THE A.I. STORYTELLER:

PERPETUATING ORALITY USING DEVELOPMENTS IN MACHINE LEARNING

by

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Honours Bachelor of Arts

Interdisciplinary Double Major: Literature and Music & Culture

University of Toronto 2007

A Major Research Paper presented to Ryerson University

in partial fulfillment of the

requirements for the degree of

Master of Digital Media

in the Program of

Digital Media

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Abstract

Oral histories are a part of all cultures and societies, however, our knowledge and interest in these practices has waned, and arguably with it, a sense of social identity and belonging in many contemporary communities and cultures. This paper pulls from aspects of experiential and theatrical design, generative art philosophy, physical computing, and machine learning in artificial intelligence research combined with a theoretical foundation of Adorno, Benjamin, and Ong to discuss and propose the creation of an embodied and immersive story experience. This project will overturn key aspects of traditional orality to encourage interactivity with, and ownership of, the stories and will prompt discussion about its use as an archival process that will promote perpetuation rather than preservation, moving beyond the current processes of audio and video recordings.

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Masters of Digital Media, 2017
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Acknowledgments

I would like to thank Michael F. Bergmann for his encouragement, you have helped me gain the confidence to see this project through. Our discussions have been inspirational and exciting.

To W. Michael Carter, thank you for your constant support and patience, your willingness to give advice, your invaluable input throughout this process, and your friendly smiles, humour and straight-forward nature. Your influence has made this program a positive, enjoyable and unforgettable experience.

To Drs. Paul Moore and Jason Boyd, it amazes me when I realize how influential our brief encounters have been to the development of this paper. Your passions have been inspiring. Without our meetings, this would have been a very different paper.

To my MDM teachers, especially Naimul Khan and Rob Blain, thank you for taking the time to guide me through the programming and computing side of things. Your open, friendly, and kind natures encouraged me and helped me believe that this could be all be possible. You both add heart to the MDM experience.

To Nuria Gonzalez, Larisa Gutmanis, and David Reyes words cannot express how much your friendship and constant support is appreciated. Thank you for being so generous with your expertise, support, and friendship.

Getting to this point has been a journey. Thank you to all who have picked me up along the way and have helped me build the stepping stones to this point.

For all those who have inspired, encouraged and supported me along the way.

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Introduction

Being the last born in my familial generation, I learnt much of my family history from being told stories about my ancestors and of relations recently passed. Being born to multi-cultural parents, this was the primary method through which I came to understand my family and my cultures. I began to read at an early age and was often found reading books beyond the typical level of a child my age. This early relationship with literature developed through my parents' encouragement to explore stories and learn about folklore. These experiences appealed to my vivid childhood imagination and whetted my appetite for stories and literature. As I continued to higher levels of education and study, my passion for literature, history, and culture manifested in my love for the arts where I started my career in creating narratives as a theatrical stage and production manager and lighting designer, creating large and immersive story experiences of life moments. It was returning to my homeland, Trinidad, as an adult and a high school teacher with the desire to spread my passion to youth that made the weakness of my community's connection to our folklore and history apparent. They knew even less of the sparse folklore I knew as a child, and even more worrying, they did not care that they did not know them. The country's youth, that is the future adult generation of our culture and community, were no longer able to relate to the stories because the content did not interest them and was not relevant to their life experiences. The concern about the lasting power of oral traditions is not a new one. For many years, efforts to preserve and restore traditional oral tales have been ongoing. Preservationists have recorded what they could in books, video, and audio. Yet, these recordings cannot capture the inherent immediacy of the moment that is the essence of an oral tale.

An oral tale is built in the moment and context in which it occurs. The storyteller, the audience, the space, the time, and the intent all influence the atmosphere and the relation of the content of each telling of a tale. The technology used in preservationist efforts as a reaction to the historical effect that European intervention has had on Indigenous ways of life have made it possible for many contemporary storytellers to be able to refer to written records and books containing a story from their past on which they can build. An inherent problem with this practice is that though the story may be similar, it remains frozen in the time of recording, static and inhibited. This inability for the stories to evolve and grow with the societies has led to the loss of its relevance to contemporary societies making the development of a sense of connection to our histories and traditions very difficult to achieve.

This disconnect with our traditional oral tales due to the static archival systems that exist today occurs mostly in the narrative content of the stories. While the didactic or counselling functions of the tales may still prove to be valid to the general human condition, the entertainment element of the tales which kept its audience’s attention no longer holds a strong appeal to the contemporary listener. Arguably, this is due to the large contrast of experience and life knowledge between the constant presence of interactive technology in our everyday lives and the simple oral delivery of the tales. Today's audience expects an element of technology in all its interactions and interventions, the practice of pure orality is probably difficult for a contemporary mind to process as these expectations for engaging interactivity, as well as accessibility and convenience, are not being met.

For some, the blame for the lack of relevance that we feel with our histories is the intervention of technology which has changed what appeals to our senses and the way we process information and our thoughts. However, I argue that technology is not necessarily in direct contention with oral tradition, instead I will be examining the possibility of restoring our relationship with oral traditional tales using interactive and immersive technologies, not to preserve, but to help the stories persevere in contemporary society.

This paper will propose an experiential, storytelling project that will exemplify an evolving archival process that will focus on the growth of the stories rather than the preservation of them. A theoretical foundation of Theodor Adorno (1967/2001), Walter Benjamin (1963), and Walter Ong (1982/2002) are considered in terms of contemporary technological and artistic practices in artificial intelligence (A.I.), machine and deep learning, language processing, and experiential and theatrical design.

The Proposed Project Idea

The Goal:

The ultimate goal of this project is to investigate an alternative method for archiving history that has the potential to function beyond the purposes of creating clear, static records of frozen time as is made possible through writing, audio, and video. The rapid developments in the areas of machine and deep learning in Artificial Intelligence (A.I.) research coupled with the smooth integration of technology in the everyday lives of contemporary society make it possible to imagine an A.I. based system that can, not only preserve but help perpetuate oral stories and histories throughout coming generations.

This project will also consider ways to encourage interaction with the story content by making use of high impact visual and artistic technology and software to create a wholly immersive experience. The value of the embodied experience of the narration and the narrative content is a crucial component for attracting story participants and reigniting the appeal of orality.

In the back-end of this project, a system of algorithms that can combine masses of user generated data will be able to identify patterns that can be indicative of the social mindset of the community to which it is being tailored. This information can be applied to the pre-existing stories, and in a manner more similar to traditional storytelling than any archiving method used before, the A.I. can apply the results of its analysis of the user data to the base-line of the story which will then inform the narrative and help it to evolve alongside the various generations of that community. In this way, it is arguable

that such an A.I. system would be able to come close to creating living moments of history.

Such a system requires a sophisticated program which can sort clean data from information that cannot be considered as lasting representations of generational and ancestral values and lifestyle; a determination that will be difficult to clarify without the distance of time and future perspective. For example, today's generation can be arguably represented by through the rapid satire of memes, animated media like the *South Park* and *Family Guy* cartoons, and comedy shows like *Saturday Night Live* and *The Colbert Report*. Historically, popular culture trends have been indicative of generational social and political ideals and, consequently, can be used as signifiers of the lived, bottom-up culture of the citizenry of the community. Presently, it is yet unclear which set of memes or animations can authoritatively encompass an entire collective of representational thought, something that can only be formalized once that period of contention has come to an end or resolution as seen in reflections on the work of Anglo-Irish satirical writer and poet and clergyman Jonathan Swift (1667 - 1745)[1] who criticized the Church and State of the eighteenth century.

The front-end, user experience of the project will be key in encouraging the production of relevant data for back-end processes. Immersive story moments will be created using a compelling cocktail of environmental and experiential elements. The importance of language is a key feature in orality as, traditionally, there is a sense of sacredness to language that dates back to older, ancestral communities which acts as a signifier of belonging and is still relevant to this day (Anderson, 2006, p. 13). Many

[1] https://www.britannica.com/biography/Jonathan-Swift

communities have an indigenous dialect which is used in daily interactions of communication and is indicative of the history and evolution of their societies. For example, in some cultures the dialect is a mix of multiple languages, a feature especially prominent in countries with a history of being colonised, while other dialects are variations on the native of mother tongue. An awareness of these types of nuances of language will generate a sense of authenticity and ownership for the participants of the project which in turn should encourage their participation in the experience.

Activating *praesence*[2] (Machon, 2016, p. 40), that is consciously activating the senses of the participants, is also crucial to encouraging them to be immersed in the experience rather than passively "attending" the event (Machon, 2016, p. 40). Tactile and visual atmospheric considerations will be built into the environs of the space for the experience based on the context of the story moment in focus. Elements of computerized set design will be integrated where applicable to provide opportunities of interaction within the experience, for example, if a story takes place in a rural setting, the movements of the participants within the space can trigger a Passive Infrared Sensor (PIR) to start an atmospheric sound cue or to play a diegetic visual on the surfaces surrounding it. Such visuals may be the swaying of tall grasses or a swarm of insects rising from the scenes around the participant.

Continuing with the example of a rurally set oral story where nature is a pivotal element to the understanding and reception of the content, aural senses will be targeted with the simulation of winds, rains, and animal life while linked to olfactory considerations. That is, when the sound of rain is triggered so too will an accompanying

[2] The etymological root of "presence" meaning "to be before the senses." (Machon, 2016, p. 40)

scent of wet grass and earth. These sensory aspects will, of course, be tied to the content of the story being experienced to enhance the story content and to create a more encompassing immersive experience.

These considerations will be determined by the origin culture and the content of the story as they are meant to simply enhance the narrative by creating an evocative environment for the experience.

The Role of Artificial Intelligence (A.I.):

The identification of artificial intelligence as a key component of this project is based on a select amount of characteristics that serve different purposes. Simply A.I. is "...intelligence exhibited by machines, or when machines mimic or can replace intelligent human behaviour, such as problem solving or learning" (Brady, 2017, para. 2). Given that the ideal outcome of this project is to perpetuate the knowledge and wisdoms of the different generations of a community and to continue this notion by reviving the practices of cultural orality, a great percentage of the project relies on the notion of machine learning nearing a level of development where it can interface comfortably with human thought and expectation and people's desires to interact with such a system. The use of A.I. is not merely practical given the possibilities that are emerging through intense research in the field but is also due to the high entertainment value that it holds today. A.I. is the new and intriguing technological advancement in contemporary society. The fascination factor that comes with this technology will take advantage of a natural curiosity for novelty which, in turn, will encourage the desire to interact with and use the system. As more people engage with the system, it will learn

more and become smarter, consequently, the performance of the proposed A.I. system will improve based on the amount of interaction between itself and the community members being targeted.

The use of A.I. also allows the stories to be self-sustaining in terms of producing generational and relevant content. The system will be built on a narrative foundation of basic story structures, archetypes, locations, positions, and perspectives that are characteristic of the traditions from which they come. As it aggregates data from user inputs, the A.I. machine will be able to identify and apply common patterns to the stories. These patterns are, arguably, representative of the values and customs of the relevant times. By applying these characteristics to the story tropes and character archetypes of the traditional tale the A.I. can, theoretically, become a filter which enables the content of the original story to be influenced by the data generated by contemporary participants. This places the A.I. system in a similar position to that of Benjamin's (1963) story-teller who builds his stories on those of the generations before him and customizes the presentation of the content depending on the contexts of purpose, that is of "counsel" (Benjamin, 1963, p. 83) and of audience.

