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Interactive Fiction for Historical Learning: A case study from “Home of the Blizzard: An Antarctic Adventure”

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ABSTRACT

The use of games for historical learning is well established within both the education and collections disciplines, with the use of boardgames, scavenger hunts, quizzes, and escape rooms increasingly common throughout Australia’s GLAM (Galleries, Libraries, Archives, and Museums) landscape. Other genres are less well explored, and there is a lack of examples of digital games that address specific historical learning aims within the Australian curriculum. In collaboration with the National Film and Sound Archive of Australia (NFSA), this article details the development and user testing of the digital interactive fiction (IF) game Home of the Blizzard: An Antarctic Adventure (2022). This game centres around the Australian Antarctic Expedition of 1911-14, as a pivotal point in Australia’s history of exploration and scientific research in the Antarctic. Particularly, incorporating a significant amount of Frank Hurley’s 1913 film “Home of the Blizzard”, held by the NFSA. Very little research has been conducted into the potential use of interactive fiction games for historical learning within Australia, with this article exploring the potential of such games as tools to expand engagement with cultural collections. A series of user tests were conducted, including with two classes of primary school students, which concluded the game was fun, engaging, and had significant learning potential in school settings. This research highlights the necessity of user-testing games developed by GLAM’s and the great promise of IF for collections-based history education moving forward.

KEYWORDS

Historical learning, GLAM sector, Interactive Fiction, User testing, Learning game design

GAME LINK

<https://blizzard.nfsa.gov.au/>

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Introduction

The global experience of the Covid-19 pandemic threw into sharp relief the need for Galleries, Libraries, Archives and Museums (GLAM's) to develop and maintain digital identities (ICOM, 2021). Whilst the shift away from the cultural institution as a physical space towards the development of 'remote strategies' has been slowly increasing, the pandemic necessitated an abrupt rise in the use of digital technologies for visitor engagement (Chan, 2021; Lei, 2022; Wilson-Barnao et al., 2023). For institutions like the National Film and Sound Archive of Australia (NFSA), this required the rapid production of digitally-based exhibitions and content. The educational imperative of the GLAM sector, being largely the need for institutions to develop curriculum relevant content that showcases their collections as part of overall operational goals, has significantly influenced the selection and creation of said digital material (Hohenstein & Moussouri, 2017; Office for the Arts, 2021). Considering the sector's emphasis on students as opposed to adult learners, and with traditional in-person school group visits largely impossible during lockdowns, digital spaces were essential to achieving these goals.

This article follows the development and user testing of the digital interactive fiction (IF) game during this period entitled *Home of the Blizzard: An Antarctic Adventure*, a choose your own adventure game centred around the first Australian Antarctic Expedition of 1911-14. It was inspired by, and incorporates a significant amount of, Frank Hurley's 1913 film "Home of the Blizzard" (NFSA, n.d.).

The game's premise is that you, the player, have been accidentally sent back in time and must ensure the expedition is a success in order to return to the future. There are multiple ways to either become 'stuck' in the past or 'die' within the game, and five possible successful endings (rated 1-5 stars, one of which is historically accurate). The game immerses players in the narrative, with content including photographs, film snippets, and sound, by asking them to make choices to progress the story via simple hyperlink options. The game was developed by the author and the NFSA in Canberra over the course of 2020-2021 and published online (alongside a teacher's guide) in April 2022.

Whilst the use of games within and for cultural heritage institutions is well established, IF games seem to have been overlooked in favour of other genres like scavenger hunts, escape rooms, and video games. This research sought to assess whether online IF games could interest and engage student audiences, and if they have any potential as learning tools.

Notably, this project did not set out to definitively measure learning outcomes, rather to establish the potential of interactive fiction games for GLAM institutions. User tests were conducted with two classes of primary school students at The Anglican School Googong, in New South Wales, which concluded the game was fun, engaging and had significant learning potential in school contexts. Several suggestions were made by users and teachers to improve the game, including the addition of a voice-over track, with the testing overall providing a wealth of useful feedback for the NFSA. Google analytics data from the game website indicates that in its first year of publication, the game had been played 907 times (correspondence, NFSA 2023).

