Ijiam: Augmented Reality Technologies for the Adaptation of Ecuadorian Intangible Cultural Heritage

by

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By: Beatriz Margarita Castro, MDes Digital Futures, OCAD University, 2017

Abstract

Oral storytelling is a dynamic cultural expression for passing down human knowledge and perceptions of life and nature, building a meaningful bond between the past and the future. Over time, much oral expression has lost most of its unique flexibility and generativity as a result of textualization. This project uses digital technologies to create critical adaptations of ancestral wisdom from the Shuar indigenous community of the Ecuadorian Amazon, transposing relevant concepts of their cosmovision into a new digital storytelling experience. Following a post-colonial ethnographic research approach, this thesis employs decolonizing methods to analyze the complex knowledge system of the Shuar culture, engaging the community through a communication protocol of reciprocity and fair exchange of knowledge. The outcome of this project is an interactive digital installation that allows participants in the Shuar community and elsewhere to embody an audiovisual experience based on Shuar ancestral wisdom.

Keywords: oral storytelling, Ecuadorian Amazon, Shuar indigenous community, intangible cultural expression, ancestral heritage, decolonizing methodologies, critical digital adaptation, augmented reality technologies, physical performance, gesture, Kinect sensor, Unity, interactive installation

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Chapter 1. Introduction

Since the times of ancestral civilizations until our society today, many cultural beliefs originate from traditional stories. The act of storytelling remains as one of the highest manifestations of human imagination that interprets life and the universe.

This project explores innovative ways to tell traditional stories, based on the traditional oral narrative from Ecuadorian indigenous communities. The research approach embraces mutual collaboration, adapting intangible cultural expression in a new digital platform and preserving it for younger generations.

Ijiam, a word used by the Shuar to describe people dancing in circles, is a project based on a critical recollection of the ancestral knowledge belonging to the Shuar indigenous community located in the province of Morona Santiago. From the fourteen existing indigenous nationalities in the country, the Shuar are considered one of the most courageous and distinguished indigenous peoples. According to Marcelino Chumpi (2012) the Shuar people from Morona Santiago embrace freedom and diversity through their different habits and beliefs. The influence of this indigenous community in the province is so significant, they have received the title of "guardians of the jungle" (p.46). The Shuar belief system not only demonstrates their wisdom as brave warriors and an immense respect for the land they live in, but embraces an ideology of collaboration and equality with Western societies for a greater understanding of the interconnection between humans, plants and animals as members of a single delicate universal balance. They believe that a collaboration of mutual respect with other societies is essential for the future preservation of their legacy, and for the education of their coming generations as unprejudiced citizens of the globalized world.

In a project of an ethnographic nature like this one, the research process will first and foremost gather information from published sources and suitable indigenous representatives. As stated by Eliot Weinberger (1992) representing the complexity of a collective from the point of view of a single representative may be quite challenging. From the many written ethnographic resources available about this community, a great number of them are presented from the point of view of the narrator (usually an outsider), who speaks from a personal perspective, resulting in prejudicial, contradictory and inaccurate information of a community's lifestyle and belief system. To avoid this, an appropriate ethnographic representation of the Shuar people should come from indigenous sources that represent their community's perspective.

In *Fiesta de la Chonta Documental* Shuar representatives mention: People from the community share stories, anecdotes and tales as an activity that brings people together (TvCulturayPatrimonio Ecuador, 2015). This research contemplates recuperating the original conversational nature of Shuar oral traditions by transposing the main concepts of their ancestral wisdom expressed in this story to a digital media application with the contribution of representatives of this indigenous community. This collaboration aims to empower the voices of this community to tell their own stories through digital technology for themselves and for new audiences.

While this project's intention is not to portray an actual literal narrative of these stories nor reenact an indigenous ritual in its entirety, it provides a context of the indigenous cosmovision of this indigenous Ecuadorian community. The initial intention of this project was to develop a real-time interactive participant performance that recreates the meaningfulness of this ritual into a new platform of engagement, generating

new forms of thinking and mutual exchange between Western societies and the Shuar people. This was to be accomplished by taking the prototype developed at OCADU to the Shuar community in Ecuador for continued reciprocal development. This reciprocal relation was a key element in the overall process of decolonization that underpins this project. Unfortunately, due to a very serious and unexpected socio-political situation between the Shuar community and the Ecuadorian government, involving mining companies and violent expropriation of Shuar lands, the full reciprocal exchange of knowledge with the Shuar could not be completed.

Nonetheless, this research and creation work maintains its commitment to decolonization. It has established an initial communication protocol with representatives of the Shuar community considering decolonizing research methods to develop an interactive storytelling experience. This initial research has respectfully integrated the information provided by the Shuar and made use of the material they provided honouring their desires as a community and respecting the inevitable limitation that the current socio-political situation in Ecuador has imposed on the Shuar people and on this project. The latest threat to Shuar survival may have prevented me from completing the project with them as planned, but it has strengthened my commitment to finding ways to work with the community with their new struggles.

1.1 Project Overview and Objectives

The main objective of this project is to reenact storytelling based on a respectful adaptation of the oral traditions related to the *Uwi Ijiamtamu* ritual, the oldest and most significant celebration of the Shuar community. This festivity takes place on the last day

of the Shuar calendar and welcomes a new year with a ritualistic expression of gratitude for the abundance received during the previous year.

Key to this project's research is the exploration of computer technologies and electronic devices and their potential uses for the preservation of intangible cultural heritage. This project involves the development of an interactive installation that brings together fields of Visual Ethnography and Digital Technologies, responding to the following research questions:

1. How can Shuar oral storytelling recuperate its original performativity as a conversational act using digital media technology?
2. How can decolonizing methodologies be used to conduct ethnographic research that recognizes a fair exchange of knowledge with the Shuar community?
3. Why is the *Uwi Ijiamtamu* celebration an appropriate Shuar cultural expression to develop a digital interactive adaptation based on Shuar cosmovision?
4. Why is Augmented Reality (AR) the most appropriate technological resource to adapt concepts of Shuar intangible cultural expressions than other existing technologies?
5. How can we use AR technology for a visual adaptation based on Shuar intangible cultural expressions outside of the existing written text resources?
6. How can this research project support the struggles the Shuar indigenous community currently faces in the autonomy of their territory?

Ancestral storytelling as an intangible cultural expression is the result of the imagination and creativity of the collective in relation to the real world. To adapt these realities to digital media, the use of Augmented Reality (AR) technologies allows for an embodied user performance to create a semi immersive experience. As shown in Figure

1, this thesis project consists of three main components: Ethnographic Research, Technological Approach to create an Audiovisual Adaptation and Prototype Development.

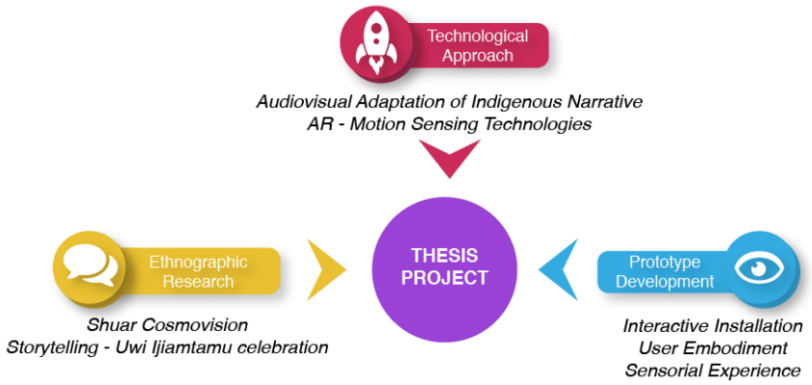

Figure 1. Project Brief.

This project begins with ethnographic research on Shuar cosmovision adapted in the context of the *Uwi Ijiamtamu* ritual. Following this, the use of Augmented Reality is considered by Andrea Brogni, Carlo Avizzano, Chiara Evangelista and Massimo Bergamasco (1999) as a metaphor in which the sensation of presence is essential to give the participant a clear sense of the real while interacting with virtual objects. AR technology becomes the device through which concepts of indigenous storytelling can be brought to life in real spaces and engage with participants in an interactive audiovisual performance.

To develop an audiovisual adaptation based on Shuar knowledge, digital visuals and sounds are adapted to respond to user input through motion sensors that identify and track a participant's presence. Finally, prototype development in this project consists of an interactive audiovisual installation that considers concepts of embodiment for the

creation of meaningful new realities. Brian Massumi (2008) refers to embodiment as the user's action of moving-thinking-feeling, altering perception and intensifying a virtual experience, creating new models of meaning-making, differentiation and spatialization of reality. Embodiment becomes the means to create a powerful connection between the user and an immersive interactive experience, allowing participants to learn about Shuar conceptions of life, and to experience the sensibility behind this indigenous ancestral wisdom from a first person perspective.

Considering that the Shuar community believes in creating new connections for a deeper understanding of greater realities, the creation of a digital world can generate an alternate reality for human interaction and body performance as a new means of expression that can regenerate the act of oral storytelling through a visual abstraction. Not only can performance generate a positive participant interest and encourage exploration, it also showcases the performative nature of the Shuar cosmovision in a powerful audiovisual experience through embodiment within a virtual world.

In this chapter, the most important component of this project is to study Shuar oral traditions applied to digital media technology. The following section outlines the post-colonial research approach that addresses the Shuar indigenous community and what are the most appropriate research methodologies to establish a fair collaboration with community representatives and to develop a respectful digital adaptation of Shuar cosmovision.

Chapter 2. Rethinking Indigenous Histories and Methods

This chapter develops an analysis of the Shuar community and how that community relates to non-indigenous societies today from a post-colonial perspective. It covers the most appropriate decolonizing practices that guide this research towards an outcome that involves members of the Shuar community in a fair exchange of knowledge.