Replacing the traditional storyteller with a machine or A.I. storyteller may be initially viewed as problematic as it can be argued that we are removing a key element of humanity from the traditional form of orality. However, I argue that using this technology gives back as much as it removes from the tradition and simply requires a shift in perspective. If orality and traditional oral storytelling is meant to be a reflection of the state of the society, then positioning new technology in such a central way merely serves to reflect the inextricable manner in which technology intervenes in the everyday

of contemporary society. This proposed project can contribute to a redefinition of Benjamin's "information" (1963, p. 84) as meaning convenience and efficiency, in that, the relation of information has become a defining trait of contemporary society. However, in a spin unanticipated by Benjamin (1963), today's age of information also largely advocates for the accessibility of information, a redeeming quality of what the theorist essentially deemed, and doomed, to be a soul-less culture.

This paper also highlights the redefinition of the idea of community and the way that they form. The role of accessible technology and the interactive possibilities that it promises in the everyday has been pivotal to a change in communication customs and expectations which, in turn, has led to the widening of the concept of community to include formerly unconventional groupings and subgroupings of cultures and societies. In this way, one of the main components of many cultural research efforts found today is the sharing of cultural rites, legends, significances, and histories to encourage communities to persevere through the different guises of diaspora and second orality, as well as, the new development and redefinition of community.

This highlights the notion of how communities form. The position of accessible technology and the interactive possibilities that it promises in the the everyday has changed the way we communicate with each other both within our physical communities and online. This paper discusses and makes assumptions based on contemporary applications and interpretations of foundational and introduces cultural theorists who identify everyday humanity as the creation point for politics, culture, and the development of community.

Community and Collaboration:

This project will prioritize the importance of community and of communal experience, widely acknowledged as major traits of orality and oral storytelling. Today, many immersive experiences are being created using Virtual Reality and Augmented Reality (VR and AR respectively), however this project will be veering away from this trend as, as the time of the writing of this paper, these can only be experienced individually, meaning without communal interaction, or are mediated by devices which create the sense of a barrier and disconnection with the experience. Ideally, the system will encourage the building of a community and a sense of ownership of the content through the manipulation of the space in an immersive physical environment and the potential capability of real-time user interactivity that A.I. promises.

The stories will ideally be thematically grouped so that the content will be understood more easily by a user or participant. Where possible, such grouping will be culturally significant to make the material more relevant and tailorable. That is, many traditional stories have common intersections of archetypes, significance, and tropes. Using these common elements to group the stories creates an organizing system that will make allowances for efficient archiving, referencing, and use all of which will encourage future thought and value of perpetuating cultural traditions and histories. Grouping the stories thematically also allows the system to pull content relevant to each other, as well as to an inputted situation, in a manner similar to the practice of Benjamin's story-teller who picks and chooses which stories to tell to offer counsel to his or her involved audience.

This project is in the school of thought belonging to generative art with much of the components being determined by situational and collaborative moments. The make-up of the project is meant to be a contemporary model of identified contexts in which oral storytelling occurs to more wholly capture the essence of the practice and create a meaningful experience for the participating community members. Therefore, atmospheric graphics and sound can be coded to synchronise with real time weather patterns of the original physical land with which the communities are connected creating an additional layer of connection to the narrative and experience. Story elements drawn from user inputs are processed and applied to story-lines so that the narrative is affected by the participants. Physical movement of a participant, tracked using a variety of sensors and tracking software for cameras systems, will also be considered as a source for data and may also affect the way the story is relayed in the real-time experience. Ideally, these technologies will work with real-time generative design software like *TouchDesigner* by *Derivative*[3] to produce responsive environs for the narrative. Environmental and user inputs, therefore, play a major part in creating layers of meaning and signifiers in the experience and the narratives, and are crucial to building the stories on the foundation of ancestral histories in a similar fashion to that of traditional oral storytelling practices.

In terms of this system being used as a means of archiving, the algorithm will preserve data analysis records so that assumptions based on user inputs can be made of the different generations of the communities. This will allow for a clear representation

[3] https://www.derivative.ca

of the evolution of community values and perspectives, and may even aid in the study of how ways of living evolve and, possibly, what factors encourage these changes.

Cultural Appropriation vs Digital Repatriation:

Given the significant and even sacred nature attributed to traditional oral stories, concerns of appropriateness and cultural appropriation arise. In developing this project idea, I have questioned my position within this discourse. With the development of digital cultural experiences comes an increasing need for protective considerations against cultural appropriation. In this instance, we mean respect and value for different cultural elements and questions of the "...ownership and control…" of traditions (Brown & Nicholas, 2012, p. 307), keeping the stories rooted in their native cultures is a cornerstone concern for this project. This means that consideration for the signifying nuances of language and the politics of translation are concepts that must be addressed with each story and with each culture every time a new narrative experience is being designed.

For some communities specific stories and artifacts are private and sacred, meaning that this project will have to be tailored to suit these needs. In general before any stories are attributed to this project, the customs and values of the focused culture need to be learnt, if they can be, and respected. In this way, a higher level of collaboration is needed in addition to that which occurs within the experience. Some cultures, like the Maori and Zuni, have no distinction between actual items and replicas (Brown & Nicholas, 2012, p. 314). As it is hoped that the ultimate result of building these experiences is to revitalize a sense of ownership of history, this project will ensure that

the communities control their experiences and stories, and consideration of these nuances will inform the creation of the proposed project. As is repeatedly stressed throughout this paper, respect for the culture and community in question is a foremost concern when building this project, therefore, there needs to be a reciprocal relationship between the cultural gatekeepers and myself as the designer of this system, where my role in the development process is simply as a facilitator for the community members who have the ultimate influence regarding how the experience, and the information gathered from it, are ultimately used. In other words, this project is made for the community in question, not merely to document but to depict the customs and history that inform their constantly evolving storytelling traditions.

This project has been conceptualized with the intent of creating a system that will allow for a reciprocal interaction between itself, the archiving system, and the community members. It has been deliberately formed to model key aspects of traditional oral practices, that is the importance of collaboration, intervention, contextual influence, and community involvement. In this way, the data and output are influenced by community insiders rather than being framed through the lens of an outsider. This effort is an attempt to reduce the occurrence of cultural appropriation and misrepresentation, or even romanticism, in existing archiving processes.

Literature review

Orality and Forming Identity:

The Culture Industry

Two important premises for traditional oral storytelling and performance is the reciprocal relationship between the storyteller and the audience and the influence of the atmospheric context of the performance. In these forms, the storyteller bears the weight of being the mediator of the story. They decide the intent behind each specific rendition of their tales, shaping them based on the input and needs of the participating audience. This raises the notion of a mediator, a concept that is extensively discussed in and around Adorno's *The Culture Industry Reconsidered* (1967/2001).

Adorno takes a somewhat cynical stance regarding cultural preservationist efforts. He argues that nostalgia and other similar sentiments, though touted as the catalysts of the perceived culture industry, ironically play a major role in the decay of the very same culture it is being used to preserve. He especially distrusts any cultural experiences supported by official powers that be, arguing that all such projects have the underlying intention of maintaining a status quo which only benefit "the most powerful interests" (Adorno, 2005, p. 105), reinforcing a purposefully constructed ideal which is handed to societies for political and capitalist purposes. This notion of the use of a constructed cultural ideal being used by the higher-ups of society is more real than possibly realized. Erased, edited, appropriated, and constructed histories are common in many, if not all societies, to varying degrees. This practice has played a very large role in this loss of relevance and relationship that we feel today with our traditions, histories, and oral stories as official cultures are manifestations of choices made by a

powerful and removed minority for a larger involved majority of a society. Any attempts towards a reclamation of tradition and history must be mindful of the basic intention driving those efforts within the frame of understanding the dynamics of the question of the authenticity of that culture.

Gimeno-Martinez (2016) engages with Adorno's *Cultural Industry* theories in his book, *Design and National Identity*, when he highlights the distinction between "top-down" and "bottom-up" culture, aligning the latter with the notion of a truly authentic and lived culture as opposed to the status-quo maintaining tools of the powers-that-be that is a "top-down" and constructed culture. He sparks the idea of "lived" culture which positions the everyday community members as cultural contributors and creators.

Gimeno-Martinez clarifies that though "[c]itizenship is absolute...practical nationality is cumulative…" (2016, p. 158). The notion of cumulation is specifically noteworthy in this quote about forming national identities, especially in the bottom-up perspective of culture where lived nationality is key. When culture is viewed as formed through processes and as being in constant and perpetual negotiation, the idea of layered practices and traditions informing stories seems obvious. This idea of cumulation is a concept at the heart of oral storytelling which directly expresses the role of lineage and ancestry in the evolution of the stories. This is one of the main philosophies that lies at the foundation of the proposed project in this paper: the notion of collecting perspectives and practices to create a larger, reflective picture as a reflexive archiving experience for various cultures and communities.

The Story-teller

Benjamin (1963), with Adorno (1967/2001), spent much of his philosophical career also engaging with the concerns of the culture industry. For Benjamin, the position of the storyteller is very important to the framing of the material presented in a story. This simple and practical idea to depict the story-teller as the filter through which information is related is an analytical stance that is common in literary studies as the reliability of the narrator informs the way an audience should receive and perceive a narrative. Benjamin highlights that this is especially true for oral storytellers. The question about the intent of the storyteller is one that must always be kept in mind and can be alluded to when the social and cultural currency or standing of said storyteller is considered. However, Benjamin believes that the very nature of a genuine storyteller is to preserve and perpetuate the social and communal identity and well-being of his or her people.

In *The Story-Teller* (1963), Benjamin illustrates a juxtaposition of theories of experience against theories of information as an explanation for the dramatic change in the way a society relates to its native stories at the different stages of their evolution. He frames oral storytelling as the relation of experience and life, not of the individual storyteller but of the community that the storyteller ideally embodies. In this way, the storyteller becomes a container for a collective identity, a key trait which influences the nature of the stories being told. The importance of this history behind the storyteller manifests in the role of the storyteller as a counsellor, the stories being the frame in which the counsel is refined for the specific situation and audience of the moment (Benjamin, 1963, p.83). This moment where ancestry is called upon to counsel a

specific person or to address a specific issue is key to the essence of oral storytelling which is defined by its nature to constantly evolve to meet the needs of its community. The “[e]xperience which is passed on from mouth to mouth is the source from which all story-tellers [within one community] have drawn” (Benjamin, 1963, p. 81) through many ages creating a sense of relevance to that specific group of people who are now the relevant interacting audience of the story. This strong connection to a past lineage encourages a sense of belonging and ownership for the descendants in the equation to the stories being told.

As technology developed and the process of printing came about, written word became a popular way to spread messages to a larger community. Much early literature adopted the narrator’s voice in the style of oral storytelling, both in purpose and in tone. For example, Chaucer’s (1342/43 - 1400)[4] *The Canterbury Tales*, originally written between 1387–1400[5], are told through storyteller character voices and provide counsel to its readers while Swift’s works like *The Tale of a Tub* (1704), *Gulliver’s Travels* (1726), and *A Modern Proposal* (1729) spin eighteenth century political and social critique into the guise of entertaining stories. Some tales began to be recorded at an early stage, forever frozen in popular and now classic forms like Homer’s[6] epic poems, *The Iliad*[7] and *The Odyssey*[8], both of which are so old that there is no definite original publication date. This idea to disseminate and preserve oral tales on the page as what we now call

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[4] https://www.britannica.com/biography/Geoffrey-Chaucer

[5] https://www.britannica.com/topic/The-Canterbury-Tales

[6] Believed to have lived in the 8th of 9th centuries: https://www.britannica.com/biography/Homer-Greek-poet

[7] Date of first publication unknown.