Background

The Game

The author began developing *Home of the Blizzard* in 2020, drawing inspiration from Hurley's 1913 film and the story of Australia's first expedition to Antarctica to create a digital IF game.¹ The game's narrative was developed through the incorporation of careful historical research with a fictional plot (i.e. *you've been sent back in time*), utilising images and information from a range of Australian archives, libraries, and museums.² This included personal diaries, related ephemera, and recordings of period music. In 2022, the game was highly commended in the category of *Best Digital Learning Experience* at the Museums Australasia Multimedia and Publication Design Awards.

The game has five alternate endings, depending on the players choices in the narrative, with the fourth true to the historical event and the fifth an ideal where all members of the expedition return safely. It takes between 30 minutes to an hour to play, depending on reading speed and storyline re-plays, and has an intended audience of Australian upper-primary school students. As a form of multimodal storytelling, the game touches upon 26 themes and topics from the curriculum for both primary and early secondary students, across the disciplines of History, Science, Digital Technologies, and English (NFSA, 2022). Moreover, games developed by cultural institutions are rarely one-dimensional in their aims and often also work to "compliment, enhance or argument the museum experience" (Paliokas & Sylaiou, 2016, p. 1). In this way, *Home of the Blizzard* is a learning game, both about Australian Antarctic history and the NFSA and its collection.

Table 1

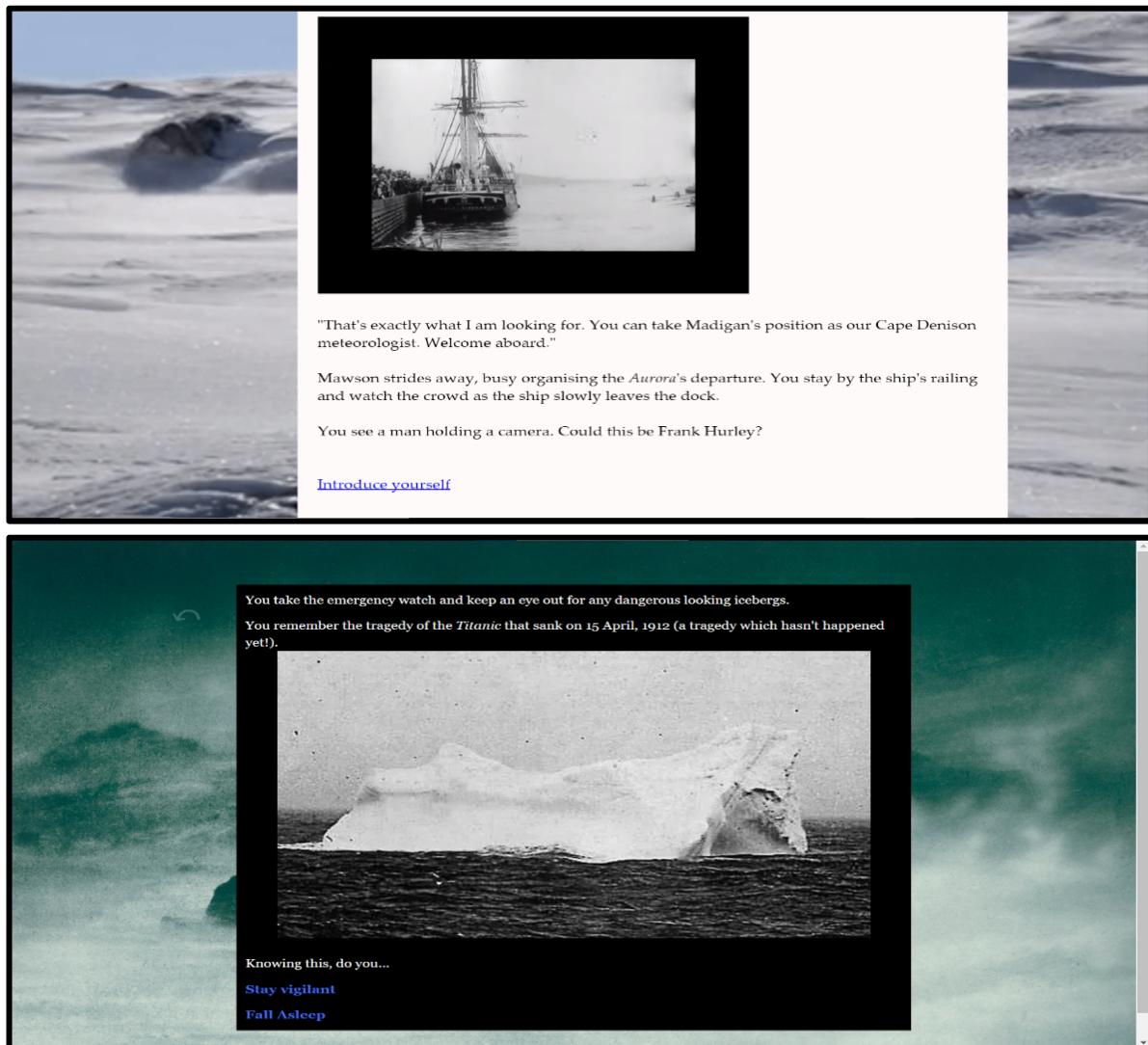
A section of the game's Australian Curriculum Alignment table for Year 6, taken from the Home of the Blizzard Teachers' Guide, 2022 (p.16)