In the past, colonial institutions and ideologies have influenced indigenous spiritual beliefs and religious practices, affecting ancestral ways of life imposing adaptation to the lifestyle of modern non-indigenous societies. In response to this colonial history, this project deploys a research approach that is grounded in a critical assessment of how indigenous knowledge has transformed and persisted in response to the social and cultural misconceptions resulting from colonization. This approach also involves taking a deeper look into the existing ethnographic resources on the Shuar indigenous community to identify research that provides the most appropriate documentation of Shuar life and that values Shuar ancestral values and cultural practices.

2.1 The Question of Canon: Postcolonial and Decolonizing Resources

It's undeniable that the influence of colonialism has resulted in centuries of misleading information about indigenous communities. Working towards a decolonizing approach implies a transformation of the research process to obtain unprejudiced and non-discriminatory information.

Decolonization involves an active understanding of how Shuar society has evolved since the imposition of colonial rule to contemporary versions of colonial rule. Angela Cavender (2012) refers to decolonization as a process that seeks to recover the

beauty of traditional wisdom through critical thinking. She considers that the effects of colonization resulted from a struggle of powers in which indigenous communities were controlled and subdued by diminishing their traditions and beliefs, and imposing colonial ideologies as superior. Any decolonization process must begin with a change of mind that acknowledges the existence of colonialism in current societies, and with meaningful strategies to reverse its effects by reclaiming indigenous ways of being and thinking. Part of this conscious and critical thinking involves equality and respect for others; there is no culture superior or more advanced than another; rather, every culture contributes to a more inclusive global society. In the case of indigenous communities, their close bond to the wisdom of their ancestors and their role as defenders of the land bring a whole new meaning to the importance of preserving the delicate ecosystems of our planet from the alarming devastation it currently faces.

This research takes on the challenge of examining the existing resources that provide insights into the Shuar indigenous community by critically portraying their identity, spirituality, the relation with the land they live in, and their current response to non-indigenous societies. The Shuar community may be quite protective of their culture but may welcome the presence of outsiders and visitors to take part in their traditions on special occasions, but only as spectators (personal communication, October 28, 2016). Interpreting Shuar presentation of themselves to outsiders is essential for the creation of a digital interactive adaptation that embraces the wisdom of the Shuar traditional storytelling. A critical understanding of Shuar ways of life and their collaboration with non-indigenous societies should be beneficial for both. This research starts by analyzing the most prominent research sources that exist on the Shuar culture. Within the field of

ethnographic studies on this community, which are part of a colonial project, one of the most notorious resources is the work of investigators such as Rafael Karsten, Alf Hornborg, Bertrand Flornoy and Michael Brown amongst others. Karsten's research, published in 1935, stands out from other classic ethnographers by being recognized as an ethnographic study on the Shuar culture from Ecuador and Peru that was ahead of its time.

Despite presenting some imprecise information and using denominations such as *jíbaro* (or head hunters), terms considered as disrespectful by the Shuar, Karsten's work has been acknowledged because he collected situated data and recounted facts exactly as he saw and heard them. In her prelude to Karsten's investigation, Marie Perruchon, states that this simple and empirical method for collecting data was more accurate than the methods used by other ethnographers: Almost everyone who studies the *jíbaros* has been interested in hunting and head shrinking. Karsten wasn't an exception, but in comparison to others, his investigations were more extensive (Karsten, 2000, p.12).

Karsten wrote about the events he witnessed in extreme detail, rather than providing his own conjectures on habits and beliefs. An example of this was his recollection of the role of women in Shuar society, and how he emphasized the strong social influence of women in this indigenous community. He refuted the stereotype of presenting the Shuar as a barbaric culture, presenting their social dynamics as the result of a complex social structure: The truth is that the *jíbara* married woman is not only completely independent within her own sphere of activity but also exerts a notable social influence and authority even in matters that mainly concern her husband (Karsten, 2000, p.199). Even if his contribution as a classic ethnographer on the Shuar community is a

valuable reference for other investigators who praise his work as a dedicated and meticulous research process, the work of Karsten and other foreign ethnographers is limited in value for a project of this nature. Sadly, his research is still influenced by colonization, making frequent use of terms such as primitive or savages when he describes different habits and traditions of Shuar people. Therefore his ideologies and opinions as an outsider to this community still portray a colonial misconceived image of the Shuar people.

In his analysis of Dennis O'Rourke's documentary *Cannibal Tours*, Dean MacCannell (1990) describes a phenomenon in which members of a native community may become actors who perform a specific role in a fabricated touristic experience. As shown in Figure 2, interpreting this touristic experience to find an appropriate way to acknowledge indigenous culture is examined through four different levels of perception: social exchange between local communities and tourists; impersonation; postmodern collaboration; and post-colonial perspective.

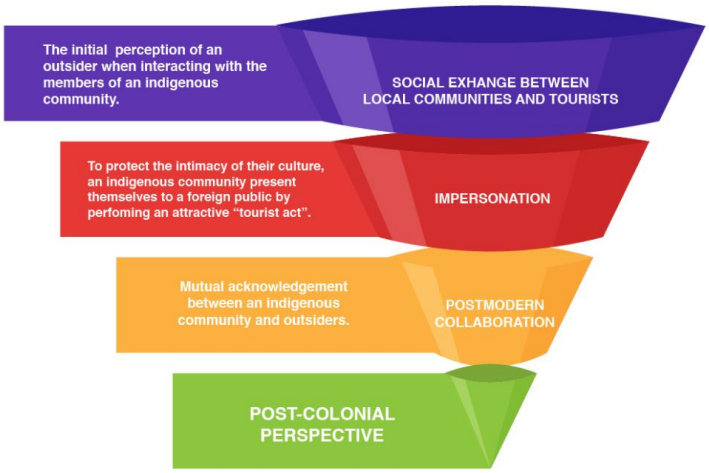

Figure 2. Levels of perception between local communities and non-indigenous tourists.

As part of a local exchange with non-indigenous people, communities deliberately fit into a stereotype of being primitive, while tourists take the role of modern individuals in an act of mutual complicity. Despite this construction, the indigenous community should not be considered as primitive but as individuals having adapted their traditions to modern circumstances. This social exchange between local communities and tourists that MacCannell examines, is an artifice through which indigenous people can protect the intimacy of their rituals and beliefs from strangers, accommodate themselves to the presence of outsiders, and gain some economic profit from the foreigners by exploiting certain aspects of their culture through impersonation. But even if this act of impersonation could potentially change the perception of an indigenous community and erroneously influence research outcomes, an analysis of how a community is perceived and influenced by outsiders may provide a more accurate assessment from a post-colonial perspective.

However, this phenomenon resulting from a postmodern collaboration may have a certain positive connotation: "… relations could be improved if we pay more attention to our effects on others. Parody builds solidarity and raises consciousness". (MacCannell, 1990, p.17). According to this, indigenous people construct a well thought out appearance and behavior to sensitize foreigners to how their presence impacts on their culture, hoping to improve their social interaction by acknowledging each other differences through a post-colonial perspective.

For this project, it became imperative to consider that the primary way to conduct post-colonial research was by looking for references coming from inside this community, from Shuar sources. In the book *Spirit of the Shuar: Wisdom from the Last Unconquered*

People of the Amazon by John Perkins and Shakaim Mariano Shakai Ijisam Chumpi (2001), the perspectives of the Shuar are presented by the indigenous author in colloquial language. The book is presented as a conversation between Perkins and Chumpi. This ethnographic encounter between the two authors is different from the approach of Karsten and other classic ethnographers of the Shuar culture. The role of Perkins in this case is one of a compiler of Shuar history and spirituality through vernacular conversation. Since the native language of this community is Shuar, and basic Spanish in the case of younger generations, Perkins took the challenge of breaking this language barrier and registering the concepts of the Shuar life as a meaningful philosophy that the world can learn from. The information he gathered for the book is divided into chapters that refer to different aspects of the Shuar community such as: ancestral spiritual beliefs, social organization, traditional storytelling, war affairs, religion, ritualistic practices, ceremonies and their relationship with native and foreign communities.

With the help of a tape recorder and the assistance of Shuar and Spanish translators, Perkins presented powerful testimonials of Shuar history that come from first person perspectives and in the words of Chumpi. The value of oral history becomes an asset in the action of an individual's self-knowing and self-telling, giving the interviewer flexibility in structuring the interview, asking informal open questions, and more importantly, supporting the individual to express freely without limiting the flow of their narration in any way. This concept is thoroughly analyzed by Nan Alamilla Boyd (2008), who explains the relevance of oral histories as sources of evidence in new methods of interpretation of queer community oral history: "… in the absence of print documents, the narrators' voices could be trusted when they belonged to a cohort that, like Berube's

community feedback loop, could verify the accuracy of the 'data to be offered up for the historical record'" (p.182). Following a similar method of interacting with Shuar people, Perkins gathered information with the collaboration of Chumpi as principal narrator and the participation of Shuar elders who acted as a representatives of their community. Their stories were told using their own words and native language, connecting their personal experiences to the Shuar collective as protagonists in this post-colonial approach to research on Shuar culture.

Other references considered for this research are Chumpi's publication *Morona Santiago: El Nuevo Dorado del Ecuador* [Morona Santiago: Ecuador's New Dorado]. Chumpi, in his current position as Prefect of the Morona Santiago province, provides insight into the influence of the Shuar community in this part of the country. As an authority, his prime concern is the welfare and progress of the people in a multicultural and inclusive society, inclusive education for young generations in coexistence with their ancestral heritage and the rainforest biodiversity as a world heritage: "We give and receive lessons. We have thought about them and concluded that, contrary to the Western belief that human beings are aggressive, utilitarian and selfish, building a culture of peace is not utopian" (Chumpi, 2012, p.95). With this publication, he attempts to bring the reader closer to the life of the people of Morona Santiago by focusing on the diverse geographical surroundings through a series of photographs, facts and brief commentaries. But more importantly, he strongly encourages visitors to acknowledge the province and its people through "cultural tourism" and not "commercial folklore" (Chumpi, 2012, p. 75) considering that the real treasure of the province and this community is the beauty of the culture of the jungle: a culture that believes in freedom and equality.