[8] Date of first publication unknown.

literature arguably sprouted in this movement made possible by the emergent technology of the time, the printing press.

Walter Ong (2004) identifies this move towards the convenience and accessibility of the written word on the page as one of the evolutions in communication that have led to the fading of the art of storytelling. In his work, *Orality and Literacy* (1982/2002), Ong unpacks the different forms of narration in terms of experience, meaning the practice of oral storytelling, versus information, that is written literature. He proposes that the differences between the two forms, in purpose and in character, has affected the way societies have evolved. Benjamin and Ong both imply that it can be argued that the invention and acceptance of printing technologies is a key turning point for humanity, not just historically as is widely acknowledged but also culturally, in their focuses on the difference of social and solitary experiences (Benjamin, 1963, p.84) between oral and written storytelling respectively.

> "It [story-telling] does not aim to convey the pure essence of the thing, like information of a report. It sinks the thing into the life of the story-teller, in order to bring it out of him again." (Benjamin, 1963, p.87)

The condensed nature of written storytelling appeals to the preference in contemporary societies for quick information and, if we continue to apply Ong's theory until the twenty-first century, instant gratification. Consequently, this has led to impatient and passive audiences as opposed to the participants who engaged in oral storytelling, or as Benjamin poetically phrased it, "[t]he art of story-telling is reaching its end because the epic side of truth, wisdom, is dying out."(Benjamin, 1963, p.83). The expectations of a society built on literature and written words has affected the way individuals and

groups receive and process the material being presented to them in a way that contrasts from the tradition of oral narration and relation. It could be argued that this lack of lived history is a major reason for the lack of relevance to traditional stories held by contemporary societies and cultures. In an age where narratives are constantly evolving at rapid paces, the past is easily forgotten and the seeds from which our social habits and cultural ways of being have grown are quickly fading from general knowledge. This means that the base on which we build cultural and societal identities are no longer consciously known or, more significantly, experienced.

Experience is a key difference between reading and oral storytelling in Benjamin's argument in reference to the stories, the storytellers, and the interacting audiences. He likens the stories as being borne of "...a whole lifetime … that comprises not only of his [the story-teller's] own experiences but no little of the experience of others…" (Benjamin, 1963, p.101). The tradition of oral storytelling, then, is informed by a long chain of ancestry and history that informs all retellings of stories creating an infinite lineage of evolving narrative that, theoretically, represents the character or identity of a whole community, whether it be culturally or socially. "A man listening to a story is in the company the story-teller...The reader of a novel, however, is isolated…" (Benjamin, 1963, p.94). The solitary nature of reading a piece of writing, as defined by Benjamin in his work, is incapable of emulating the inclusivity of oral storytelling as the material being received no longer has a breathing historical element to it but is frozen statically on a page in the time that it was recorded. In this way, Benjamin positions oral storytelling as an ideal and authentic representation of a culture and society because it is participatory, contextual, evolutionary, and communal.

> “A great story-teller will always be rooted in the people, primarily in the working class … there are many gradations in the concepts in which their stores of experience comes down to us.” (Benjamin, 1963, p.95)

By this very nature, it is a form that cannot be created without the authorship of the multiple voices of a community, both ancestral and contemporary. It is this communal and collaborative evolution that this proposed project attempts to encourage in the experience that it offers. Ideally, it can be thought of in two ways: as an experience which allows interactivity and as a container and filter for the stories and experiences of the past generations of the communities in question.

Recording Orality:

Many cultures have a history of oral storytelling, these stories were the foundation on which societies were built and were ways to create a sense of community and membership. The number of reactionary measures have been increasing as the memory of these traditions continue to fade. Traditional stories are now often learnt in school curriculums from books or video and audio recordings. This technique allows for the preservation of the stories but not necessarily the perpetuation. The life of the stories, traditionally given literal breath from the storyteller, remains frozen in the recorded word. For some cultures, these recordings are all they have left as the traditions are so old that genuine storytellers with first-hand knowledge no longer exist, a phenomenon Ong (2004) calls “secondary orality” (p. 2). Arguably, this has led to the evolution of a new type of storyteller, one that learns the tales from recordings rather

than from an embodied experience. Ong's reflection on the difference between the pure "primary orality" and "secondary orality" lies mainly in the issue of recording oral traditions and their role in the decay of the authenticity of the form. However, his distinction that cultures have been able to retain "the mindset of primary orality" (Ong, 2004, p. 11) is applicable to this proposed project. Though authenticity cannot be replicated, a genuine intent and mindset is needed to create a bond between the stories and the audience. This project will explore the question if primary orality can be returned to through secondary orality or if a new kind of orality is being formed as a result of the intervention of technology.

The focus of the *World Oral Literature Project*[9] (hereafter referred to as *Project*) started in 2009 at the University of Cambridge and co-located at Yale University since 2011 (Turin, 2013, The World Oral Literature Project, para. 1) though now seemingly defunct, echoes this sentiment despite their use of the term "oral literature," a term which Ong viewed with great disdain. They attempted to establish partnerships between scholars and communities to challenge notions of repatriation and to improve the "circulation of culture" (Turin, 2013, p. 177) in order to "collect, protect, and connect" (this is the *Project's* motto). They operated on the belief that technology is the key to revitalizing dying oral traditions, arguing that "oral tradition and internet technology share the core dynamic of navigating through networks" (Turin, 2013, p. 173). In a similar strain, I support that the burgeoning immersive and interactive technologies being developed today are not necessarily in contention with oral tradition, but can be used towards its perpetuation.

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[9] http://www.oralliterature.org

A missing component from the *Project's* effort is a focus on embodied experiences. Josephine Machon, a theatrical practitioner in contemporary performance, stresses the potential of immersive sensory events in creating encompassing experiences. A focus on appealing to an audience's senses "...directly impacts on the nature of perception and the embodied memory that one has of the work…" (Machon, 2016, p. 45). The proposed project strives to reach an ideal middle point between embodied experience and archival purpose by developing an interactive experience of orality and history. Arguably, participants will be able to internalize and identify with the stories with more ease and will carry the lessons of the narratives through their lives beyond the performance in a manner similar to the traditional practice of orality and of immersive theatrical practices. As a result, the physical space is "...integral to the experience" and "...which ensures some sense of 'rootedness'..." (Machon, 2016, p. 44) in the story. The proposed A.I. system will enable a community to return to something close to primary orality as it integrates the responses of multiple users enabling their experiences to inform the evolution of the stories. However, it can not be considered to be genuinely primary because an A.I. system can not internalize an experience nor can it counsel as is important in Benjamin's theory of the story-teller. While creating opportunities for embodied experiences is crucial to coming one step closer to the successful support of orality through technology, it also creates the need to revisit Ong's theories of primary and secondary orality, raising the question of the possibility of a return to a primary understanding of orality or the evolution of a new class of the storytelling tradition.

Technology and Performance:

Virtual and augmented reality (VR and AR respectively) technologies are popular points of focus in the discourse around technological enhancement in theatre. While many argue that the basis of creating a stronger connection between story and audience are wide, common grounds on which VR/AR and theatre can build a relationship, the key pitfall to this notion is that these particular technologies have not yet, if they ever will, developed to a stage where their content can be appreciated communally. This concern is a focal point for research efforts at the time of the writing of this paper resulting in systems like *Microsoft's HoloLens*[10] which experiments with the possibilities of "mixed reality" and may provide future opportunity for more interaction between users despite the mediation of its headset. This is a main reason for my decision not to work with these particular technologies in my project as a lived experience is important to the connection with these stories. However, the fact that this notion is in discussion is reflective of the increased use of technology to enhance live productions in the form of multimedia and digital theatre. A common concern voiced to various degrees by theorists like Cameron and Kenderdine in *Media In Transition* (2010), Rice and Malone in *A Funny Thing Happened* (1995), and Dixon in *Theatre, Technology and Time* (2005) is the risk of using technology to the detriment of the content of the production. There is a caution that the use of technology can be distracting from the message of the content narrative content if not used appropriately. Though the integration of cutting edge technology in theatre has a long history, technical aspects in productions have traditionally been intended to support the material and to

[10] https://www.microsoft.com/en-ca/hololens

enhance the effect of the live story being performed. The increase in visually captivating technologies is no exception to that tradition. This project will also attempt to illustrate that technology is not the antithesis of live theatre but can be used as a valuable tool for enhancing experiences.

The potential of technology to disrupt the linear understanding of a story holds great potential in bringing oral stories into a form or space that can reflect our contemporary communities and cultures. Building on the already established expectations of suspended belief in a theatrical audience, a malleable temporality can help the audience experience “a different perception of extratemporality” (Dixon, 2005, p. 22). This potential to ask the audience to open up their understanding of time and space can enhance productions that have begun to lose their relevance in contemporary times. Therefore, if carefully planned and executed, productions can capitalize on the current fascination with interactive technologies to enhance the audience’s experience and strengthen their connection with their narratives.

Machon (2016) examines the positive potential of the notion of using interactive technologies to create immersive theatrical experiences and the way the practice has changed the relationship between narrative and audience. She argues that there is a desire in some audiences for a shift in positioning towards more active engagement, that is as an interactor or participant rather than viewer, which leads to an opportunity to create a sense of belonging to a community within the narrative, temporary as it may be specific to the experience.

> “…the interactor, a reciprocally active and influential improviser…has opportunity to take part-ownership of the creative state. Consequently,

> immersive performance has evolved the idea and the *practice* of the spectator into an alert, watching, decision-making collaborator, an attendant -improviser who shapes form, influences function and transforms possible outcomes in the work, in the process sharing a responsibility and respect for the experience…" (2016, p. 48)

By making use of this interactor involvement, the immersive and interactive technological experience of orality and history will encourage a similar sense of ownership and responsibility with the stories. Arguably, this feeling will resonate with the participants after the experience, allowing the stories to be embodied within them and to continue in their everyday interactions similar to the way the content of oral stories lives in its cultures, helping to strengthen the relevance of the narrative content to today's society and to continue to evolve with the lives of the culture to which it belongs.

What and Where is Artificial Intelligence (A.I.)?:

Some may question why this paper has identified artificial intelligence as a key component of the foundation for this project. Developments in deep learning, a type of machine learning, are currently on the rise and are being pushed by major technology companies like *Google*[11], *Facebook*[12], and *Apple*[13]. Formerly well rooted in the realm of science fiction, A.I. is so common to everyday life that many may not even realise how developed it is today. In fact, it is reasonably arguable to claim that we are entering into an age of "machine intelligence" (Metz, 2017, para. 2) implying that if A.I. has become

[11] https://www.google.ca

[12] https://www.facebook.com

[13] https://www.apple.com

so deeply integrated in daily rituals then it is a realistic vehicle for creating storytelling and culture-making moments.

For many, the notion of A.I. is futuristic and presented in the form of advanced humanoid machines which are essentially technological replicas of a human being, a manifestation of the technology that is well in the future, if at all. Therefore, it serves us well to clarify what is meant by A.I. as it is being referred to in this paper. In 1955, American computer and cognitive scientist John McCarthy (1927 - 2011)[14] offered the first acknowledged definition of artificial intelligence when he explains that “every aspect of learning or any feature of intelligence can in principle be so precisely described that a machine can be made to simulate it” (1955/2006, p. 12). This means that a key to artificial intelligence, as it was understood by McCarthy, is a clear understanding of goals so that it can be methodically and logically translated for a machine to understand and process it.