YEAR 6	SUBJECT	CODE	DESCRIPTOR
	Humanities and Social Sciences	ACHASSI122	Develop appropriate questions to guide an inquiry about people, events, developments, places, systems and challenges.
	Humanities & Social Sciences	ACHASSI123	Locate and collect relevant information and data from primary sources and secondary sources.
	Humanities & Social Sciences	ACHASSI127	Examine different viewpoints on actions, events, issues and phenomena in the past and present.
	Science	ACSSU094	The growth and survival of living things are affected by physical conditions of their environment.
	Science	ACSHSHE100	Scientific knowledge is used to solve problems and inform personal and community decisions.
	Media Arts	ACAMAM062	Explore representations, characterisations and points of view of people in their community, including themselves, using settings, ideas, story principles and genre conventions in images, sounds and text.

The game was originally written in QUEST, a free IF authoring tool by textadventures.co.uk, and a working prototype presented to the NFSA at the end of 2020. The NFSA then went on to acquire the rights for *Home of the Blizzard* and over several months re-developed the game in Twine (twinery.org), with the narrative remaining largely intact. Significant additions were the inclusion of pop-up citations for images, a 'back' button, and the inclusion of further factoids about the expedition (A. Blackshaw, personal communication, 11 January 2021). Edits included removing most of the background sound effects and changing the colour scheme (Figure 1).

Figure 1

Top – Initial game prototype; Bottom – NFSA version



Australian Antarctic Exploration

From the late 19th century up until the First World War, Antarctica experienced what is now known as the 'Heroic Age of Antarctic Exploration', a period of high visitation by adventurers and fame-seekers looking to chart a theretofore uncharted continent. The Australasian Antarctic Expedition (1911-1914) was the first of these explorations to have the support of the Australian political and scientific communities, and was led by Sir. Douglas Mawson for the purpose of exploring the area directly south of Australia (Adelie Land through to Queen Mary Land). Crewed

by young men, many of whom were scientists, this expedition set up three bases, including a permanent base at Cape Denison known as 'Mawson's Hut'. This expedition began Australia's scientific interest in Antarctica, a legacy that continues to shape the Australian Antarctic Division and its commitment to communicating research of the continent to the Australian public (Australian Antarctic Division, 2023).

The 1911 expedition's voyage to, and life in, Antarctica was chronicled by photographer Frank Hurley, who took several hours of footage of the expedition and, upon his return to Australia, edited and released the documentary *Home of the Blizzard* (1913). This film, now digitised, sits within the NFSA's collection, and remains significant as one of the first depictions of Antarctica and its wildlife to mainstream Australian audiences. This film, and the expedition as a whole, also saw the beginnings of the Australian environmentalist movement against the practices of penguin and seal smelting (for oil) (Turnour, 2011). Upon its release, Hurley often stood side stage and narrated the film as it played. Unfortunately, there is no record of the content of this voiceover, which makes piecing together the film's story all the more difficult for modern audiences. It is for this reason that the choose-your-own-adventure genre was chosen, as such a resource could provide a storyline and context to the film whilst keeping its sense of adventure. Translating the complexity of this historical event into an interesting and coherent narrative was the challenge of this game's design.