The concluding part of this critical decolonizing research process was to solicit a dialogue with Shuar representatives who could extend and validate the accuracy of the information gathered from other sources. This would allow members of the Shuar community to actively collaborate on the development of this project and represent the community's interests by honouring their ways and opinions. An ethical ethnographic research process involves active participation of indigenous peoples in the development of a collaborative research project based on their cultural legacy. For this project, it was imperative to involve members of the Shuar community by opening a channel of communication and mutual collaboration for respectful research approach. Linda Tuhiwai Smith (1999), states the importance of incorporating an agenda for indigenous research: "It necessarily involves the processes of transformation, of decolonization, of healing and of mobilization as peoples. The processes, approaches and methodologies – while dynamic and open to different influences and possibilities – are critical elements of a strategic research agenda" (p.116). A research agenda focused on the Shuar community not only honours the right of these indigenous people to be informed of the existence of this research project. But it respectfully acknowledges their participation to develop a project that recognizes their posture towards Western societies, and regenerates their cultural expressions with new technologies. This project's agenda uses research techniques such as informal interviews and a focus group to establish a communication protocol that can effectively communicate the views of Shuar representatives with non-indigenous researchers.

Considering the data gathered on the Shuar community and the *Uwi Ijiamtamu* ritual in the project's preliminary research stages, it was determined that this community

embraces education, progress and modern technological advances that could potentially benefit their community today. It was imperative at this point to contact a representative of this community and develop communication protocols with Shuar elders who perform the ritual, not only to validate the accuracy of the information gathered, but to involve the Shuar community in this project development.

This project's agenda for indigenous research started with ethnographic research on the Shuar community of San Luis de Inimkis. The elected representative of this community Mr. Gonzalo Nawech Wajai was contacted and his collaboration was solicited in providing information about this ritual from his professional point of view as the President of the Sevilla Don Bosco parish in Morona Santiago. As an initial response, Mr. Nawech provided the video *Fiesta de la Chonta San Luis de Inimkis,* an ethnographic material that stood out as one of the most recent, powerful and helpful testimonials of this Shuar cultural expression, starting a communication protocol with the Shuar elders.

Following this, Mr. Nawech was asked for an expert interview of thirteen semi-structured questions and asked for his consent to use his responses through an interview release form. The questions focused on the logistics of the ritual, and asked for respectful and non-intrusive knowledge for research purposes. It was requested that the answers be provided in a natural conversational language using audio or video recordings. In response to this, Mr. Nawech kindly sent raw video footage in which he answered the questionnaire by putting together a focus group with fifteen elder representatives from this community who shared their knowledge voluntarily.

A rather remarkable fact was that Mr. Nawech as an elected representative from this community believed the best way to answer these questions was with the help of the

very elders who perform this ritual every year. As such, he provided community focus group video footage instead of a professional interview as it was originally intended. The video footage of the focus group was moderated by Mr. Juan Francisco Cevallos who assisted Mr. Nawech to answer the questions in an open conversation in both Spanish and Shuar (Figure 3). Participants in the focus group were informed about the rationale of the project and the questions that were translated by Mr. Nawech into Shuar.

Figure 3. Gonzalo Nawech leads a focus group with Shuar elders of San Luis de Inimkis in Morona Santiago.

The session was conducted informally; all of the participants were totally free to express their knowledge about the ritual. Some of them shared childhood stories, their experiences and impressions as participants in the ritual. They discussed the importance of this tradition for their community and why they organize it so meticulously every year: "We do the *Fiesta de la Chonta* to take the power from the *chonta* fruit, and keep living, get more years of life" (personal communication, October 28, 2016).

The kind collaboration of the members of the Shuar community of San Luis de Inimkis authenticated the information obtained on previous research stages. Ultimately,

this activity was also essential to determine the interest of the people of the San Luis de Inimkis community in collaborating in the project, and their desire to be informed of the following steps of research and development of the final outcome that reflects Shuar storytelling.

Centuries of violent invasions and discrimination have not discouraged this community but on the contrary, have invigorated their spirit as warriors towards the preservation of their land and the recognition of their traditional knowledge in current social, economic and political systems, based on justice and mutual respect. This research recognizes the complexity of creating a media project that respectfully adapts Shuar cosmovision for both indigenous and non-indigenous audiences. It considers the posture of this community towards outsiders and their continuous struggle for respect and appreciation of their land and culture. According to Nawech there is a clear interest from the Shuar people to showcase their culture through new technologies: "We make a project and send it to the foreigners to know about us, but also they can contribute to us for that knowledge they are receiving. So this is necessary. Because if we don't, we are losing this information" (personal communication, October 28, 2016).

In relation to this project's research questions an ethnographic analysis of indigenous resources and an agenda of indigenous research were the most suitable decolonizing methodologies to obtain appropriate information and communicate with representatives of this community. Establishing this communication protocol allowed a reciprocal collaboration in which members of the community shared their knowledge on the *Uwi Ijiamtamu* ritual which they consider as their most important celebration. This postmodern collaboration within the context of audiovisual sovereignty of the *Uwi*

Ijiamtamu ritual using sensory ethnography balances the correlation between digital technologies and the indigenous knowledge.

2.2 Methodology

The qualitative research approach considered for the development of this project is a combination of visual and sensorial ethnography that allows a holistic understanding of the Shuar culture from a post-colonial point of view that respects the value of their intangible cultural legacy. For that matter, it was necessary to conduct ethnographic research that not only considered written resources from a Shuar indigenous perspective, and semi- structured interviews with members of the Shuar community, but that also gathered the most representative visual expressions of their culture and cosmovision. Elements such as Shuar artistry, crafts, photographs and video documentation of the most relevant performances, songs and storytelling were essential to analyze these expressions for their adaptation into a working interactive installation that creates an embodied user experience. In the following research stages an interactive visual narrative is developed in the social context of a Shuar ritualistic performance. Subsequently, prototyping is applied as a research technique for the development of work that incorporates the collaboration from Shuar representatives and their feedback from user testing sessions.

2.2.1 Visual and Sensory Ethnography

At this point in the ethnographic research process, collected secondary source data from indigenous published sources became a powerful written testimonial of the

Shuar culture as the ethnographic subject in this project. Ana Isabel Alfonso, Laszlo Kurti, & Sarah Pink (2004) consider the use of filmic anthropology as a gateway for ethnographic research that allows a non-invasive observation of the community in their environment: "… using a camera can help us especially to think about how others see the world, and about how the world is framed for us…". (p. 14). This last statement, leads to a new challenge: finding ethnographic film material on the *Uwi Ijiamtamu* ritual that has been documented in a valuable cultural context.

As an indigenous Ecuadorian cultural expression, this ritual has been documented by governmental entities for media coverage of different indigenous Ecuadorian communities and for educational purposes as well. That is the case of the documentary *Fiesta de la Chonta Documental* (TVCulturayPatrimonio Ecuador, 2015) which summarizes insights of the *Uwi Ijiamtamu* ritual in a fourteen minute film. The documentary is narrated in Spanish and presents a series of short interviews in which indigenous representatives explain the different events that take place during the day of the ritual from the community's preparations early in the morning until the distribution of the *chicha* beverage at night. It features the different social activities during the day, such as music and dance performances, food festivals and contests within the community. However, while the documentary is a useful reference for the ritual, the narrative's perspective comes from a touristic point of view rather than documentation of the ritual from the participant's point of view. The documentary avoids mentioning several events that take place during the celebration, and instead, tries to present an idea of how tourists could participate in different activities during the day of the ritual while visiting the Morona Santiago province.

Even if this documentary offers some useful information on the ritual, a more in-depth perspective is necessary to observe the ritual and gain valuable ethnographic knowledge. This approach is what Alfonso et al. (2004) define as a social appreciation of skilled vision: "anthropology should indeed strive to 'see the world through the eyes of the native'" (p.24). To achieve this it was necessary to find other ethnographic video resources that would be solely narrated by Shuar people. The documentary television series episode *Fiesta de la Chonta San Luis de Inimkis*, produced by the local TV channel Telesangay in Morona Santiago, is an hour long video which is entirely narrated in the Shuar language in a number of interviews with participants in the *Uwi Ijiamtamu* ritual in the Sevilla Don Bosco parish where the Shuar community of San Luis de Inimkis performs the celebration every year.

Unlike the *Fiesta de la Chonta* (TVCulturayPatrimonio Ecuador, 2015), the episode *Fiesta de la Chonta San Luis de Inimkis* of the television series *Especiales de Telesangay* is meant for a different audience because it was shot in the Sevilla Don Bosco parish in Morona Santiago and was broadcast locally in 2012. The video gives different insights into the social and spiritual meaning of this ritual. The decolonized ethnographic value of this material resides in the fact that it was produced by a local TV channel for both indigenous and non-indigenous audiences, and that it privileges the participation of the members of the San Luis de Inimkis community, where the Shuar elders explain and show every step of the ritual while it is being performed.

Considering that this is a celebration that takes place over an entire day, the video tries to cover the most important parts of the celebration, starting from the harvesting and preparation of the beverage, including detailed visuals of the production of the process

until the final dance performance to brew the *chicha* beverage. The participants in the *Uwi Ijiamtamu* ritual create their own narrative as they follow the steps of the ritual and share their knowledge directly to the camera, embracing technology on their own terms, a key concept of visual sovereignty for aboriginal self-representation.