Today, this definition has evolved to inform “machine learning” (Novet, 2017, So What is AI, Really?, para. 5)and “deep learning” (Novet, 2017, So What is AI, Really?, para. 7) developments, two terms that can not be avoided when discussing AI today. Machine learning refers to the ability for a machine to be trained to do a specific task usually by informing a program with a cache of data and coding it to make predictions based on that data. This is how many predictive programs work. Deep learning is a type of machine learning which requires less intervention from an engineer because it can “think” enough to work more independently. In this situation, “artificial neural networks” (Novet, 2017, So What Is AI Really?, para. 8) are created to mathematically

[14] Death notice: http://news.stanford.edu/news/2011/october/john-mccarthy-obit-102511.html

simulate the neural network of the human brain, an approach first developed in 1943 which is at the heart of image and language recognition programs found in various applications today. The proposed project will take advantage of this trend in development to create an A.I. based system which will perpetuate orality in the reasonably near future. At the time of this paper, creating the illusion of interactivity in storytelling is possible through a data-tree based process, the idea of a system that can learn is still one that exists mainly in the imagination.

The leaps being made in A.I. have led to the evolution of daily interaction and mediation of technology in society. Research and development in A.I. has lead to solutions of convenience which benefit the average user of technology. For example, smartphone users have daily audio and text language interactions with virtual assistants in *Siri*[15], *Alexa*[16], and *Cortana*[17]. *Google*[18], a small search engine started in 1995 that has since grown into a large technological company that has had major impact on the way we communicate and disseminate information today, makes use of data analytics and predictive functions in their products, *Gmail*[19], *Google Now*[20], and the various applications of *Google Drive*[21], to create instances of convenience geared towards increasing the possibilities of efficiency and accessibility. *Google* image search and

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[15] Apple product - https://www.cnet.com/news/what-is-siri/

[16] Amazon product - https://www.cnet.com/news/what-is-alexa/

[17] Microsoft product - https://support.microsoft.com/en-ca/help/17214/windows-10-what-is

[18] https://www.google.com

[19] An email service.

[20] A virtual assistant.

[21] An online suite of production software which allows for efficient, real-time online collaboration.

Facebook[22], a popular social networking site, share a common application of image recognition to make their services more interactive, appealing, and convenient. Lifestyle apps take this one step further with a visual search tool which generates a wide net of results based on an image based input. For example *Pinterest*[23], a visual catalogue of ideas in the form of a lifestyle app, has recently implemented *Lens*[24] which its camera linked search tool. That is, the user is able to take a picture of an item using a smartphone camera to search for results relating to that item. These are common examples where humans engage with A.I. in a mundane environment to the extent that A.I. interventions are expected, accepted, and even trusted more than other forms of automation and even human action. In relation to storytelling potential, this developing relationship between humans and technology makes the reception of an A.I. storyteller more likely than ever before. It is noteworthy that the development of these advanced technologies and algorithms have reached the point of sophistication that usability is seamless for the average person. That is, the users are the everyday person rather than scientists or other individuals who typically have access to the most advanced technology. This established familiarity with such highly developed systems reduces the amount of barriers and distraction that may prevent an interactor from becoming immersed in a storytelling experience that makes use of artificial intelligence technology.

The developmental stage of A.I. has reached a point where production is not only efficient but is also affordable which allows for wide accessibility. Significantly, *Google*

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[22] https://www.facebook.com

[23] https://about.pinterest.com/en

[24] https://about.pinterest.com/en/lens

has taken this accessibility one step further with *TensorFlow*[25], an open-source software library for machine intelligence. The goal of this initiative is to take advantage of the high technological literacy rate of contemporary society to "...accelerate open machine learning research" (TensorFlow, 2017). By opening access to this library, *Google* has allowed for a surge in experimentation with a "deep learning system that can identify faces and objects in photos, recognize oral commands in smartphones, and translate languages" (Metz, 2017, para. 2), some of of this experimentation has been in the realm of making new story experiences. Consequently, applications in A.I have begun to be more creative appearing in initiatives in healthcare to increase efficiency, accuracy, and accessibility by reducing costs as seen in developments in cancer detection (Kite-Powell, 2017, p.1-2) and in the commerce and finance industries to improve background checks for credit and customer satisfaction seen in many companies like *Amazon* and *Ant*, a "techfin" business as opposed to "fintech" in China where A.I. is leading to a change in the relationship between industry and consumer (Knight, 2017, para. 8). Companies like San Francisco-based *SkyMind* which focuses solely on developing in A.I. are clear indicators of the increase of work in artificial intelligence and the rising trend of incubators and startups which have also joined the A.I. evolution (Metz, 2017, AI - Not Just American, para. 4). The accessibility of up-to-date A.I. software widens the range of potential new applications of the technology and makes the development of the proposed project feasible.

As a result of this rise in A.I. development and research, there has been a rise in the value of user data and data analytics and the increased importance of social media

[25] https://www.tensorflow.org

as resource for this type of information. One significant implication to this developing trend that is of interest to this project is the authority and trust that is being attributed to A.I. and automated systems. Biases are moving from trust in human nature to a belief in the reliability of technology. This broaches the larger question of the significance of giving the authority of a storyteller position, informed by an entire history and ancestral knowledge of a community, to an automated machine and the level of reception that the proposed project will receive once it has reached the prototyping and user testing stages of development. However, given the trend of gearing A.I. towards purposes of contributing positively in social applications, the reception of the premise of the project seems encouraging.

All A.I. software, whether it be language or image based, are simply recognition programs that are built off of a form of a modern neural network that can be simplified as a combination of vast databases and powerful algorithms. In this way today's A.I., found in online services like chatbots, advertisement targeting services, and even in driverless cars, is not quite at the developmental stage where A.I. can fully replicate or replace all human interaction (Kelly, 2017). In essence, "...bots learn to imitate…" the ways that humans think (Quach, 2017, para. 8) resulting in a high technological illusion. Therefore, when presented with a scenario that it has not been previously taught, that is when "...the pattern is new or...there isn't enough data available…" (Everitt, 2017), machine learning does not work well.

Powerhouse A.I. labs like *Facebook A.I. Research (F.A.I.R.)*[26], *Google's "DeepMind A.I. Lab"*[27], and the *Silicon Valley A.I. Lab*[28] continue to push boundaries toward creating agency in artificial intelligence, by attempting to improve the accuracy of machine learning systems. As this method depends heavily on the amount of detailed information that it is given data and talent collection is prioritized. Casual gaming and international competitions are methods of user data collection methods being employed today (Sarconi, 2017, para. 8), whether or not users are aware of the mining purposes of their free and entertaining experiences. In a similar way, this project will make use of the novelty of the technology to draw a crowd.

Ultimately, developments in A.I. will need to facilitate seamless interactivity between human and machine to reach the ideal iteration of A.I. in the true sense as portrayed in the creative combined imaginations of science and science fiction. Moves toward this ideal are being made as developments are being conducted to make virtual assistants seem more human by building artificial attributes of personality and intonation into their codes. The value of this development in terms of the purpose of the technology is currently being actively debated. Stinson of *WIRED Design*, examines the repercussions of such humanizing developments in Alexa. While she acknowledges that smoother interaction will allow people to "...feel more connected with objects…" (2017, Talk This Way, para. 2), she highlights the importance of balancing purpose and interactivity, warning not to detract from the utility of the programs for the sake of

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[26] https://research.fb.com/category/facebook-ai-research-fair/

[27] https://deepmind.com

[28]http://research.baidu.com/silicon-valley-ai-lab/

attracting attention and the effect this will have on the quality of the data being collected for future applications.

Case Study: The digital innovation of the Māori

The efforts of the Māori tribe of New Zealand is an ideal example of a long established tribal community which is embracing the cultural and communal possibilities of using digital technologies in effort "...to preserve and re-establish authority over other elements of cultural identity and expression…" (Ngata, Ngata-Gibson, & Salmond, 2012, p. 230). Their innovative developments are clear illustrations that digital technologies have been identified as viable solutions toward the perpetuation traditional values and histories and weigh advantages against the cultural considerations and sensitivities associated with the disseminating possibilities of digital technologies and media.

In *Te Ataakura: Digital taonga and cultural innovation*, Ngata et. al. (2012) discuss the Māori tribe's attempts to create an online, interactive culturally specific interface to join the different factions of their community now spread beyond the limits of tribal lands and territories. The acceptance of the changing metaphorical landscape of their community leads to the argument that there can be a joining of the community through a digital land, a notion that goes hand in hand with the idea to create "..digital surrogates…" of traditional *taonga*, that is "ancestral treasures" (Ngata et. al., 2012, p. 230) as a means of engaging their younger generations and increasing their connection and sense of ownership to their heritage and ancestral values and traditions. This

movement became necessary as a result of the worldwide scattering of the tribe's treasures.

The Hauiti people have especially embraced the idea of using digital technologies to "...enliven old connections, strengthening the ties of *whakappa* (kinship) between their far-flung members…" (Ngata, et. al., 2012, p. 231) meaning that their definition of community has evolved to include the connections that exist and can be made in the digital space as well as the traditional, physical arena. In this way, the Hauiti people are able to use burgeoning technology to ensure that their identity as a tribal community remains relevant as a hybrid society built on a balance of strong tradition and future thinking. This is a crucial step in the development of digital and personal experiences which allow community members to embrace, teach, and evolve their customs.

Similar to the foundational values of the proposed project in this paper, these digital interactions are built around traditional community values which are centrally and culturally significant "...in ways that are continuous with much longer-standing practice." (Ngata, et. at., 2012, p. 231). Hospitality, known as *manaa kitanga* among the Māori, education, and a focus on youth and future generations are pivotal concepts on which they have built their cultural experiences which are deliberately kept digital to make allowances to cast a wider net for tribal histories and other information, and to have a wider reach to their disparate communities.

The Hauti people are using technology to create a digital store house of ancestral knowledge and as a "...means for reconnecting people with themselves and their tribal inheritance." (Ngata, et. al, 2012, p. 240). These intentions are similar to those behind

my proposed project, the main, salient difference being the level of accessibility that each project allows. The decision to connect embodied and physical experience with traditional narratives means that notions of wide dissemination and easy accessibility must be surrendered, however, I argue that both projects have their place in recreating and improving the relationship of young cultural generations with their older traditions and values as no encompassing single solution that will work for such a wide variety of concerns.

It is noteworthy that, in this example, tribal members are given agency and authority in the effort. That is, there is a personal sense of ownership and responsibility to their ancestry that informs the decisions that shape their cultural initiatives. In the case of my proposed project, the cultural gatekeepers of the community in question will always be pivotal in ensuring that the experiences rely heavily on the core values of their society.

Case Study: "Cyber Powwow"[29]

Nation-to-Nation's online gallery, *Cyber Powwow* (1996), is an attempt to create an interactive, members-only, internet event and gallery space with the primary purpose of creating dialogue around issues of contemporary First Nations Art, technology, and community as "...an exercise in reaffirming…" identity (Hopkins, 2006, p.343). This instance serves as an example of an online, screen-mediated experience that is used to build a closed community in cyberspace. Though the site is intended to serve as a gathering spot for First Nations community members, there seems to be pervading

[29] http://www.cyberpowwow.net

sense of disconnection within the online community that the group has tried to address by arranging meetings, typically a two-day *pow wow* at varying real-world places or sites, which members are able to either physically attend or stream over the internet in real-time. By providing this possibility to physically meet, Nation-to-Nation acknowledged the importance of lived experience in bridging distances and creating a sense of community among the dispersed cultural members it strives to unite. Though touted as the key element that makes the company's efforts successful by Hopkins (2006), this solution has proven to be seemingly unsatisfactory as the last gathering event seems to have taken place in 2004.