Interactive Fiction

IF is defined as "a kind of video game where the player's interactions primarily involve text" (Interactive Fiction Technology Foundation, n.d.) Other equally general definitions of IF include "a medium through which you can influence the outcome of a story" and a game in which "the author is free to choose her own path" (Dillon, 2004, pp. 2–3; Pisan, 2007). There are two common forms of IF, being parser and choice-based games. Parser-based games operate through the player typing natural-language commands (i.e. Go Left) into a 'parser' box to explore the game/complete tasks. Choice-based games operate through the player choosing between several options to navigate a branching narrative, often represented as hyperlinks, and can be either digital (like *Home of the Blizzard*) or physical, like a Choose Your Own Adventure book (Baker, 2021; Interactive Fiction Technology Foundation, n.d.; Short, 2007). In both cases, IF is characterised by concepts of roleplay and player immersion in story. Despite experiencing a decline in popularity, IF continues to have a significant online following, described as a thriving hobbyist community (Baker, 2021). There are a variety of online IF building tools, many of which are either free and open source, or limited versions of commercial software.

Learning/Serious/Purposeful Games

Game-based learning is well-established within education and is commonly regarded as more engaging than traditional classroom instruction (i.e. lectures), when done correctly – although this is difficult to quantify (Boller & Kapp, 2017; Chapman, 2012; Harvey, 2018; Kim, 2018). In terms of learning outcomes, research indicates that the interactive, immersive, and fun nature of games can improve both learning and engagement within a range of topics (Isabelle, 2020; Kelly et al., 2014; Kim, 2018; Rowan et al., 2016).

There are several definitions of games whose aim is 'learning' and much debate over which term (serious game, game with a purpose, gamification, etc) is most useful (Deterding et al., 2011; Backlund & Hendrix, 2013; Fasce, 2015). In this article, I use the term 'learning game' to refer to *Home of the Blizzard*, following Champion's (2016) argument that a learning game is a game "that informs, trains(instructs), or influences" the player, with fun and entertainment essential tools to this end.

In school contexts, two established methods to increase the learning potential for games are incorporating them into existing pedagogies and implementing affective design. For instance,

games that align with existing learning structures (i.e. curriculum topics) tend to be successful because they enrich classroom teaching and build upon students existing knowledge (Antoniou et al., 2013, p. 12; Bjørner et al., 2022; LaPensée & Emmons, 2019; Rowan et al., 2016). Such games are also likely to incorporate affective design, that is the design of content to elicit certain emotions (Mulcahy & Witcomb, 2018; Wetherell et al., 2018). Many narrative-driven games use tools like role-playing to immerse the player in certain scenarios and subsequently foster emotions, often empathetic, that impact cognition (Kidd, 2015, p. 3). This is especially true for interactive fiction, where players are often asked to make decisions based upon their own ethical schema and then 'guided' to a certain response, regularly using the characters 'death' as an incentive (Kidd, 2015, p. 18).

This article argues that interactive text-based games that utilise such strategies can be useful additions to the learning game genre, largely due to their low technical barriers for creation and play when compared to other, graphics-heavy games (Baker, 2021).

User Testing & Young People

There are various ways to user-test a game, whether this be in a commercial or learning context, and the process is complex. The consensus is that user-testing is both essential to good game development and often prohibitively expensive and/or time consuming (Annanperä et al., 2018; Boller & Kapp, 2017; Cawston et al., 2017). Many games researchers on projects larger than this use a mixed methods approach, i.e. the combination of interviews and surveys, to good effect (Annanperä et al., 2018, p. 7; Cawston et al., 2017; Paliokas & Sylaiou, 2016; Rowan et al., 2016). Within learning game studies, it is also common to design both pre- and post- test surveys to ascertain knowledge acquisition/growth in understanding (Acharya et al., 2018; Bjørner et al., 2022; Kerthyayana Manuaba, 2017). Since the main aim of this research was not to test education uptake but rather enjoyment of the 'form' of IF, I asked players to complete one online post-game survey. This methodology is similar to that used in LaPensée and Emmons's (2019) study of student and teacher responses to the IF game *When Rivers Were Trails*, however did not include a control group and focused upon 'enjoyment' rather than education.

Young people are the key sample group for this project, specifically 40 students in grades 4, 5 and 6, and the user testing was designed with that in mind. This project approaches young people as experts in their own lives and experiences, and whose opinions are as valuable as any other persons (Bossavit et al., 2018; Rowan et al., 2016; Tisdall et al., 2009). Another consideration specific to this group is that of 'social play' or experiences of play that are created through group involvement, the prevalence of which was addressed through interviews with the teachers involved.