To develop an outcome that asserts Shuar audiovisual sovereignty, sensory ethnography is considered for the conceptual adaptation of the *Uwi Ijiamtamu* ritual using sensory input in the creation of an embodied experience. Sarah Pink (2009) defines sensory ethnography as a critical methodology to gain a deeper understanding of knowledge through a reflexive and experiential process (p.8). In this project sensorial ethnography is considered not as a method to collect data but as an ethnographic practice that analyzes and represents Shuar cosmovision according to the significance this knowledge has for this indigenous community through a first person experience. This approach is intended to culminate in an abstract audiovisual representation of the *Uwi Ijiamtamu* ritual that provides a specific embodied knowledge in a Shuar social context, through sensorial information and body performance.

Chapter 3. Shuar Culture and History

This section offers to a cultural and historical overview of the Shuar community, synthesizing ethnographic sources previously referenced along with the stories shared by the elders during the focus group conducted by Mr. Nawech. It focuses on the significance of the *Uwi Ijiamtamu* celebration as cultural expression to build a framework for subsequent development of the interactive installation. Indigenous Ecuadorians comprise 25% of the indigenous population that occupy the Highlands and the Amazon regions in Ecuador. There are approximately 68 different Shuar communities mostly located in the Morona Santiago province in the southeast area of Ecuador, but some small Shuar communities also inhabit areas of northern Peru. As one of the First Nations of Ecuador, their heritage has substantial influence in the country's multicultural society. The Shuar are known as an ancestral community of fierce warriors who have fought for the respect of their land and traditions for centuries, a struggle they face to this day. Despite believing in peace and equality, the Shuar believe in preservation of balance with their land, a divine gift that withholds a magical reality that manifests in their unyielding spirit of war, their traditions, and their rituals.

3.1 The Shuar Community Today

Since before the times of the Spanish colonization, the Shuar indigenous people have been known to inhabit the Ecuadorian Amazon. They started as a nomadic group who finally settled in the rainforest region of southeastern Ecuador and part of northern Peru. They have stood against a number of Inca and Spanish incursions since before the

sixteenth century and have achieved a rather peaceful coexistence with colonizers since the twentieth century. They are considered as part of the Jivaroan indigenous peoples of the Amazon, because they would engage in head-hunting raids during conquest wars.

Figure 4. Shuar children (Chumpi, 2012).

According to Piedad Peñaherrera de Costales & Alfredo Costales Samaniego (2006) the Shuar were known by the Spanish colonizers as *jíbaros.* The name is considered by the Shuar to be a disrespectful deformation of the Shuar language used by Spanish colonizers for centuries. The Shuar community on the other hand, consider themselves a group of modern warriors who mostly engage on hunting and farming activities. The young are raised to become strong, autonomous individuals who are aware of their duties as members of a family, and part of an ancestral society (Figure 4).

Despite the fact that some Shuar have turned to Catholic beliefs, it is estimated that at least 40% of marriages are polygamous, a common practice that is considered as a sign of power and respect for the man as an adept head of his household. As members of a family, the role of Shuar men as main providers and women as housekeepers and

mothers may seem quite evident, but on a social level, their responsibilities go beyond that, as both men and women share the same power in decision making for their community. According to their beliefs, the male Shuar as a warrior has great consideration for women, as the female presence is a symbol of abundance and fertility. When both reach old age, they are treated as the carriers of wisdom. In their position of elders, men and women partake in different celebrations, passing on their knowledge and traditional ways to the younger generations.

"Equality for us refers not only to the material dimension. It includes the right of every person to choose diversity and learn about their own differences" (Chumpi, 2012, p.49). In more current times, the Shuar have stood up against nationalization campaigns of the Ecuadorian state, the mining industry, oil companies and catholic missions since the nineteenth century. Salesian missions have been present in the province of Morona Santiago since 1893. Nonetheless, the evangelization process of the Shuar people was never entirely successful, and what started as a missionization enterprise transformed into a cultural association. The unconquerable Shuar imposed over the catholic missionaries making them respect their culture and changing their relations with the community completely: It's important to point out the transformation the Salesians experienced in their perception of the Shuar population, that would lead them to develop an special sensitivity to indigenous organizations since the last third of the twentieth century (Chumpi, 2012, p. 33).

Since the creation of the Shuar Federation and other internal indigenous organizations in 1969, there is now an official channel for the understanding between the Shuar and non-indigenous organizations. But before its creation, Perkins & Chumpi

(2001) mention that the Shuar community were forced to change significantly due to the negative predominance of colonialism. People were forced to leave aside their traditional ways, become familiar with new social organizations and technologies, and face the threatening exploitation of their ancestral land for profit. As one of Ecuador's First Nations, the Shuar have been forced to adapt to different circumstances, leading to the biggest dilemma they face: achieving a fair balance between their ancestral ways and the influence of Western societies.

A fight for the rights of nature is not only a struggle of the Shuar community for centuries. It is a change of ideology embraced by the Ecuadorian government that considers the importance of motivating and protecting the rights of those who promote, respect and defend nature from serious environmental impact. This is stated in the Ecuadorian Constitution's Rights for Nature: "The State will motivate natural and juridical persons as well as collectives to protect nature; it will promote respect towards all the elements that form an ecosystem" (chapter 7, art. 71). Sadly, these fundamental rights are currently compromised by recent events involving the Shuar community of Nankints in Morona Santiago and the Chinese mining corporation ExplorCobres S.A. (EXSA) when on November 21, 2016 members of the Shuar community invaded the camp in this area. Shuar and other peasant people who lived in the area claimed that the mining company invaded their homes and ancestral lands on August 16, 2016, evicting them and denying their rights as aboriginal owners. This led to a violent confrontation between members of the community of Nankints and military forces which has affected the Morona Santiago province for months. According to Bryan Van Hulst (2016) this dispute has resulted in further violent confrontations and the deaths of members both

from the Shuar community and the Police forces. Government authorities have expressed their concern for these events, including Ecuador's president Rafael Correa who has decreed a state of emergency of 30 days in Morona Santiago on December 16, 2016. According to Minka Urbana (2017) this decision was taken by the Ecuadorian government to ensure the safety of the people in the province, but instead it resulted in the displacement of more peasant communities who found themselves homeless and their land turned into militarized areas. Unfortunately, the local indigenous representatives and members of the government along with EXSA haven't reached any sort of negotiation process to date. Meanwhile, a final settlement for the Shuar people's fight to keep their ancestral territory free from exploitation and environmental damage still remains uncertain.

3.2 Shuar Cosmovision

The Shuar believe that each person is the carrier of a message, their intelligence must be cultivated from the time they are born towards a healthy and peaceful social coexistence with others. Allegories, tales and metaphors are used as a resource to explain their world and keep alive the strong bond between the real and spiritual wisdom. Storytelling becomes their connection with the divine essence of their reality as guardians of the jungle. According to the Shuar cosmovision, the world is an island surrounded by heaven. Encalada (2010) describes the world as divided into three different planes: the subterranean plane, the earthly along with the sub-aquatic plane and the heavenly plane. The Shuar believe the sun and the moon are heavenly brothers called *Etsa* and *Nantu*

respectively. They inhabit the heavens which are connected to the earth by a trailing plant that climbs up to the sky as a connection between Gods and men. In the earthly plane, there's a significant influence of animals and plants, creatures of the rainforest like the anaconda who connect the earthly and the sub-aquatic planes, but others like the jaguar are also a representation of divine power. In the beginning of time, the Shuar were able to take the form and absorb the energy of different animals and plants to cleanse their wrongdoings.

One of the most meaningful moments for the Shuar man is the encounter with the *Arutam*, an almighty spirit that lives in waterfalls and protects the people. Its importance in the Shuar cosmovision is essential for these warriors: "*Arutam* is a power that can be used for good or evil. Yes, it can hurt others. We live by its power. Without *Arutam* we could not survive so long" (Perkins & Chumpi, 2001, p. 63). The presence of the *Arutam* takes the form of a storm, and it's the warrior's choice to seek his power by fighting the monsters he may encounter in it. If the warrior is brave enough to face all these adversities, he will be granted the power of the *Arutam* and he will live a long life. The first reincarnation of the *Arutam* was in a warrior called *Ayumpum* who is considered the bravest Shuar warrior that ever lived. This warrior was killed during a battle and his head was shrunk into a *tsantsa*. However, he was later resurrected by the thunder and lightning, becoming a powerful protector of the Shuar.

The Shuar are one of the indigenous communities that are known for their head shrinking practices, heads which are kept as a trophy from their defeated enemies. Nonetheless, the meaning behind the *tsantsa* is more a symbol of wisdom than a war totem. On this matter, Franklin Barriga (1984) mentions that the importance of the head

shrinking practices go beyond that of popular knowledge. The warrior that kills his enemy, takes his spirit the moment he cuts his head off and shrinks it. The Shuar firmly believe that the warrior who has killed many adversaries and shrunk their heads may eventually become invincible and almost immortal (p.81). The *tsantsa* is still considered a symbol of wisdom today, the shrunken head is not human anymore, but now the head shrinking process is done to the head of an animal, usually a jaguar or sloth which is still acknowledged in very special ceremonies (Perkins & Chumpi, 2001, p. 66).