To an outsider from the community as I am, the website seems to be fairly superficial in terms of the material that it presents. Pages that promise original indigenous art work are available only to members of the *palace*, the term they use to describe their network of chat rooms. This sends a strong and unmistakable message that this material is not meant for outsiders, therefore this project is, arguably, an example of the use of digital technology to develop community traditions in a private sphere and to instill a sense of ownership and belonging in the preservation and perpetuation of cultural traditions.

Case Study: "Beyond the Fence"[30]

A contemporary example of using data analysis to create story content can be found in the musical, *Beyond the Fence* (2016), a machine learning generated narrative

[30] http://www.beyondthefencemusical.com

musical produced by Sky Arts[31] and Wingspan Theatricals[32] that resulted from the experiments of University of Cambridge researchers Alex Davis and James Robert Lloyd. An algorithm was created to examine existing theatrical production in relation to their success rates and to identify the common elements found in highly successful shows such as cast size, emotional arcs, and pivotal plot points "...like falling in love or dying" (Misener, 2015, How did computers write a musical?, para. 3). These patterns were then used to reverse engineer a musical, theoretically guaranteeing a theatrical success. The musical is a cumulative and collaborative product of a variety of generational software. The resulting premise of the story was generated using the *What-If Machine*[33], a research project from Goldsmiths of the University of London (Beckett, 2016, Premise, Structure and Music). The plot of the show, generated by the storytelling computer system known as *PropperWryter*[34] by Dr. Pablo Gervás[35], is a generic mashup of musical theatre classics like Les Miserables, West Side Story, and Hair (Porter, 2016, para. 1). Finally, the music was created by Dr. Nick Collins' *Android Lloyd Webber*[36], a computerized compositional system that uses machine learning to analyse show tunes (Beckett, 2016, Premise, Structure and Music). Other elements such as the lyrics of the musical was composed by a combination of other applicable

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[31] An arts-oriented television channel based out of the United Kingdom: https://www.sky.com

[32] A division of United Kingdom-based storytelling and journalism production company, *Wingspan Productions*: http://www.wingspanproductions.co.uk

[33] http://ccg.doc.gold.ac.uk

[34] A musical theatre computational plot generation system.

[35] https://www.ucm.es/english/directorio?id=9634

[36] https://www.dur.ac.uk/music/about/news/?id=26619&itemno=26619

software and human theatrical professionals (Brown, 2016, para. 8), positioning *Beyond the Fence* as an example of an instance of human-machine creative collaboration.

Reviews after the debut of this machine generated creative work were lukewarm at best, describing the experience as being "...as bland, inoffensive, and pleasant as a warm milky drink" (Gardner, 2016, para. 1). The show is remarkable, not for its narrative content or creative currency but for the potential that it illustrates in the development of a machine that can learn to create pleasing aesthetics for the human sensibility. Though it is essentially unremarkable in terms of being a classic and creative theatrical piece with the power to stay relevant, this example is significant in relation to the proposed project in this paper simply as proof that using machine learning to create narratives with human intervention is not only feasible, but already possible with room for developmental improvements.

Case Study: "New Dimensions in Testimony"[37]

An example of a combination of burgeoning technology, historical preservation effort and developing experimentation with creating interactive and engaging storytelling content is the *New Dimensions in Testimony* (*New Dimensions*) project by the joint efforts of Heather Maio and the USC Shoah Foundation which was first piloted in the Spring of 2015 at the Illinois Holocaust Museum & Education Centre ("USC Shoah Foundation Institute," 2016, para. 12). This is a move towards developing immersive historical experiences. It creates the illusion of interaction with the virtual representation of Holocaust survivor, Pinchas Gutter, who seemingly responds to the real-time,

[37] https://sfi.usc.edu/research/initiatives/new-dimensions

individual questions of an audience. The creators behind this project built this impression by storing Gutter's responses to over 1250 questions (Ritchie, 2016) in a databank and pairing it with a natural language processing program which is able to recognize similarities and patterns in phrases. This allows the program to pair relevant answers with the questions being asked in real-time by the audience member. Gutter's virtual image then responds to the query, creating the impression that he is actually responding to the asked question after thinking about it as a real person would during a natural conversation.

A performance evaluation presented in the conference paper, *New Dimensions in Testimony: Digitally Preserving a Holocaust Survivor's Interactive Storytelling* (2016) assesses the system as accurately responding to user queries 95% of the time with the prediction that the "...level of accuracy [will] improve" as the developers "...gather more data from actual user interactions with the system" (Artstein, Gainer, Georgila, Leuski, Shapiro, & Traum, 2016, p. 8) indicating that future iterations of *New Dimensions* are slated for growth based on user data which will inform the developers what kind of information is desired by an audience for deeper engagement.

The idea behind this kind of interaction is to preserve a semblance of human connection with the history and to put a face to the stories of the events that have defined our present-day worlds, that is, to humanize the historical records. By creating immersive experiences, researchers are able to lend a new level of authenticity to the material being presented, as well as, to the interaction between the audience and the historical stories being presented to them. Consequently, this new method of teaching

history will lead to a society more engaged with the material which is now being offered in a way that is more relatable and relevant than before.

The project being proposed in this paper strives to get closer to enabling genuine interaction and deeper engagement between story and audience. While the *New Dimensions* project certainly captures interest and encourages active engagement with history, it is unable to meet the requirements of reciprocity and customization that is foundational to authentic oral cultural practices and the evolution of a story. In the end though more engaging, *New Dimensions* essentially remains a static means of archiving history, albeit more intimate and personal in the experience that it offers. This proposed project attempts to move beyond simply creating the impression of interaction to actually engaging participants to the point where they are able to influence the content of the story being related within the traditional story arc or structure in a more immersive experience.

Conceptual Renders

Taking these theories and cultural needs into consideration, I have come up with some generic, first iteration conceptual renders to make the notion of the proposed project clearer. The experience is modelled on the identified main defining concepts of traditional oral storytelling, that is, communal experience and creation, phenomenological and interactive storymaking, evolutionary narratives, contextual immersion, and lasting reflection. This decision was made in an attempt to recreate a similar effect and connection with the narrative material around which the experience is built.

The overarching experience (figure 1):

Physically, the entrance of structure will be straight sided and long like a wide corridor as this is a section meant to guide a participant into the open interactivity that they are about to participate in. The rest of the structure will be made up of rounded corners to help increase the overall impression of immersion. Within the space, there will be multiple points of interest and interaction available for a participant, these areas of focus will not be separated in anyway to encourage a larger sense of community and unity layered on the different instances of smaller communal interactions within the same overarching story experience. Consequently, none of these interactive areas will be experienced in solitude, a symptom of the effect of technology on oral storytelling that Benjamin identifies as a cause for the barrier that contemporary society seems to feel between their lived experiences and the content of their traditional narratives and histories (1963, p. 94).

In terms of the proposed A.I aspect of the experience, user interactions, that is the choices that the participants make within the experience, will be recorded by the A.I.

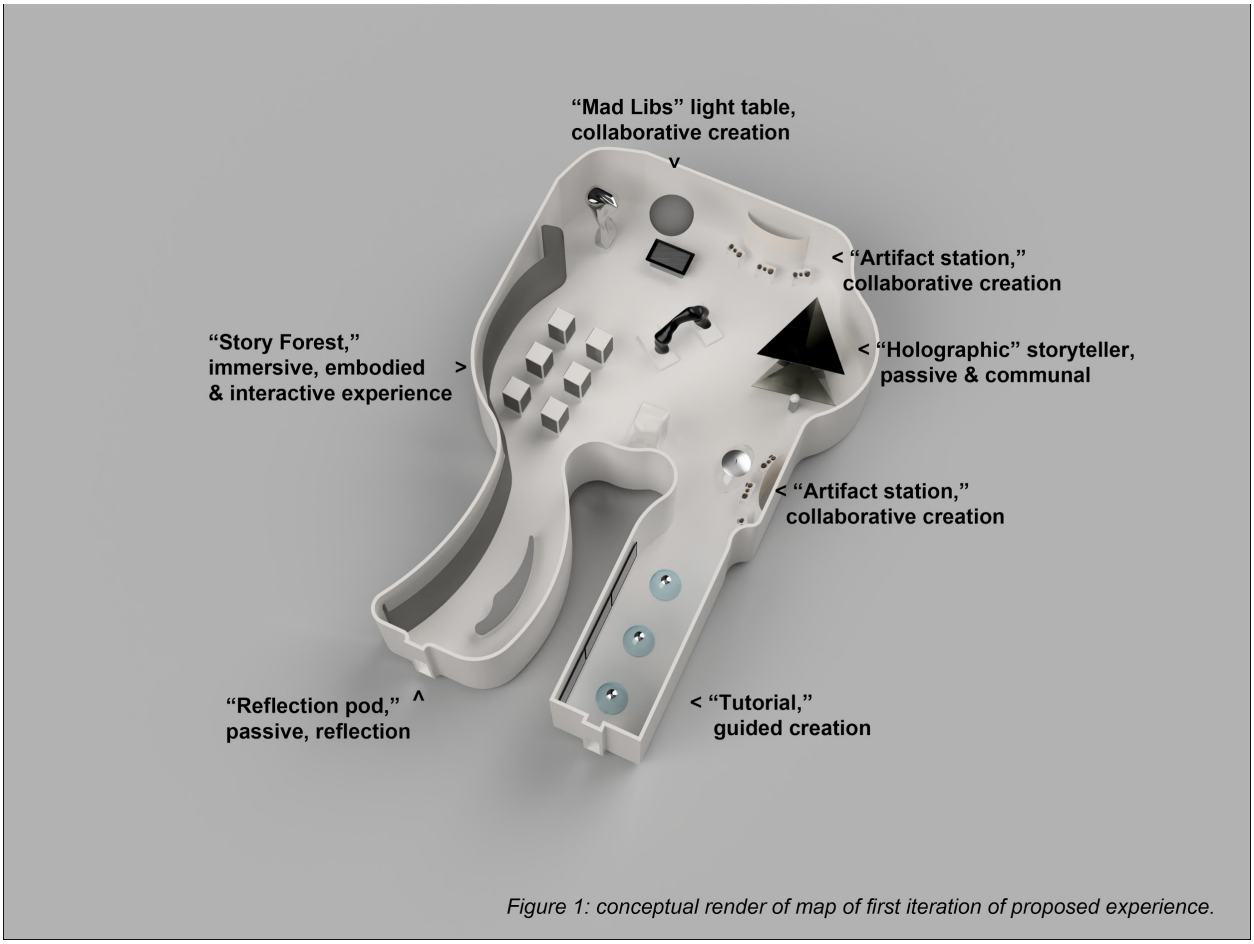

Figure 1: conceptual render of map of first iteration of proposed experience.

system. This data will be analysed for common patterns that stand out from these interactions. Arguably, these patterns can be said to represent the values of the generation, a dataset that cannot be determined in the present but in the future after a determined span of time. These patterns will then be applied to the story components, options, and structure in the experience to encourage the growth of the selected narrative.