Relevant Projects

Other projects like this one, being digital games created for Australian GLAM's that utilise historical narratives, include the Australian National Maritime Museum's suite of digital games, particularly *The Voyage* (2016) reported on in Kelly et al. (2014) and Rowan et al. (2016), and its follow-up sequel *Cook's Voyages: Views from the Shore* (2020). Additionally, the National Museum of Australia's *Goldrush* (n.d.) and MOD. Adelaide's *Eucalara Commons* (2023). Internationally, games such as *When Rivers where Trails* as discussed by LaPensée and Emmons (2019), and *Jo Wilder and the Capitol Case* as discussed by Wardrip et al. (2022), are also examples of digital games for learning within history contexts.

With the exception of *Eucalara Commons*, these games tend to be more like a common 'mainstream' video game, incorporating advanced graphics and mini-game elements, as opposed to the relative simplicity of interactive fiction. They do, however, illustrate the efficacy of combining narrative-based adventure with graphics and sound, which is an important part of

Home of the Blizzard. Their success in school situations is also of note and reflects the overall trend of student-centred game development in the GLAM sector.

Methodology

This project collected data largely through a 10-question, online post-game survey. Two other short (30 minute) interviews were conducted with the teachers and NFSA staff involved in the project to ascertain their opinions of the game. Testing took place in the latter half of October 2021 and 40 responses were collected via the survey.

Created through Qualtrics, the survey included a short introduction explaining the purpose of the project and an image of the author (as primary investigator), then a copy of the project information sheet and a short message indicating that form submission equated consent (Tisdall et al., 2009). The survey was intentionally kept short and incorporated a variety of question response types (text, Likert scale, multiple choice). A password was added to the survey after initial publication, as bots and people unrelated to the testing started submitting responses.

In-school testing was managed through two established contacts within The Anglican School Googong, both primary school teachers and one working within management. The teachers handled the majority of the organisation, setting the date for testing and ensuring all of the permission forms were sent out/returned on time. They also ensured both classes contained a diverse mix of students at all levels of learning.

In-school testing was conducted on 28 October at The Anglican School Googong, in the 4th session of the day (12:10pm). This testing coincided with the first week of in-person classes in the ACT/NSW border region after lockdown and included 40 students (a mix of grade 4, 5 and 6 students). Just before the session began, I Zoomed in to briefly introduce myself and the project to students. The students were given 30 minutes to play the game and fill out the survey and used individual iPad's to do so. They were also asked by the teachers to be mindful of not influencing others responses and to truthfully answer the survey. After this session, the teachers also asked the students to write on sticky notes what they liked and disliked about the game and collected these responses. This was a particular request of the NFSA.

Early the next week, I conducted two separate online interviews with both teachers and NFSA educator Adam Blackshaw to gauge their opinions on the game. Both lasted for approximately 30 minutes and were recorded for transcription (using either Microsoft Teams or Zoom).

Results

The results of both the survey and the interviews indicate that IF games like *Home of the Blizzard* are engaging and have great potential as learning tools, particularly for younger age groups.

Survey

Overall results indicated that a majority of players spent over 15 minutes playing the game (75.12%), either liked (40%) or loved (44.44%) it, and would play a similar game again (73.33%). Moreover, when prompted to respond with one thing they had learned, all users indicated that they felt that they had learned something. In regard to this, the most common take-away was the existence of the expedition itself and the basic facts of the event (50 sled dogs accompanied them, etc). The animals featured in the game were very well received, with Pavlova the dog by far the most popular character (62.79%) and many users indicating their favourite parts of the game were "tickling the seal" or "feeding the dogs". Other take-aways from the testing were that users enjoyed the ability to choose their own paths and watching the short film clips, with some disliking