The Shuar consider that the *Uwí* or the *chonta* palm tree is the source of all life. Its divinity is brought to the people by their most beloved fruit the *chonta* which ripens every twelve months. But more than a tree, the *Uwí* is known as a powerful entity that can bring life to plants, fruits and animals preventing death and starvation. The relevance of this fruit can be clearly evidenced in the *Uwi Ijiamtamu* ritual, a celebration that reenacts a symbolism of life and energy performed carefully and ceremoniously: "…people create rhythms, sing songs until it grows, interpreting the chonta growth, how it gets its colour, when they harvest it, prepare and taste the *chicha*" (Nawech, personal communication, October 28, 2016). This traditional story becomes a ritualistic performance in which the Shuar summons the *Uwi* spirit, the numerous chants and music become prayers and the process for the final fermentation of the beverage signifies the presence of the entity and its satisfaction with the ritual. If the *Uwi* has been pleased with this performance, his presence will avoid any curses to the community that could take away their souls and bring them disgraces and death because the people who drink from the *chicha* beverage receive the strength from the *Uwi* by drinking its vital force. On the contrary, if the beverage doesn't ferment and it spoils, the *Uwi* is dissatisfied with the

ritual and it implies the beginning of great misfortunes for the community, a strong belief that has defined the Shuar lifestyle for centuries.

3.3 The Uwi Ijiamtamu Ritual

A core research question involves the possibility of adapting the visual and narrative symbolism of the *Uwi Ijiamtamu* ritual for a digital interactive adaptation. Considering the close connection between traditional oral stories and the Shuar celebrations, previous research on this celebration indicates the ritual has great significance in the Shuar belief system. This ancestral festivity joins the members of the Shuar people every year in a ritual originated from ancient stories and practices of purification, fasting, and abstinence to produce fertility and good fortune for the upcoming year, the starting point of a new life cycle for this community.

The celebration starts with each member of the community wearing their traditional garments and painting their faces with the *achiote* seed to partake in the preparation of a special beverage from the *chonta* fruit known as *chicha de chonta*. According to Perkins & Chumpi (2001) *chicha* is an essential part of the Shuar culture: "If you want to learn about our ceremonies, then you have to understand about *chicha*. It is most important for our beautiful ceremonies. In fact, *chicha* is our most sacred food and also the one we drink more than any other" (p.106).

Figure 5. Harvesting the fruit from the chonta palm tree (TvCulturayPatrimonio Ecuador, 2015).

On the day of the celebration, members of the community start preparations early in the morning; men and women wash themselves and wear their traditional garments. Before harvesting the fruits from the *chonta* tree (Figure 5), they drink *guayusa*, a herbal infusion with energetic properties, which cleanses their body and spirit by inducing vomiting. According to TvCulturayPatrimonio Ecuador (2015), drinking this herbal infusion is an ancestral tradition that purifies the body. It is also given to young children from the time they are born, to wash away idleness and give the child the strength and energy that will help them become hard workers later in life.

Once the people drink this infusion and purify themselves, they start with the preparation of the *chicha de chonta*, the main element of this celebration. The *chicha* preparation process is very meticulous and consists of a number of specific steps that must be carefully followed in perfect sequence in order to avoid any kind of negative impact to the community. According to Nawech (personal communication, October 28, 2016) a specific member of the community leads the entire process; this member is known as a guide or *Uwi Namperan Jate.* The person who guides the process is usually mistaken as a shaman, but according to the Shuar the term is incorrect. This elder guide is

highly respected among community members as a teacher who instructs the participants during every step of the ritual and ensures it is performed properly during the entire day.

The preparation of the beverage begins when the members of the community prepare the harvested *chonta* fruit. The fruit is washed, peeled and chewed by the most respected elder members of the community, the resulting mix is deposited in clay jars for the ritual to begin. The most important part of the ritual begins when the members of the community seal the *chicha* in the clay jars and leave it to ferment for a few hours at the center of the celebration space. Meanwhile, a sacred dance and chants are performed continuously by community members for a period of five to six hours until midnight. This process of fermentation results from the resonance of the dancers feet on the ground as they move around the *chicha* jars (personal communication, October 28, 2016).

The fermentation state of the beverage determines how successful the ritual has been. If the *chicha* ferments without getting spoiled, the ritual was performed correctly and it indicates that the *Uwi* entity has been properly summoned by the members of the community and its vital energy is contained inside the *chicha*. According to the Shuar cosmovision, Barriga (1984) states that towards the end of the ritual, members of the community absorb the energy from the *Uwi* by killing it when they drink the *chicha*, receiving the *Uwi*'s divine gift of life and fertility.

Towards the end of the celebration, members throw a spear into a log, implicating prosperity for the following year and casting away any evil spirits that may be present. Finally, the ritual concludes when the *chicha* is distributed to all the members of the community, the *chicha* is considered at this point a sacred beverage that must be consumed in its entirety. Its power is so considerable that the drink is only meant to touch

the lips of the members of the community and it mustn't be wasted or spilled under any circumstance.

For centuries, the *Uwi Ijiamtamu* ritual has prevailed as a powerful tangible manifestation of a spiritual heritage. Its importance for the Shuar people is so considerable that even though this ritual has been forbidden numerous times in the past, the community has refused to stop performing it every year, since it is the ritual that keeps them alive and prosperous (Chumpi, 2012).

3.4 Shuar Storytelling Recollection

Smith (1999) suggests: "story telling is a useful and culturally appropriate way of representing the 'diversities of truth' within which the story teller rather than the researcher retains control" (p.145). Traditional stories are individual testimonials and memories that identify indigenous peoples and empower a collective. Stories are also powerful expressions of a culture, giving a better understanding of a community's reality and the creative interpretations of their people from their perspective. This section includes a selection of traditional stories related to the *Uwi Ijiamtamu* ritual. They are spoken by Shuar people and empower their direct collaboration in the development of the digital interactive adaptation.

"Each year it was the most important product, the *Uwi*. And the most loved one. It was how the western people celebrate New Year's Eve. It's special. That was the *Uwi* for the Shuar. The closure of the year. It was like doing the New Year's Eve. Exercise,

celebrate that we have life. All that. That's what it was. And possibly drink what is sacred. "

"You don't spill it in the ground. And the children, at night, I remember when my father would do the celebration, even those who are sleeping in the house, the small ones had to drink it, so that they wouldn't be taken away, so that they don't die. "

"We all have to drink, all of us. That was all, that's why it was special. Like comparing it to New Year's Eve. Every year, they didn't forget. That's what it was."

"Time. The year. Every time the *chonta* tree ripens it is a year. Based on that they would count years and ages on children too."

"According to the story, it's been said that our ancestors believed that taking vacations or being lazy was something like misery. We only harvested *oritos* (mini bananas), but then the *Uwi* arrives like a strong wind." (personal communication, October 28, 2016).

Despite the severe transformations any community may have gone through as a result of colonialism, the essence of storytelling remains largely the same; an intangible yet powerful statement of pride, struggle, memories, and popular imagination that remains almost unaltered in the indigenous collective. Stories have been able to build identity from generation to generation, having a significant impact on the traditions of the

community. Unlike other cultural expressions, storytelling is an expression asserts indigenous community control over their culture, through enactment.

The Shuar historical and cultural analysis deployed in this section was developed using the decolonizing methodologies stated in previous sections to analyze the relevance of the *Uwi Ijiamtamu* ritual in accordance with the project's research questions. This section presented information obtained from Shuar resources in collaboration with representatives of this community. The most essential contribution for the development of this project was the oral stories provided by the Shuar elders in the focus group. These testimonials show the powerful effect of this celebration in the Shuar community, define a clear sequence of events that take place during the ritual and explain the spiritual significance behind them. This information on the *Uwi Ijiamtamu* ritual is key in following research stages for the adaptation of this knowledge to a digital media application.

Chapter 4. Digital Forays into Cultural Heritage

To advance the core set of research questions outlined at the outset of the paper, this section considers the most appropriate technological approach to create an adaptation of Shuar intangible cultural expressions. Every aspect of this analysis was done in conjunction with the information obtained from the Shuar community and the *Uwi Ijiamtamu* ritual described in previous sections.

This project is based on the Shuar intent to create new and deeper connections with Western societies through understanding of greater and more meaningful realities within their physical world. Therefore, the concept of mixed reality is relevant to bringing together virtual objects in a physical environment interaction. The use of digital imagery and motion sensing technologies is considered to develop a semi-immersive experience that can recreate the performativity of the act of storytelling and adapt its transcendent elements to an abstract audiovisual representation in a mixed reality environment.

4.1 Interactive Body Performances

"Interactive art can concentrate and ask us to virtually feel our existing practices as they are practiced, and provoke us to engage with what those practices imply" (Stern, 2013, p.1133).

Performativity and embodiment are essential to create an AR environment that generates user interaction through audiovisual input. This project considers stimulating a user's perception of space by creating what Massumi and Nathaniel Stern (2013) describe as a lived abstraction: "We bring to vision all our present and past experiences of embodied sensemaking to abstract and understand what we are looking at" (p. 515).

According to Stern (2013) experiencing art is: “always an embodied, multisensory and relational activity, a small and indivisible part of sensation as a whole” (p.531). In this new storytelling experience through performance, a participant’s physically interactive experience is intended to trigger audiovisual elements that render the user an active participant inside the digital world.

To generate strong emotions from the user in a virtual environment, there must be a notion of real engagement through embodiment. If different physical actions such as jumping or walking can be perceived by the user through mimicry, it will create a feeling of presence and personal space inside the virtual world. “Placing your body [the avatar] in relation to another is the only real form of body language. It speaks to familiarity, to intimacy, to trust…to many things” (Taylor, 2002, p. 169). A participant’s representation of self in an interactive installation becomes an artistic, social and cultural expression. The experience is similar to a provocative role-playing experience in which the physical and the virtual come together for the creation of new cultural meanings and awareness of indigenous knowledge.

