors, including varying and unplanned demands on the partner

schools, as well as budgetary constraints, contributed to the inability to fully realize this objective. It is evident that this area requires critical attention and development in future projects to ensure meaningful engagement and participation of all stakeholders.

In conclusion, while significant progress was made in various aspects of the research, it is imperative to recognize the need for continued exploration and improvement, particularly in addressing the challenges encountered in assessing the empowerment of children and teachers as collaborators in the research process. This acknowledgment will inform future endeavours and contribute to the advancement of knowledge in the field of collaborative educational research.

Strategic objectives

The strategic objectives were aimed at developing an impact case study with project partners to assess the cultural impacts of creating mini-museums for school communities and the impacts of understanding and awareness on teaching and learning. Additionally, the objectives involved assessing the feasibility of digitizing museum collections and uploading the content onto a web space. These objectives were, and still are, crucial in understanding the potential benefits and positive outcomes of the project.

The development of an impact case study with project partners focusing on the cultural impacts of creating mini-museums for school communities and the impacts of understanding and awareness on teaching and learning is a significant endeavour. This initiative has the potential to provide valuable insights into the educational and cultural benefits of integrating mini-museums into school environments. By receiving feedback from teaching practitioners in partner schools regarding the pedagogical uses of the artifacts, the project has begun to gain valuable perspectives on the practical implications and benefits of the mini-museums. This feedback has provided evidence supportive of a need for a project of greater scope and resource, and will contribute to a more comprehensive investigation, ultimately leading to a deeper understanding of the positive impacts on teaching and learning within the school communities.

Furthermore, the assessment of the feasibility of digitizing museum collections and uploading the content onto a web space is a strategic move that can yield numerous benefits. By digitizing the museum collections, the partner schools can expand access to the artifacts beyond the physical confines of the school, allowing for broader dissemination and utilization of cultural resources. This digital accessibility has the potential to enhance learning experiences and foster a deeper understanding of cultural heritage among students and the broader community. Additionally, the creation of a digital archive for the museum's collections can contribute to the preservation and documentation of cultural artifacts, ensuring their accessibility for future generations.

In conclusion, the strategic objectives outlined hold significant potential for positive outcomes and benefits. The development of an impact case study and digitization of the museum collections are essential steps in understanding and maximizing the cultural and educational impacts of future project developments. These initiatives have the capacity to enrich teaching and learning experiences, promote cultural awareness, and contribute to the preservation and accessibility of cultural heritage.

Conclusion

The project demonstrates that there is the potential for a strong nexus between museums, pedagogy, and storytelling within the classroom, and also the development of supporting digital materials. Considering all of these aspects together allowed us to observe some interesting similarities of approach across disciplines (for instance, PAR and User-Centred Design have many differences of detail, but both emphasise the need to learn about the specific requirements of real users as part of the process, rather than imposing pre-conceived solutions). Similarly, scholarly discourse posits that storytelling is not just a mode of communication or knowledge transfer, as negotiation takes place between the teller and the audience. It is seen to necessitate many responses such as story re-engineering, enhancement of comprehension skills, literacy skills, reading skills and even creative and critical thinking. These responses also appeared to be emerging in the pedagogical practices in the schools that were involved. The action research process ensured that schools' pedagogical needs were addressed, enhancing the use of constructive retelling, and cultivating young storytellers.

The digitization of museum artifacts and the enhancement of a museum's website accessibility for teachers can indeed yield numerous benefits that outweigh the challenges associated with implementing storytelling pedagogies. The co-creation of mini-museums with schools has the potential to significantly aid teaching and learning. By engaging with museum artifacts in a digital format, students can have a more immersive and interactive learning experience, which can enhance their understanding and retention of the material. Furthermore, the co-creation of mini-museums can encourage teachers to embed storytelling pedagogies within their curricula, thereby fostering a more engaging and effective learning environment. This approach can also enhance a school's capacity to develop oral and creative pedagogical strategies, ultimately benefiting pupil attainment by providing a more diverse and inclusive learning experience. Overall, the digitization of museum artifacts and the improvement of a museum's website accessibility for teachers can positively impact teaching and learning outcomes, providing new opportunities for engagement and learning that traditional methods may not offer.

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