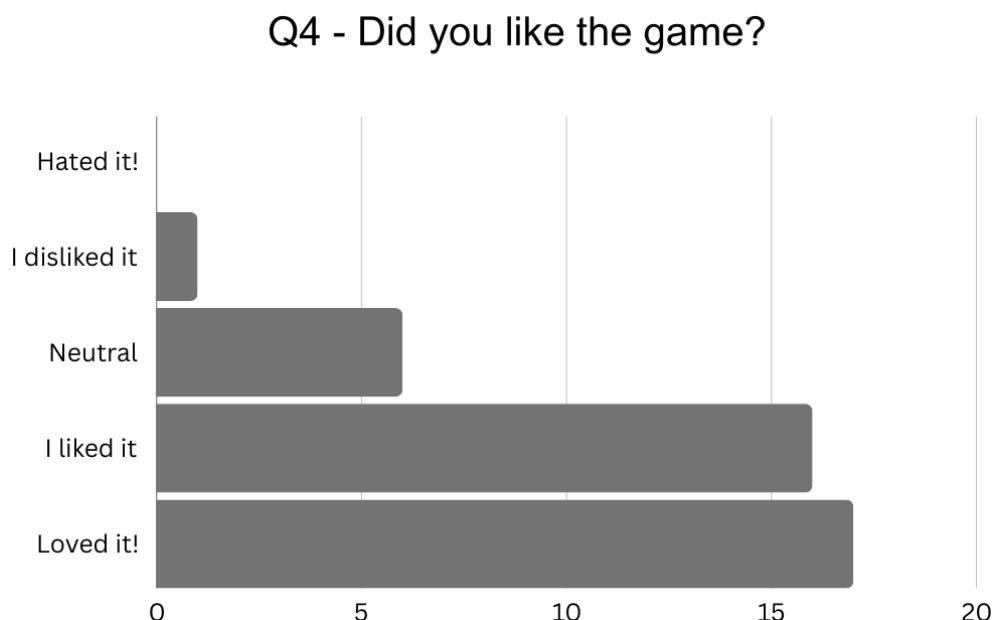
the amount of reading required and various user interface elements. The following sections will explore these responses in more depth.

In-School testing

Responses gathered from students during the in-school testing session were largely positive, with 33 students saying they liked the game and 29 expressing that they would play a similar game again (Figure 2). Notably, the rest said that they 'maybe' would, and none expressed they would not play a similar game again. Of those that disliked the game (1 student) or were neutral (6 students), the main reason given was the amount of reading needed. For instance, one student said they "didn't like reading everything". This response had a direct correlation with those who indicated they would only 'maybe' play a similar game. One student suggested having a voice over to mitigate this issue, along with more sound in the game overall.

Figure 2

Bar graph of student responses to survey question 4 "Did you like the game?"



Most students knew very little or nothing (33 students) about the expedition before playing the game, and all responded that they had learnt something after playing, whether this be about the expedition itself or Antarctica in general. Overall, students expressed that they thought the game was fun, that they enjoyed playing it and felt like they got something out of it. This was mirrored in the NFSAs post-it-note like/dislike questions after the testing.

Several issues/suggestions for game improvement where:

Difficult to find back button

I disliked the lack of sound, maybe add music in the background while playing?

...I thought maybe make the words a little bit easier to understand.

Can u maybe like add text to speech or a video to read everything

Short Interviews

Both interviews indicated that the game was viewed as a useful learning tool by the NFSA and the teachers at Googong school, with the experiences of the teachers in-class supporting the positive student responses in the survey.

NFSA Interview

As primary developer of *Home of the Blizzard*, Adam Blackshaw identified several aims of the game which link into the NFSA's larger goals, including access to and engagement with collections content, encouraging public participation through the interactivity of the game, and creating an "evergreen learning tool" that can sit on the NFSA's website. He also felt that the narrative game style was particularly suited to GLAM's as "...we're storytellers, the NFSA is, all cultural institutions are". When asked why he chose to market the game towards upper-primary students, he responded that the content needed to sit on the website somewhere and the best way to do this was to integrate it with the existing 'learning' section which is aimed towards that age group. Adam viewed the game as a provocation, one that could inspire projects in other related fields (i.e. geography, history, science), saying:

I think the main benefit of this game is that it sparks interest immediately and in many different directions.

To this end, he was at the time of interview developing a teacher's guide to sit alongside the game. He also expressed the reality of resource constraints on game development, particularly where the development of an audio track is involved. One aspect Adam struggled with was, however, the issue of creating fiction out of history and the ethical implications of this, which he overcame by increased signposting and referencing within the game itself.