4.2 Interactive Technologies

Based on the analysis on the *Uwi Ijiamtamu* ritual and Shuar oral traditions, it could be determined that Shuar cosmovision and cultural expressions are deeply influenced by the land they live in. As mentioned by Nawech, the *Uwi Ijiamtamu* ritual is an enactment of events of significant spiritual meaning: The special festivity of the *chonta* starts by recreating it since the seed is planted and prepared, then how it’s cultivated, people create rhythms, sing songs until it grows, interpreting the *chonta’s*

growth, how it gets its colour, when they harvest it, prepare and taste the *chicha* (personal communication, October 28, 2016). This section analyzes Augmented Reality as a suitable interactive digital media platform to recreate the *Uwi Ijiamtamu* ritual.

4.2.1 Augmented Reality

Brogni et al. (1999) state that Augmented Reality (AR) is one of the most powerful areas of Virtual Reality (VR), integrating virtual objects that enhance a user's view of the real world. AR is meant to amplify the way a real world is experienced by adding extra information in virtual form. Unlike Virtual Reality, AR is not entirely immersive; instead it creates a bond between the user and the surrounding reality by giving the individual a constant sense of presence in the real world.

To understand the difference between AR and VR, and their different levels of immersion, Paul Milgram & Fumio Kishino (1994) mapped a Mixed Reality Continuum:

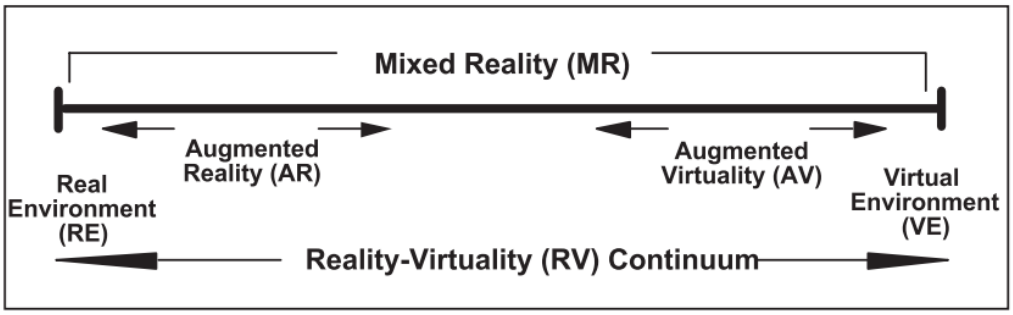

Figure 6. The Mixed Reality Continuum (Milgram & Kishino, 1994).

According to this taxonomy (Figure 6), Augmented Reality occupies a place between a Real Environment (RE) and a Virtual Environment (VR), but with a clear preponderance of the Real Environment over the Virtual Environment.

The main events of the *Uwi Ijiamtamu* ritual can be potentially adapted to AR technology, considering the predominance of the real world over a virtual environment in AR. Members of the Shuar community are in essence storytellers who enact the narrative from the oral traditions in a physical performance. This enactment of events in a performance is the foundation of the *Uwi Ijiamtamu* ritual, in essence an enactment of fertility. With the use of AR technology, this concept of performance can be recreated as the interaction that joins together Real Environment with a Virtual Environment through through physical performance and abstract imagery and audio adapted from the main concepts of Shuar storytelling.

4.2.1.1 Case Study: Virtual Tourism

In Virtual tourism, Yikai Zhang (2016) proposes the preservation of Chinese cultural patrimony that faces disappearance and decay. The author considers the use of digital media such as 3D modeling and both Virtual and Augmented Reality as new ways of preserving the Chinese architectonic heritage. Part of his research was to determine and describe the primary historical and economic causes that are seriously affecting conservation. He presented a number of case studies which are well supported and documented with detailed photographs that show the current poor condition of many Chinese historical buildings due to factors such as human negligence.

The author focuses on the main research hypothesis which is the use of digital technology to preserve ancient buildings from disappearance by the creation of digital archives that closely reproduce the actual cultural heritage. The advantage of digital

archives is that these can be easily stored and kept for educational or touristic purposes even after these historical buildings cease to exist.

Using methods such as Photogrammetry, Zhang explains how technology such as scanners, drones, sensors and cameras work for the creation of a model whether it is for 3D architectonic spaces, art pieces, geology or even living models. With Pix4D software, Zhang created a geometric model based on the data he obtained from scanning the historical building for an AR application. After following a process of rendering a proper model using 3D software, he was able to make an AR prototype of this model using Vuforia SDK (Figure 7). Users were able to see this model in an AR environment using Google Cardboard.

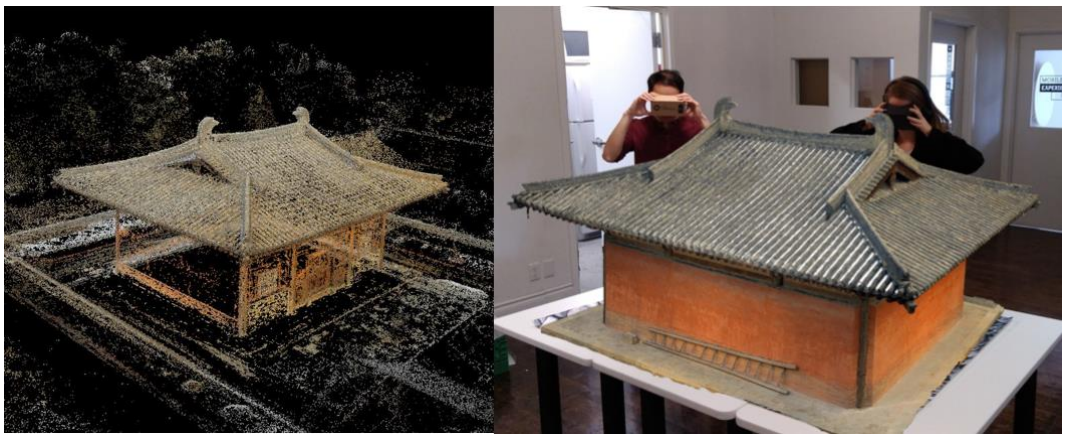

Figure 7. Scanned historical building for AR application (Zhang, 2016).

Zhang's project is an exemplary approach for the preservation of cultural heritage, and other projects that can digitally preserve Chinese buildings facing decay. A research that supports the use of AR and VR technologies, which can also be applied for the preservation of many other cultural expressions that require better documentation, innovative means of preservation, adaptation and reintroduction to modern societies.

Zhang's project demonstrates the flexibility of digital applications for the adaptation and preservation of cultural heritage that faces imminent disappearance. The AR digital application developed in this project could portray the complexity of the abstract concepts of Shuar cosmovision.

4.2.1.2 Case Study: Anthropological Conversations

In Anthropological Conversations, the main objective was to help users learn about *Minsiki* artifacts from Congo. The *nsiki* is a little wooden statue with significant spiritual meaning which was visually enhanced with the use of 3D feature recognition systems scans. Following an ethnographic research approach that encouraged learning through collaboration, this project considered the cultural connotations of the *nkisis* as ritualistic objects used for healing, physical strength, protection and spirituality.

The working prototype consisted in a PC feature recognition system that could read the *nkisi* that was placed in front of the camera. It would display information on specific areas of the artifact and also allow users to select different areas and add information about their cultural value (Figure 8). This information was displayed as part of an AR prototype using a Content Manage System (CMS).

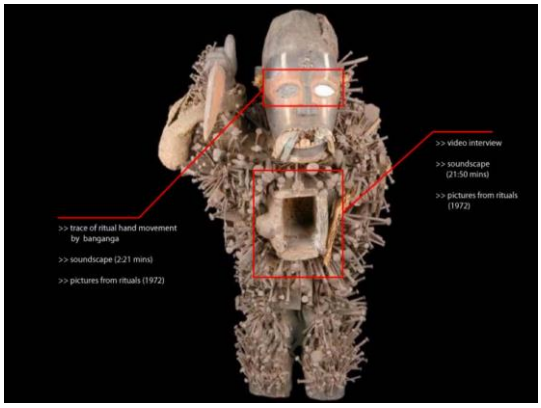

Figure 8. Nsiki artifact and areas for content management (Simeone & Iaconesi, 2011).

From a post-colonial approach, the Anthropological Conversations project allowed users to interact and explore different sacred objects to learn more about their cultural meaning. In relation to this project, Anthropological Conversations enhances the value behind an artefact by enhancing the cultural meaning through storytelling and collaboration. And more importantly, the project creates a dynamic learning process by placing the stories behind each artefact in a real context using an AR digital platform.

4.2.2 Motion Sensor Technologies

One of the challenges that a project developing this kind of user interactivity must consider is the creation of a continuous level of immersion using real-time tracking devices to trigger sensorial stimuli. Brogni et al. (1999) define successful immersion: "The reproduction fidelity is the quality with which the synthetising display is able to reproduce the actual or intended images of the objects being displayed". (p.2). As outlined in Figure 9 an application of AR technology for this project would consist of 3 main components:

- **Camera:** it senses the different positions of the user in the real world space as he moves, allowing for a motion control of audio and visuals. A properly calibrated camera instantly detects different positions and motions in real time.
- **Graphic System:** integrates the readings from the camera sensors and creates the visual interaction the user sees on display using digital graphics that enhances the scene.
- **Merging System:** the tracked positions from the user in the real scenario will be shown through a screen display, projection or a glass wearable, using the visuals from the graphic system.

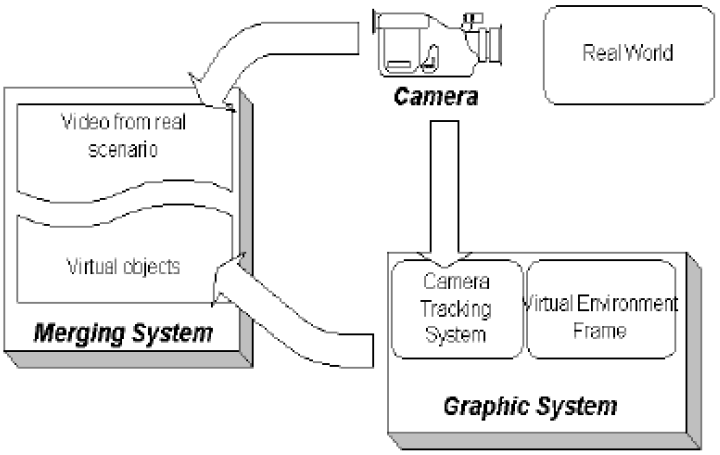

Figure 9. Basic AR system with real time tracking system (Brogni et al., 1999).