The entrance (figure 2):

When participants enter the structure, they begin in a section which leads them through an interactive tutorial. This is meant to ease participants into the frame of mind to create, interact, and experiment in the rest of the experience. It also serves to create

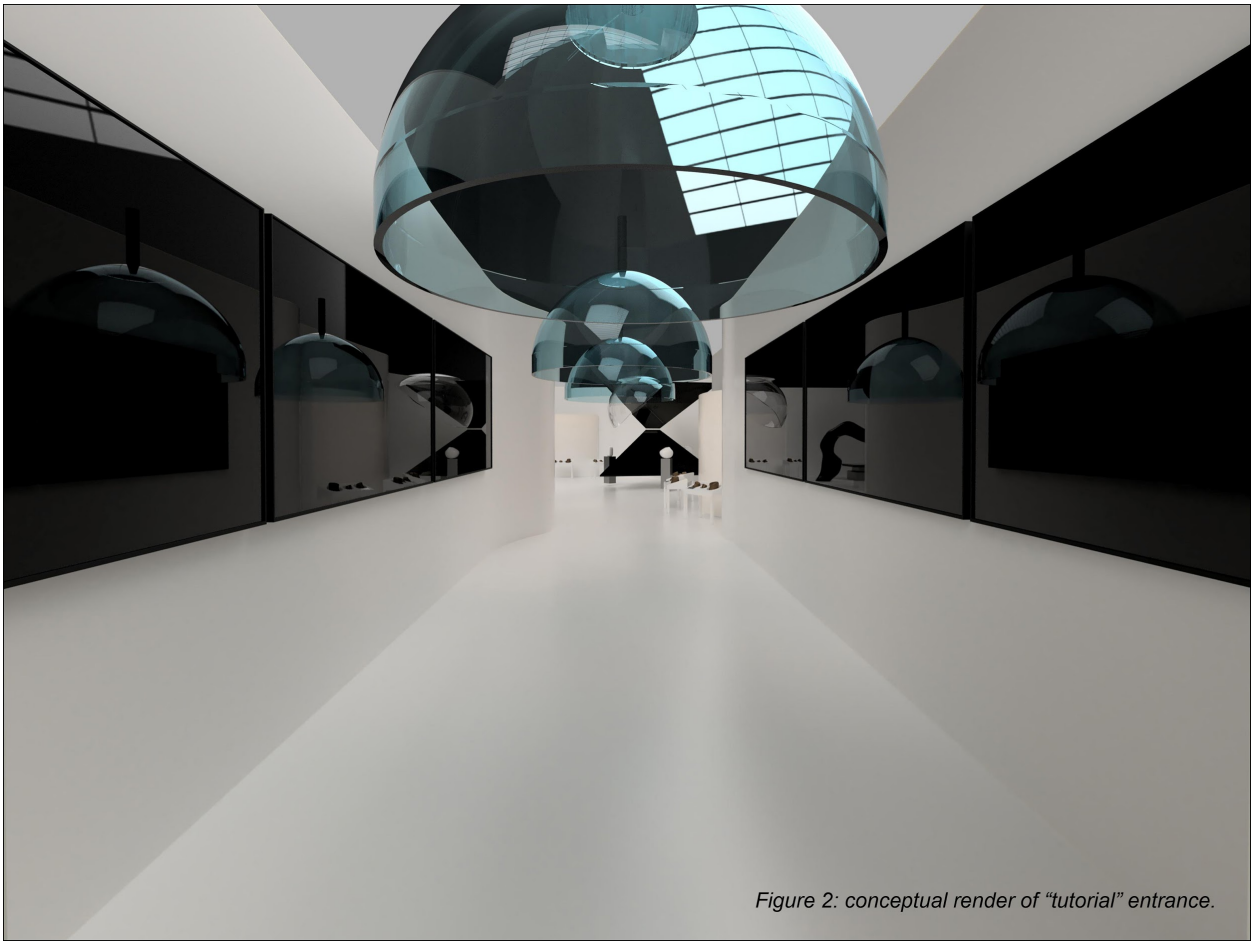

Figure 2: conceptual render of "tutorial" entrance.

expectations of interactivity in all aspects of the experience by foreshadowing the types of collaborative opportunities that they will encounter.

This section will create a rich, atmospheric experience that appeals to a variety of senses while also subtly instructing the participants through the sensory experience. For example, tracking cameras will be connected to linked screens or projections on the surrounding walls that will display continuous and reactionary visuals. The image on the

screen will react to the bodied presence of the participants. Along the pathway, physical sensors embedded in set pieces that add to the environmental setting will trigger overhead directional sound domes which will pipe a short and simple narrative that will travel with the participants as they move below them. The voice or storyteller character will also change from dome to dome insinuating the evolutionary aspect of a traditional story. These set pieces with sensors will also provide opportunities to trigger reactions that can appeal to any combination of the visual, auditory or olfactory senses which can be either diegetic or nondiegetic within the context of the story and culture around which the experience is built**.**

Artifact stations (figure 3):

Once a group has passed through the first section of the experience, they will enter a large and unstructured area with multiple stations that allow for communal creation and learning. Artifact stations provide opportunities for groups to have tactile interaction with story items relevant to the overarching narrative or the experience. These stations are made up of stands which hold the artifact and surround a large curved screen. Picking up different items will create visuals and narratives unique to the combinations determined by the group yet still within a specific traditional story-structure of the community being represented. Moving these artifacts will also allow the participants to learn about the history and significance of the original items that they replicate. Objects which hold sacred value even when copied will not be a part of these experiences as community members of the cultures to which the stories belong hold a leading position in the planning of these immersive events. This will also be

accompanied by related sounds from either speakers in the stands or from overhead

Figure 3: conceptual render of an artifact station.

directional sound domes which are level set to prevent mixing with the audio from other nearby stations to occur. There will be the option to create these artifact station to work either individually or to connect the stands within one area so that they can work together to produce outputs.

Hologram pyramid (figure 4):

An authentic hologram in the style of a *Holodeck*[38] (OED, n.d.) popularized by the television show *Star Trek: The Next Generation* is not yet possible, however the illusion of such an event is possible through the clever use of materials and reflections. This station will provide a 360 degree simulation of either a depiction of the narrative content

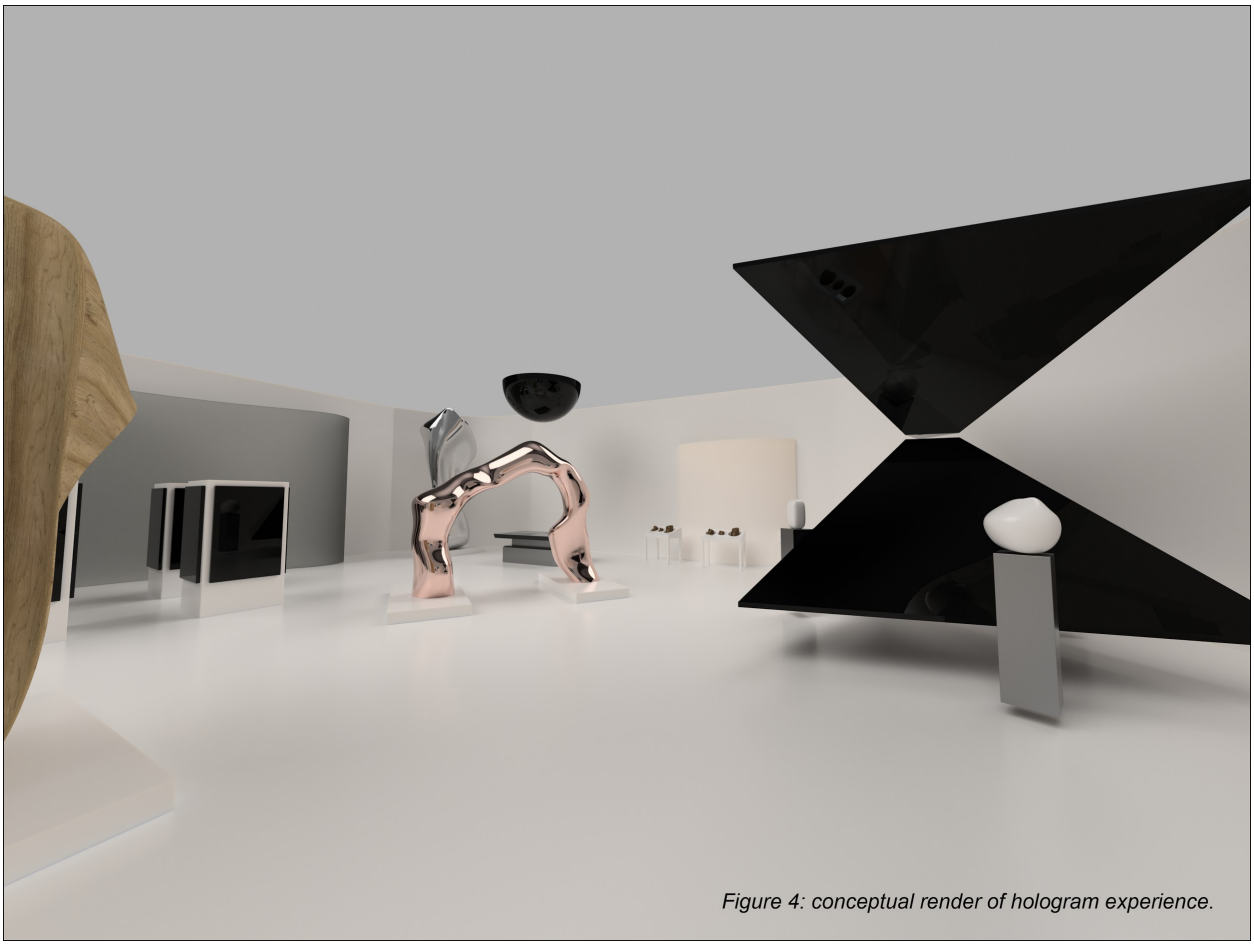

Figure 4: conceptual render of hologram experience.

or of a human storyteller image which will have culturally significant features in areas like wardrobe, ethnic features, and even in contextual setting. In the accompanying render, the hologram pyramid is surrounded by pillars that allow participant the option to choose from a selection of relevant archetypes so that they may influence the narration

[38] Definition from Oxford English online dictionary: (chiefly in science fiction) a chamber or facility in which a user can experience a holographic or computer-simulated physical environment. https://en.oxforddictionaries.com/definition/holodeck

as it is related to them. This station was devised to allow groups the option to either engage with or passively receive the story. The holographic content and the accompanying sound is directed into a curved wall facing away from the open floor, this is not only to catch the audio and prevent it from spreading into the space of other stations, but also creates an intimate experience for the participants by removing them from the bustle of the open area. Arguably, this will encourage focused listening and a positive reception of the story.

The *"Mad-Libs"*[39] light table (figure 5):

This area for interaction is the only textually based experience in the first iteration render of the project. Story elements are broken down into preprogrammed modular components specific to the storytelling tradition and culture around which the experience is built. Users are able to chose from a pre-programmed selection of archetypal characters and contexts, weather patterns, and character actions that are all relevant to the community culture that the experience is geared towards. These components are applied to the typical story structure of the culture in a manner similar to the popular word game *Mad Libs* to create a story unique to that story moment.