Teacher's Interview

This interview focused upon the teacher's experience with the in-class testing and their opinions of the game as a learning resource. Both teachers expressed that the students enjoyed the game and were highly engaged, some playing it more than once. They observed that the students were curious and driven to explore all the different dead ends of the story map and would work together to achieve this. Moreover, whilst each student did play the game on an individual iPad, they were using the group environment to discuss each option and the story overall. In this way, it became a social exercise, which one teacher identified as another potential avenue for engagement – that is to play the game as a whole class or in groups.

In terms of the game as a learning tool, both teachers viewed it as a "great provocation to start an enquiry" and were confident that they could develop several projects out of it. An issue they raised was that it was difficult to see where the game fit within the Australian curriculum, which makes it much more difficult for teachers to integrate it into their lesson plans. A well-developed teacher's guide was their suggestion for overcoming this barrier. They also stated that the students were clearly learning from the game in several ways and were expressing how much they were "finding out" about the expedition. After some consideration, they also suggested that the game had great potential as a literacy resource, particularly where vocabulary and teaching narrative style are concerned. However, to achieve this it would be accompanied by a voice over, which the teachers argued should be added in any case to improve accessibility.

Discussion

The results of this project strongly indicate that IF games like *Home of the Blizzard* can effectively engage young people, specifically those of primary school age, and have great potential as learning tools. Both the survey responses and interviews garnered positive feedback and useful suggestions as to possible improvements.

Data from the in-school testing, alongside the teacher's interview, indicates students were highly engaged in the game and enjoyed the experience. In this way, 'fun' was a driving factor in engagement and aided student understanding. Of note is the way the students engaged with one another during the testing and experienced play as a social exercise. There is insufficient data to ascertain whether these forms of group engagement are unique to school environments or to IF games in general, or perhaps both. Considering the game is based upon narrative, and storytelling is social by nature, it is worth exploring whether IF games are more suited to group interaction than other game formats and what this could mean for historical learning.

The main suggestions that arose from the user testing fell into two categories, game content and game interface. Issues with game content were largely to do with the length of the game and the amount of reading it required, as well as some comments on the star-ending system. Suggestions to improve these elements were the inclusion of an optional audio-track to the game, the inclusion of more sound in general, to simplify some of the vocabulary, and to remove the star-ending system. In contrast, some respondents enjoyed reading the narrative and praised the star system (particularly those who reached the 5-star ending). This dichotomy highlights the difficulty in creating a resource for a diverse audience and how this complicates any decisions to alter game content. Issues with the game interface itself are much easier to implement, as they are often related to aesthetics and play mechanics. A common issue was players being unable to locate the 'back' button as it is slightly transparent, which was easily fixed. Many of the other suggestions for edits (i.e. having a 'light' theme option for black text on white background) bring the game closer to industry accessibility guidelines, which were not consulted during game development clearly to our detriment (Game Accessibility Guidelines, n.d.).

As for the NFSA and their vision for the game, the user testing confirmed that this resource would be well-received by their target audience and useful as a learning tool, particularly when accompanied by the teacher's guide. In addition, whilst the NFSA viewed the game as primarily a provocation for in-class learning, the responses from teachers indicated that it may instead be most useful as a literacy tool. The reasoning given is that the current Australian curriculum tends to be formulaic rather than thematically based, which inhibits teacher's abilities to integrate resources like *Home of the Blizzard* into existing frameworks at a primary level. Instead, it is easier to work the game into literacy units that address a variety of skills (vocabulary, reading, constructing narratives, etc). These considerations highlight the complexity of creating 'learning' resources as a GLAM institution, as developers tend not to be practicing teachers nor have comprehensive knowledge of the Australian curriculum. This feedback emphasizes the importance of user testing and the necessity its implementation during the development process, with GLAM's otherwise running the risk of resources not reaching their full potential.

Accessibility is another important factor for this project as *Home of the Blizzard* is an online, English-language, text and image-based game. This format excludes those who do not have access to the internet, know the language, or have high enough literacy to engage with the narrative, as well as those with learning difficulties and those who are visually impaired. Whilst the first point is less relevant within, for instance, most Australian schools, the rest have considerable impact on accessibility. As suggested by the teachers and students alike, an effective way to address these issues is the inclusion of an optional audio-track that could read the story aloud as players followed along on screen. For whilst screen-reader browser extensions can somewhat successfully read the game, they are not bug-free and can detract from the narrative experience of the game.³ Furthermore, if the game were to be used as a literacy device, it would need such a voice-over (T. Stevenson & R. Evans, personal communication, 11 February 2021). Unfortunately, the costs and logistics of organising this are substantial and were outside of what the NFSA was able to develop within the given timeframe (A. Blackshaw, personal communication, 11 January 2021). This is a significant limitation of the game in terms of audience reach and its capacity as a learning tool.