4.2.2.1 Case Study: Holoflector

Figure 10. Holoflector, interactive augmented-reality mirror (Microsoft Research, 2012).

Holoflector is a research project developed by Microsoft that consists of a translucent mirror with an LCD screen at the back. When a user stands in front it, computer generated imagery captured by a Kinect sensor above the translucent mirror is displayed on the LCD which is overlaid on to the user's reflection (Figure 10). Using an extra sensor on a smartphone, the Kinect is also able to read the location of the phone while the user is holding it.

One of the many uses this mirror has is improving human interaction with technology, by using the reflection of a user's gestures to create familiarity with the environment. In relation to this project, Kinect technology and computer generated imagery give a participant a sensation of presence within a virtual space. The concept of a mirrored interaction offers options to create a visual abstract adaptation of the *Uwi Ijiamtatu* ritual. Kinect technology can create position based interactions to generate an embodied experience in which the participant can interact with 3D visuals because it

tracks body position and displays a visual representation of the participant's gestures in a virtual environment.

4.2.2.2 Case Study: Augmented Mirror

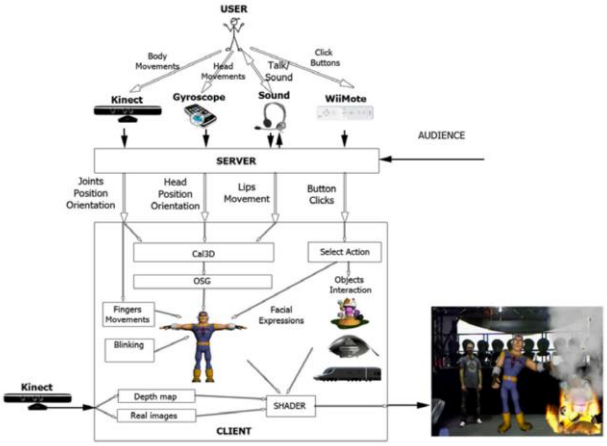

Figure 11. Basic project scheme (Vera et al., 2011).

This project, developed by the Robotics Institute in the University of Valencia in Spain, proposes a virtual character controlled in real time by user motion. In this prototype a Kinect sensor is used to track body movements to control the character, while other electronic devices control head position orientation and track lip movement allowing the character to talk in real time (Figure 11).

In this project, the Kinect sensor allowed the participant to have a realistic and fluid interaction with the avatar in a game environment that's overlaid on in physical world surroundings. In relation to this project, Augmented Mirror relates to the creation of an experience that allows participants to enhance their physical surroundings. Despite the fact that the project is intended for one participant, viewers also feel involved in the virtual environment because they can see themselves as part of it. This sensation of

constant presence and involvement can make participants feel part of a virtual experience within the visual and narrative context of the *Uwi Ijiamtamu* ritual.

At this point in the research process, a number of steps have been taken to address this project's research questions relating to a final outcome. The first steps involved finding appropriate post-colonial research methods to conduct research on Shuar culture. After going through an extensive analysis in collaboration with members of the Shuar community, it was possible to identify a suitable Shuar cultural expression to adapt to interactive digital technologies. In this next section, the main concepts developed in the study of the Shuar community are considered in relation to Augmented Reality technology.

Chapter 5. Design and Prototype Development Process

In relation to this project's research questions regarding a technological approach, the proposed Augmented Reality technologies for the creation of an audiovisual experience based on the *Uwi Ijiamtamu* ritual are implemented and tested in this chapter. First of all, it was important to determine the interaction space for a user's body performance using the Kinect sensor device. Subsequently, the main components of the *Uwi Ijiamtamu* ritual were adapted into a visual narrative comprised of three different stages of interaction. To create this narrative, sketches based on documentaries and photographs obtained from Shuar resources were used to define an abstract visual image of the ritual and the corresponding audio sequences for each narrative stage in the installation.

The final stages of development included implementing this audiovisual adaptation in different versions of a working prototype. The first demo version was tested in a small user testing session. A second demo version integrated feedback and suggestions received from the participants to develop a final version for exhibition.

5.1 Technological Resources and Facilities

This project's final outcome is an interactive installation that consists of a screen display of real time participant's movement in the exhibit space. The installation employs a digital graphic system environment using a motion sensor camera for two participants. The data obtained from the participants' motion triggers a set of different interactions with an audiovisual virtual world. Considering that the installation is intended for both

indigenous and non-indigenous participants, the space area for the installation needs to be an open space with the least amount of physical barriers to allow a simple fluid performance as shown in Figure 12.

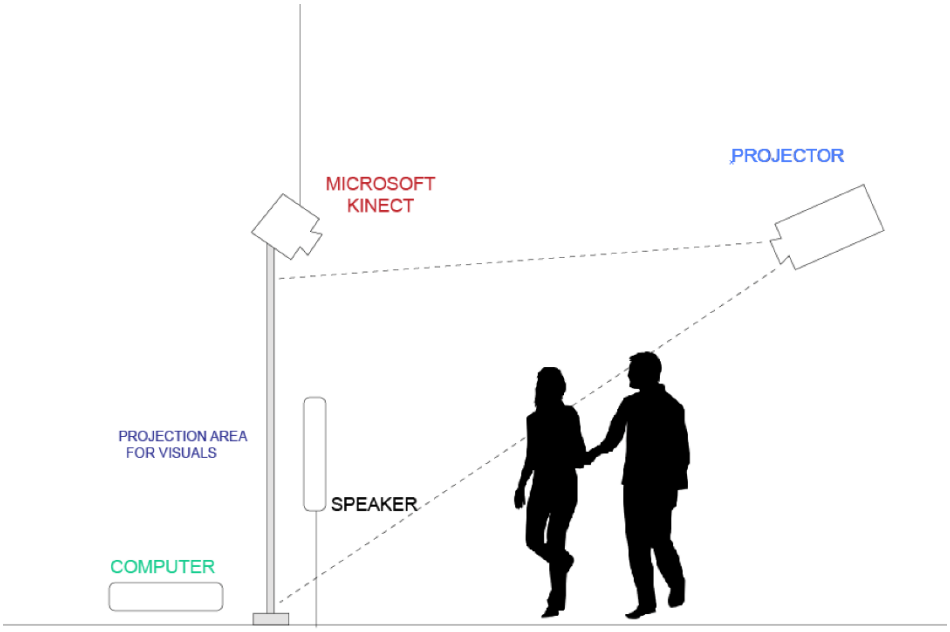

Figure 12. Basic Wireframe of Interactive Installation.

This allows users to experience a first person relation to an AR mimetic representation of themselves within the context of Shuar. To obtain a user's position data, a Kinect motion sensing device is connected to a main computer system.

The Kinect motion sensing device can detect depth of different objects within a space by using an infrared sensor that sets markers for every object in a physical space. The device triangulates the distance in which an object is located by creating an specific infrared speckle pattern that locates every angle of every object in front of it and detect

when the angle moves if the speckle pattern changes position. The Kinect camera has many different uses including 3D scanning of objects, avatar controller for games, physiotherapy, gesture and motion based interfaces, VR and AR interaction, and robotics. For this project, the Kinect device is programmed to track different participant positions using visual game development platforms for the creation of a graphic system, considering software such as Unity, Processing, Kinect SDK and Quartz Composer.

5.2 Visualizing the Narrative

"Culture can be one of the most compelling ways that a world can exceed a story and spark the kind of speculation and conjecture that brings a secondary world alive in the imagination" (Wolf, 2014, p.184).

The narrative for this project involves the summoning of the *Uwi* a powerful entity that represents fertility and strength. Adapting concepts from the Shuar cosmovision through the elements of this celebration required an analysis that balanced elements from the traditional stories and the main components of the ritual. Early steps in adaptation involved creating simple sketches to reference a basic representation of the possible visual elements in each stage of the narrative. Based on this work, the narrative for the prototype was divided into 3 main audiovisual transitions of interaction: Purification and Harvesting, Ritualistic Dance and Summoning the *Uwi*.

5.2.1 Transition 1: Purification and Harvesting

Figure 13. Uwi palm tree watercolor sketch.

The first stage of the *Uwi Ijiamtamu* ritual consists of an act of purification of the body and spirit of the participants for the preparation of the *chicha* beverage made from the *chontaduro* fruit from the *Uwi* tree.

The user interaction in this initial stage is a visual abstraction of the palm tree and a visual representation of two participants who are in a state of purification prior to the harvesting of the *chonta* fruit (Figure 13). To reenact this concept of purification, digital avatars change from darker to lighter colour tones. To make the participants familiar with the visuals displayed in front them, these avatars have a distinctive humanoid shape that mirrors the gestures of each participant. To complement this transition, audio from Shuar chants and traditional singing from the initial stages of the harvesting process and the processing of the *chonta* fruit are used to recreate the social environment, placing the user

in the context of the ritual. A visual representation of red fruit falling from the tree signifies the end of this transition through harvesting of the *chonta* fruit.

5.2.2 Transition 2: Ritualistic Dance

Figure 14. Ritualistic dance watercolor sketch.

The second transition of the ritual is a representation of the dance members of the community perform in circle around the processed fruit. This dance lasts for up to 6 hours during which the guide sings a number of sacred chants and prayers that follow a strict order and meaning.