The results of the choices made on the light table are projected in an overhead holographic pod in a visual form, that is, the choices that are made on the table come together to create an image in the overhead pod so that the general community is able to see the moment of spectacle as it is being created. For example, when the

[39] A popular word and story game, *Mad Libs* is a registered trademark by *Penguin Random House LLC*. See http://www.madlibs.com for more information.

participants choose to set their story during a starry night, the image above will depict that option. Like other stations in the experience, the table will have embedded,

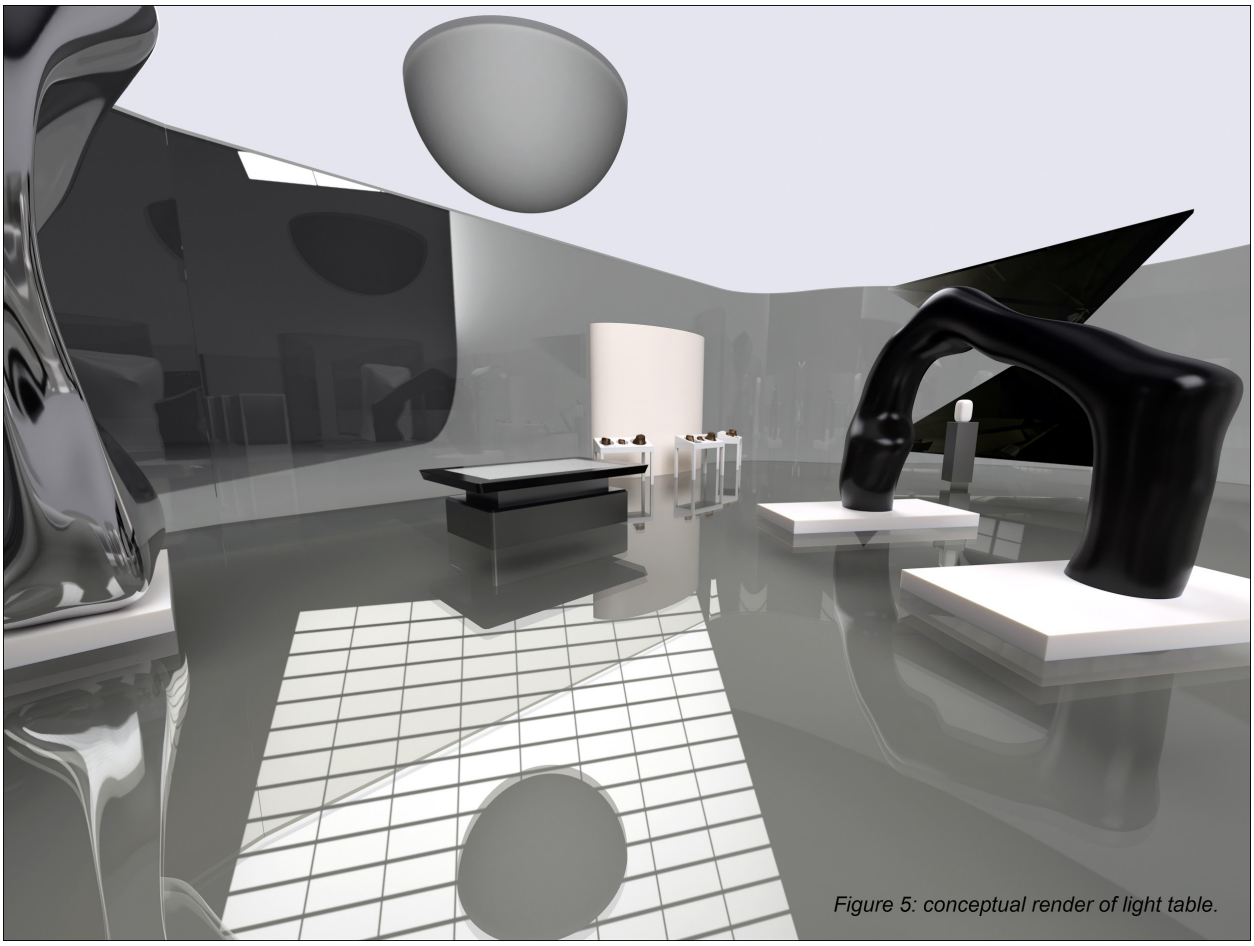

Figure 5: conceptual render of light table.

directional speakers which add the layer of sound to the storytelling opportunity. For example, a calm night would trigger the soft sounds of the night breeze rustling through the trees, if that is a part of the context chosen by the users.

This experience is meant to temporarily place the participants in the shoes of the storyteller. Future developments of this station would be to break down the archetypes even more to allow the participants more control over the resulting story and create more unique results.

Environmental sculpture (figure 6):

The setting of the experience is an instrumental component to creating an immersive effect. Set elements are scattered throughout to unify the entire experience, from the entrance into the tutorial section though to the exit from the reflection pod. The

Figure 6: conceptual render of evnironmental sculpture.

level of intervention of these environmental elements will range from extremely visible within the space to subtle smaller point which will hardly be noticeable. The large sculptural elements will be built to allow a kinetic and tactile interaction which does not rely heavily on a digital base. This breaks up the type of experiences within the larger structure to reduce a sense of repetitiveness and redundancy in the interactive opportunities. Sculptures will be life sized as well as larger than life, some will allow for

participants to enter into the sculptural spaces to create a sense of wonder, awe, and play which will arguably encourage excitement and willingness to explore and experiment in other areas.

The “Story Forest” (figure 7):

Made up of tall pillars, or “story trees,” with large, portrait-oriented, linked screens, the “story forest” provides a literal immersive experience These pillars will be

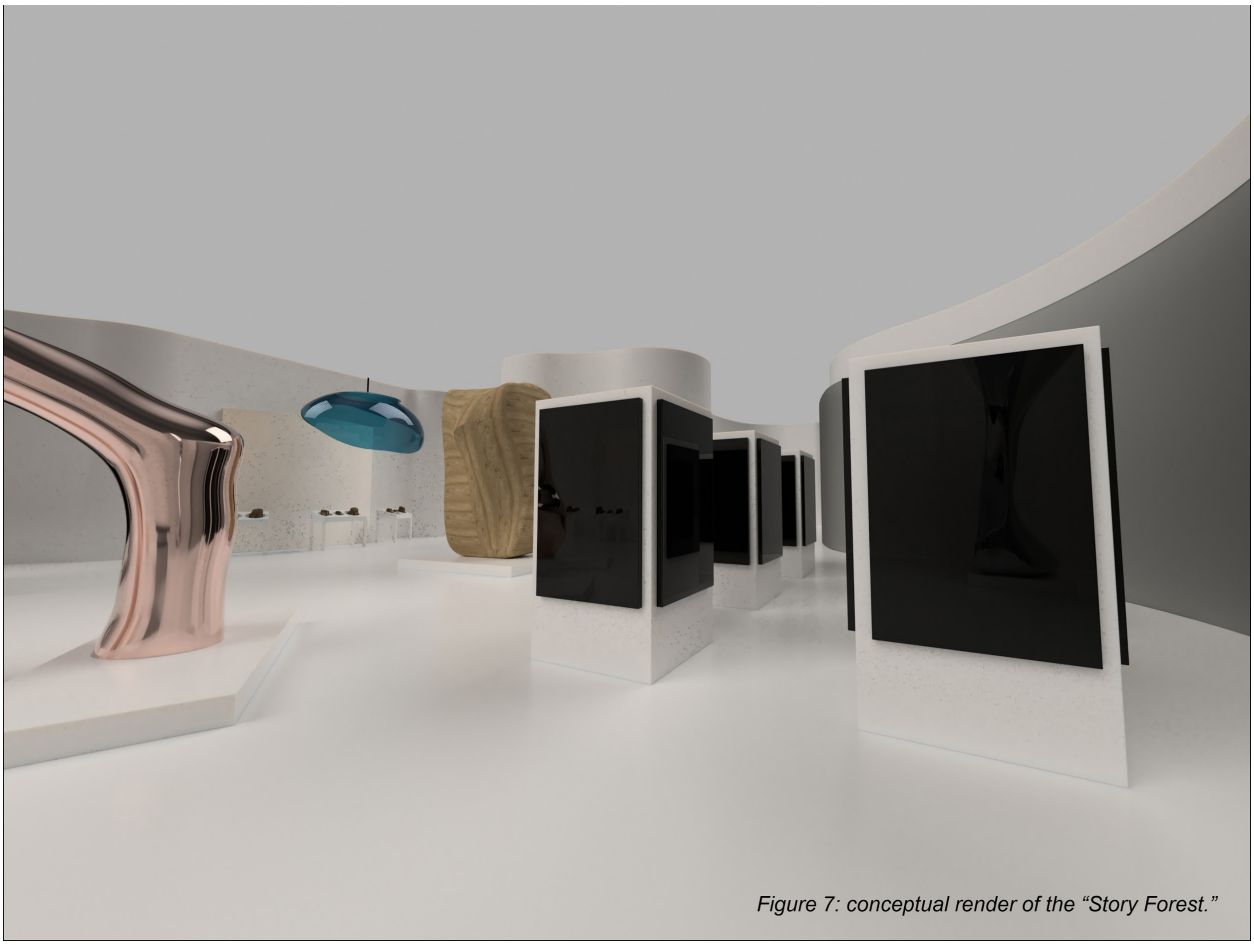

Figure 7: conceptual render of the “Story Forest.”

surrounded by a curved screen with rear projection to provide an additional layer of immersion by appealing to, and manipulating, a sense of depth perception. This will

help situate participants into the experience. Audio and olfactory elements are added to the experience with the integration of sensors and speakers in the pillars.

Participants' positions within the "forest" are tracked using cameras, this is linked to the content being displayed on the screens and to sensors throughout the forest which react to inputs from the cameras, triggering diegetic and nondiegetic visuals, sounds, and smells. For example, if the overall experience was an examination of the Anansi folklore, a "roguish figure...form the oral tradition of the Ashanti people of Ghana..." (van Duin, 2007, p. 34) which has evolved over the centuries to adapt to "...the flora and fauna, social conditions, and technical development in the Caribbean." (van Duin, 2007, p.35), then the Anansi figure would be able to move among the screens. If a participant approaches the image on the screen, the tracking software would register this movement and instruct the image to react, for example he may run away.

The story forest will be enhanced with set pieces embedded with sensors so that another element of physical interaction is provided. For example continuing with the illustrative example of this section of the render explanation, artifacts made to imitate the flora and fauna of an African or Caribbean forest, depending on which iteration of the stories are the focus of the experience, will be scattered throughout. If a participant picks up a ripe fruit and places it near a "tree" then the Anansi character will approach the fruit.

The story forest, therefore, has the potential to create a multi-sensory experience by appealing to the kinesthetic, tactile, visual, and olfactory senses which will increase the level of participant engagement and connection with the narrative material.