Finally, some consideration should be given to the ethics of 'gaming' history, and the fine line between affective design and emotional manipulation (Kidd, 2015). As previously mentioned, Adam personally struggled between developing the game's fictionalised narrative and the

imperative of the NFSA to be an authoritative source of 'fact'. He addressed this by signposting the game as fiction, increasing the amount of 'factoids' in the narrative, thoroughly fencing the content, and including a question about historical authenticity in the teacher's guide. This brings the game into line with the ethical and pedagogical standards for representing history within the GLAM sector and, on the surface, increases its learning potential (Anderson, 2019, p. 179).

However, the user testing indicates that it was not the facts or references that players took away, rather their affective experiences. For instance, players strongly resonated with the animals within the game, and many responded that the worst thing about the story was having to choose to eat the dogs (whom they knew the names of) to survive. Moreover, when asked about their favourite part of the game and one thing they learned, the dogs and the seals were by far the most common answers. Another important plot point is the death of Ninnis and Mertz on the final Far Eastern sledging expedition, which includes the real diary entry from Mawson about the event. Particularly, how Mertz is described as dying of a broken heart after Ninnis's death, a relationship the portrayal of which one player remarked was their favourite aspect of the game. Therefore, the parts of the game that had the most emotional (affective) impact were more likely to be remembered. Notably, both situations where true events and show that affect need not be used in extreme or emotionally manipulative ways to be effective (Kidd, 2015, p. 19). So, whilst GLAM's may feel pressure to strictly signpost the fictionalised nature of games like *Home of the Blizzard*, this does not seem to be a concern for audiences. Rather they tend to take-away the experiences and associated events they felt most deeply.

Further Study

The field of IF games for both GLAM and history applications is under researched, with very few games developed with this specific focus. Particularly within Australia, this format of student engagement is yet to really be explored by the collections sector. To ascertain the potential of IF games like *Home of the Blizzard* within different school cohorts and to measure the tangible learning outcomes from such games, further study must be done. In hindsight, a weakness of this resource has been recording impact, particularly regarding the game's reception among teachers and students outside of the testing detailed in this paper. For instance, how often do teacher's reuse this resource? Do they recommend it to other teachers? Without this longitudinal data, outside of basic website analytics like link-clicks, it is difficult to articulate the value of games such as *Home of the Blizzard* within organisation. If learning games are to become more prolific within Australian collections practice, then efforts must be made to develop methods that enable collections educators to record this data and use it to clearly convey how digital games may add value to the sector.

Alongside this work, more studies are needed into the tension between historical accuracy and interactive fiction within our Australian context, particularly where collections institutions as authoritative holders of historical knowledge are involved. Future avenues for research also include the issue of hosting and managing an educational game as a digital product, the use of IF as a tool for literacy, and the potential of postgraduate student-led projects for creative re-imaginings of GLAM stories.

Conclusion

This article details the user testing phase of the development of the interactive fiction game *Home of the Blizzard*, a game about Australian Antarctic history. These user-tests were conducted in-class with primary school students and their teachers in NSW in 2021, and the final version of the game was published online by the NFSA in 2022. Responses from this testing indicate that *Home of the Blizzard* is a fun, engaging, and informative game particularly suited to in-school historical and literacy learning. The extent of this learning and how it maps to curriculum elements needs to be further investigated, alongside considerations of what accessibility looks like for such games

within the classroom. More broadly, this project illustrates the great potential for historical IF games for GLAM's in Australia and internationally, an area that is relatively unexplored. This project also emphasises the necessity of user-testing games developed by GLAM's and incorporating affective design into educational content to promote learning outcomes. IF games are, then, a new, exciting, and comparatively inexpensive way of reaching student audiences and extending the historical storytelling abilities of GLAM institutions.

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Endnotes

¹ As part of the Masters of Digital Humanities at the Australian National University, ethics protocol 2021/537.

² A full list of references for Home of the Blizzard can be found within the game itself.

³ This assertion comes from the authors own experience trialling the free Chromvox Screen-Reader on the game.