“Reflection pod” (figure 8):

In the conceptual renders, the surrounding curved screen from the “story forest” has been continued into the last section of the experience, this is the “reflection pod” meant to ease the participants’ out of the experience. The intent behind this structural

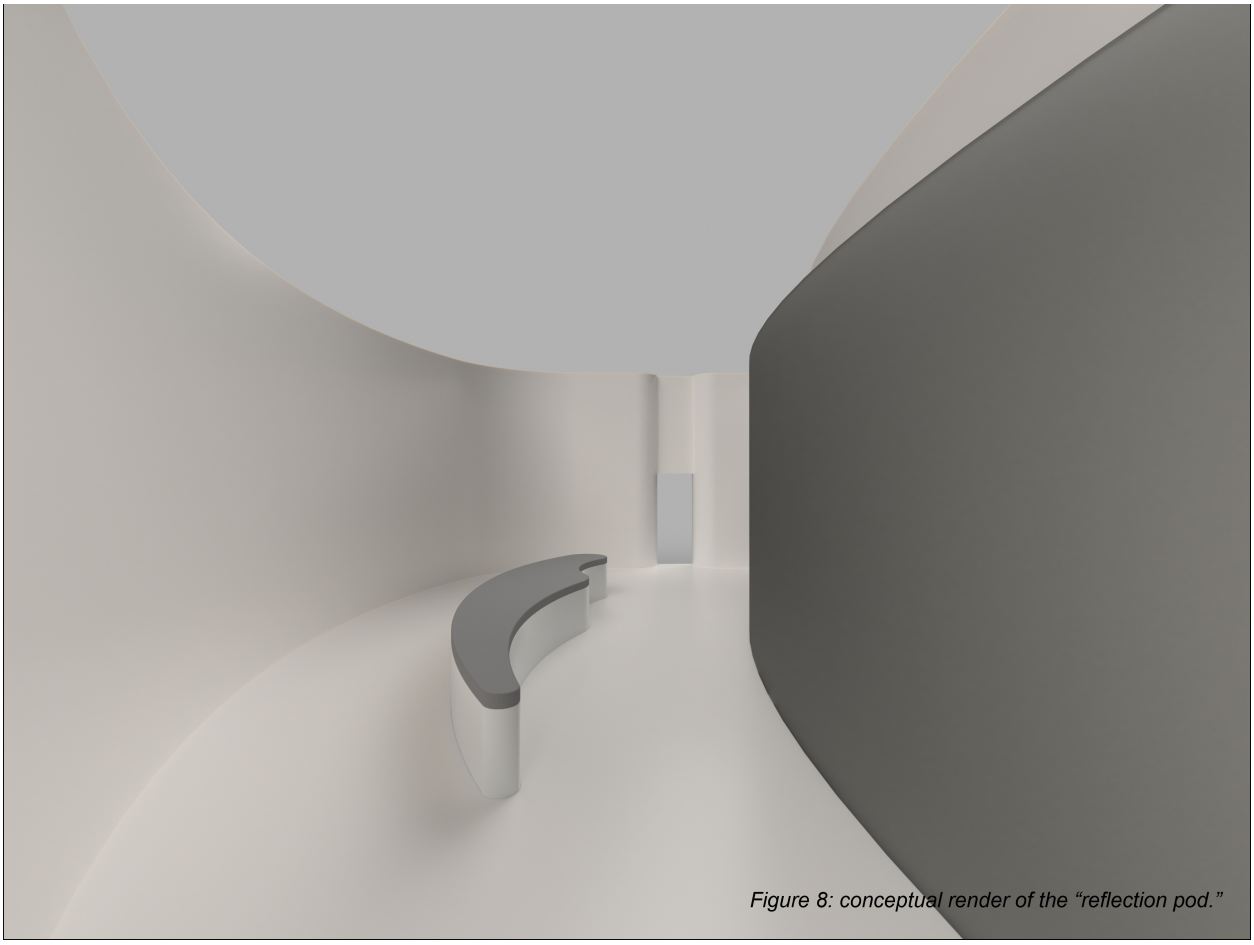

Figure 8: conceptual render of the “reflection pod.”

decision is to create a sense of continuity into the last section. The atmospheric visuals and sounds from the “story forest” continue into this otherwise blank space which allows participants to reflect on what they have just experienced and created. Theoretically, the blank space removes distractions to provide an opportunity for reflection which will allow the participants to internalize their experience allowing it to travel with them even after they have exited the structure as the experience of oral stories once did. It is important

that this area has no angles in the space to keep the participants' emotional and mental state in the story creation world of the experience.

The overall journey (figure 9):

Throughout this proposed experience, a conscious effort has been made to create a fully phenomenological experience. Every element plays a role in creating the immersive story experience. Environmental sculptures, set pieces, and interactive artefacts provide opportunities for tactile and kinetic exploration throughout all the sections of the experience except for the ending reflection pod.

The auditory senses are activated through diegetic sound through the story narrations in the tutorial and the hologram pyramid experience. Non-diegetic, or atmospheric, sounds subtly appeal to a participant's sense of hearing in all stations creating a sense of continuity that joins the individual stations under the larger experience. Visual appeal is digitally obvious throughout on surrounding screens and with holograms and projections while set design elements and environmental sculpture provide instances of real-life visual interest. Finally, this experience provides ample opportunity for the activation of the olfactory senses. A participant's sense of smell can be especially engaged in the tutorial, story forests, and reflection sections. This can be connected to the set design of the experience, for example, a forested setting can include scents of relevant flora and may even be set to be triggered by narrative content when applicable.

This deliberate effort to construct a full sensory experience for participants serves the purpose of encouraging increased interaction and engagement with the narrative

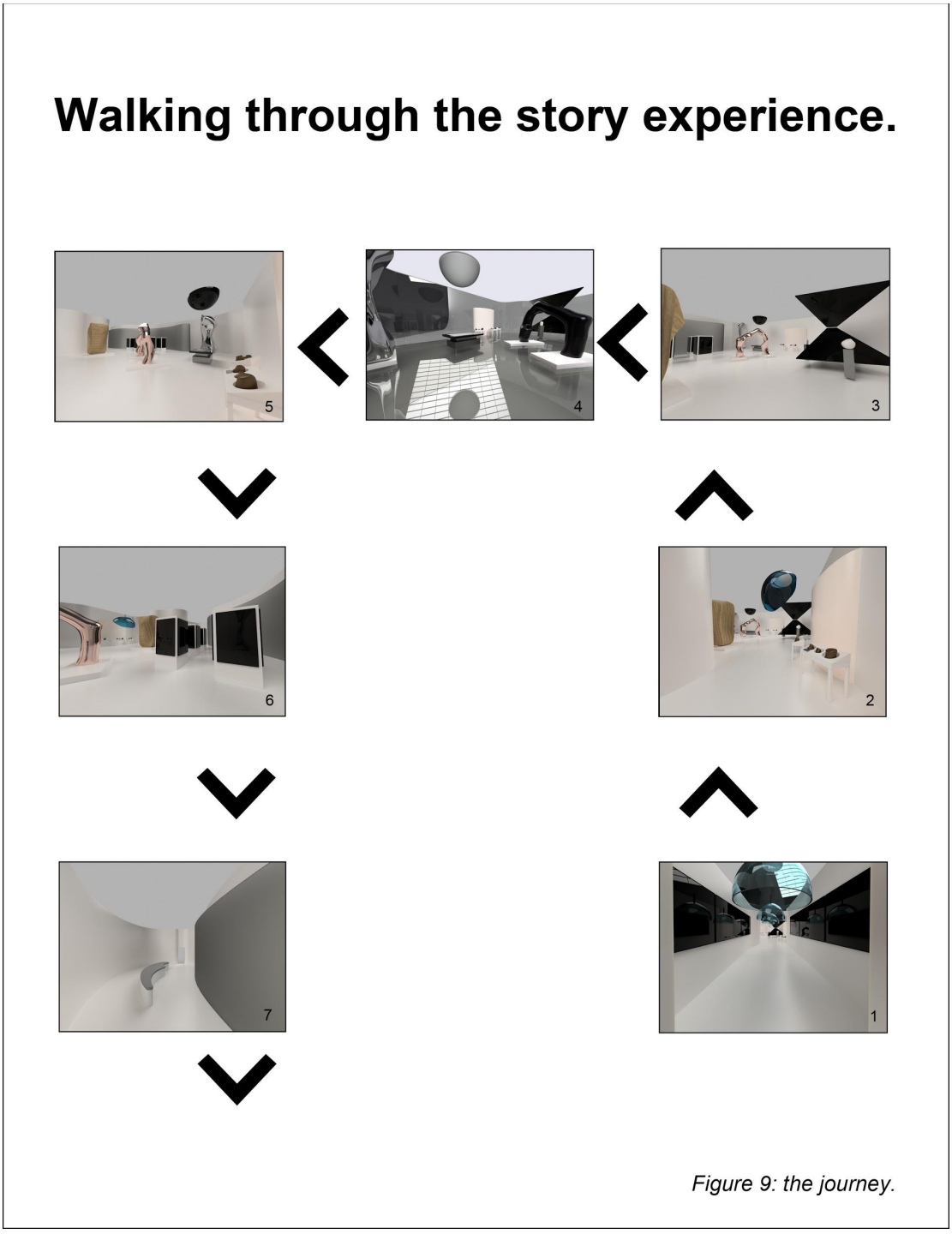

Figure 9: the journey.

material. When natural language processing and machine learning developments have reached the proposed stage of sophistication needed for the ideal iteration of this project, this encouragement will result in ample instances of valuable user data that will

be used to evolve the traditional stories with which we seek to strengthen community connections and cultural relevance.

Conclusion

Given the findings of this paper, the goal of sophistically marrying developing technologies with well established aspects of storytelling to support the growth of oral stories and histories seems to be unattainable at the time of the writing of this paper, however, a medium ground in the form of a data-tree version of this idea or using technologies like those in the *Beyond the Fence* experiment, may be developed as a bridge between a *New Dimensions in Testimony* style project to the one that has been proposed in these pages.

As this research moves forward, further examination of the progress of deep learning processes and consideration of theories like Judith Butler's liminal space as related to the positioning of a participant within his culture and the placement of the proposed system in culture and Benedict Anderson's Imagined Communities (1983/2006) in relation to the development of new cultural communities enabled by technology, for example online diasporic communities is needed to realistically determine the application and feasibility of such a project. During this period of further theoretical grounding, research into more similar projects will also be conducted as models of best practices and to anticipate developmental pitfalls.

An iterative process will continue through a series of detailed conceptual 360 degree renders to create a more solid determination of the project interactions, accommodations, and layout before leading into a period of prototyping to confirm the practicality of the planned project elements. These stages should be sufficiently completed to run a series of affordable and efficient user interaction and experience testing which will measure the levels of human and cultural responses to such a project.

The information gained through these processes will help determine pain points and further re-iterations of the design. Ideal applications for this project will also be developed, keeping in mind the key goal of encouraging the growth of communal oral stories, especially in connection to cultural histories, while respecting cultural sacred beliefs and traditions.

The research paper and renders developed for this degree is simply a beginning of what the project can become, a “proof of concept” if you will. Ideally, with the appropriate amount of time and range of skill-set, this project can be scaled up and expanded by creating a learning, artificial intelligence (A.I.) program that will be able to receive and analyse participant input which will then encourage the stories to evolve. Consequently, the stories will continue to grow in a way similar to the growth patterns they would have followed in traditional storytelling customs. That is, they would be informed by the society in which they occur with content that reflects the priorities of relevant communities through the time that the stories exist. In this way, the proposed project can be considered in terms of a new system for historical and cultural archiving capabilities and towards the posterity of making living traditional experiences accessible and relevant for evolving communities and societies.

This experience will also serve the equally important purpose of providing a means to unfreeze the life of stories written in books by community outsiders for the sake of preservation and returning the narratives to their origin cultures by placing cultural gatekeepers in central developmental positions through the processes of creation. By doing this, communities can reclaim and emphasis their ownership of their lived and ancestral traditions and histories, have control and authority over the

dissemination of their private and public narratives, and build a stronger sense of community and belonging among its generations by making their cultural identities clearly understood by both insiders and outsiders if they so choose.

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