In this stage of interaction, the visuals simulate this ritualistic dance with a visual representation of the energy of the *Uwi* being summoned at the center of a circle or aura (Figure 14). These auras represent the motion of the dancers around the *chicha* jars, which is also complemented by audio from Shuar chants, recordings of traditional stories in Shuar and sounds triggered with the movements of the participants that resemble the resonance produced by dancers' feet on the ground. The visual representation of energy

grows visibly with the user's motion, symbolizing the fermentation of the *chicha* and the presence of the *Uwi* entity.

5.2.3 Transition 3: Summoning the Uwi

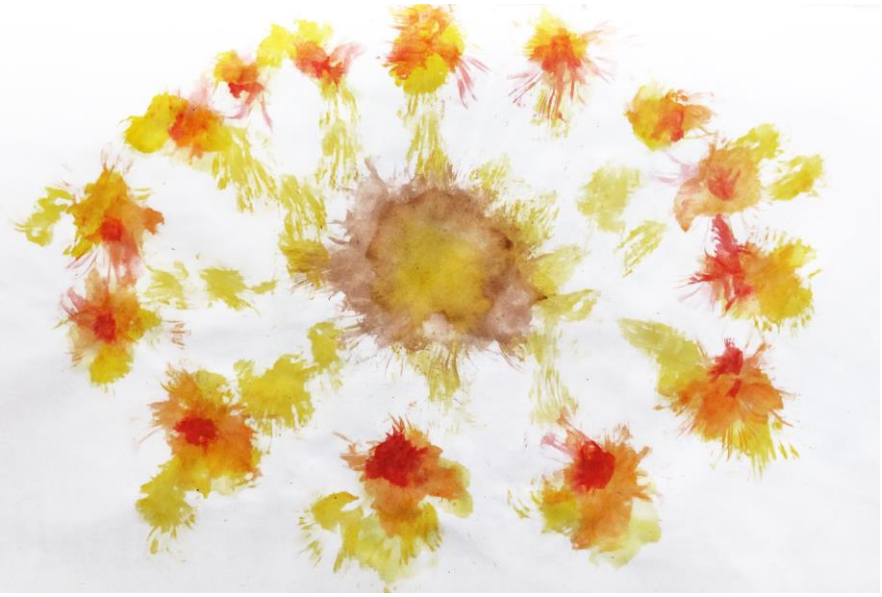

Figure 15. Distribution of the summoned Uwi energy watercolor sketch.

The third and final transition takes place when the *chicha* is ready and members of the community drink it, killing evil spirits and bringing prosperity for the year to come. In this stage, the representation of the *Uwi* energy seems to explode as this energy is distributed to the participants of the ritual who summon the *Uwi,* kill him and take his energy when they drink the *chicha*. Visuals resemble a disintegration of the energy that was formed during the second transition to the two participants symbolizing that they are receiving this power (Figure 15). This transition is complemented with audio recordings of chants provided by the guide and repeated by the participants in the ritual.

The oral stories, music and chants used in this interactive installation were provided by Mr. Nawech and feature the voices of the elders who participated in the focus group. Their oral stories are memories and testimonies of the significance of the ritual from the perspective of the Shuar people who enact the ritual today.

5.3 Prototype Development

Based on the initial sketches, digital particle systems were used to recreate a visual representation of energy for the three visual transitions outlined in the previous section. A particle system is composed of a series of small images which are reproduced an indefinite amount of times. Every particle is part of a system which emits them to conform a mesh that can have several behaviours and changes. Particle systems can be determined by the number of emissions, duration of the particles, and they can be personalized by size, color, gravity, shapes, transparency amongst other effects. All of these properties can be manipulated to represent different visuals such as fire, smoke or lightning.

5.3.1 Initial Iterations

Different software was considered to create a particle system which can be controlled through motion using a Kinect sensor. One of the very first tests with this technology was done using Quartz Composer.

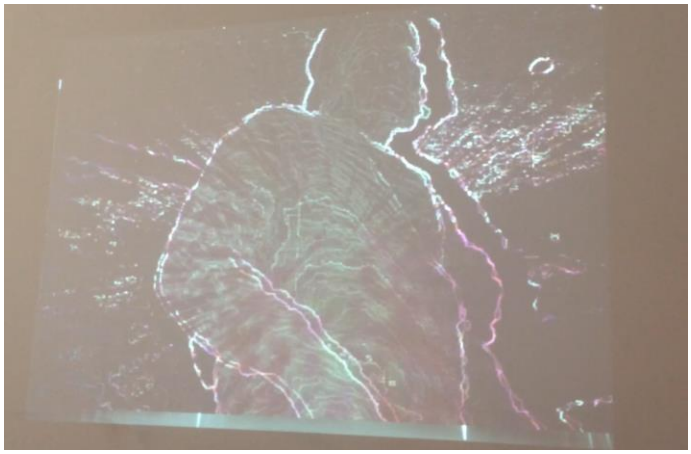

Figure 16. First test of Kinect sensor with Quartz Composer visuals.

The readings from the participant's gestures were customized in visuals that resembled particles (Figure 16). Unfortunately, the image quality and the customization options were too limited. Further testing was conducted using Processing to create multiple particle systems with very good initial visual results.

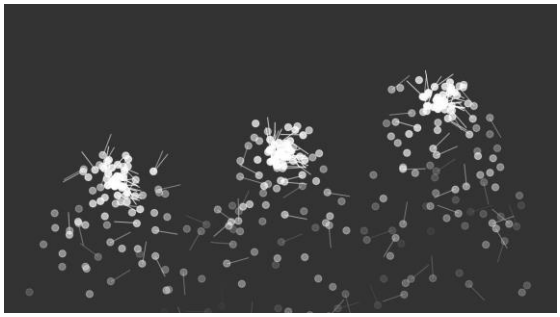

Figure 17. Multiple Particle Systems with Processing.

The software was able to create customized particle emissions which were more fluid and dynamic (Figure 17). Unfortunately, testing these particle systems for interactivity using a Kinect sensor was quite troublesome, the rendering of these systems was slow and a fluid interactivity was not possible.

The next option was creating particle systems using Unity as a development platform. Using this software was easier to create and customize different particle systems and program them for different behaviours and user interactions. Unity allowed for importing 3D objects from external modeling software and include them in a Unity project as assets for programming.

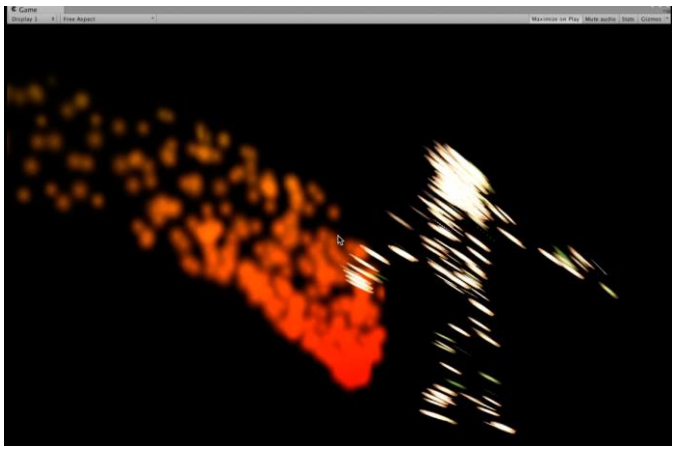

Figure 18. Multiple Particle Systems with Unity3D.

The first iterations using this platform had really good results. The first 3D objects skinned with particle systems were human forms that were successfully tested with the Kinect camera. Using Unity3D, Kinect SDK and Kinect sensor for Xbox One, motion sequences were fluid (Figure 18) and each of the movements were displayed in real-time, achieving the desired result. Also, using this platform made it easier to program more complex particle systems and test different means of participant's interaction with the Kinect sensor.

5.3.2 Visual Development

To create each one of the three transitions of the rituals, the main elements were modeled based on original watercolour sketches. Each transition went through a specific visual process to get the final aesthetics of each particle system (Appendix G). For the first transition, the scene consisted of three main 3D objects: two human-like abstractions through which the participants can interact through body performance, and a visual abstraction of the *Uwi* palm tree.

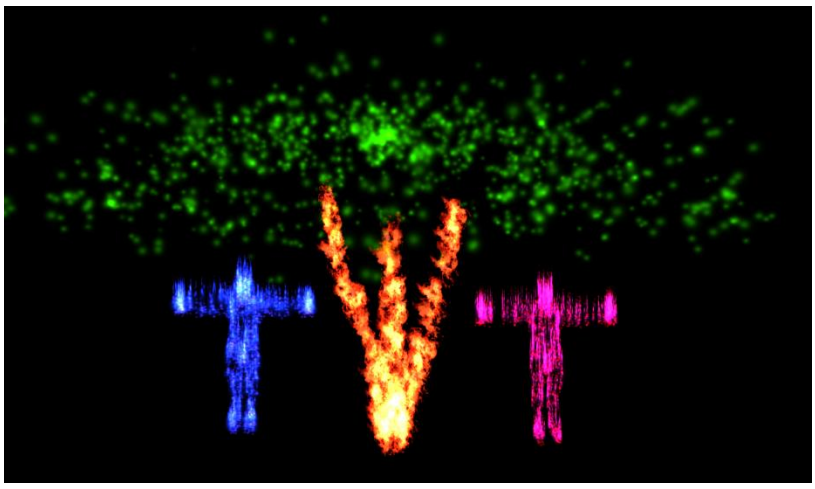

Figure 19. Final version of Particle Systems of transition 1 with Unity3D.

Considering that this is the first transition of the narrative, it was important to create visual abstractions that the user could be familiarized with. Specifically for body performance, it was imperative that the user's particle systems would clearly resemble a human body to help the participants become familiarized with their presence and make use of these abstract avatars (Figure 19).

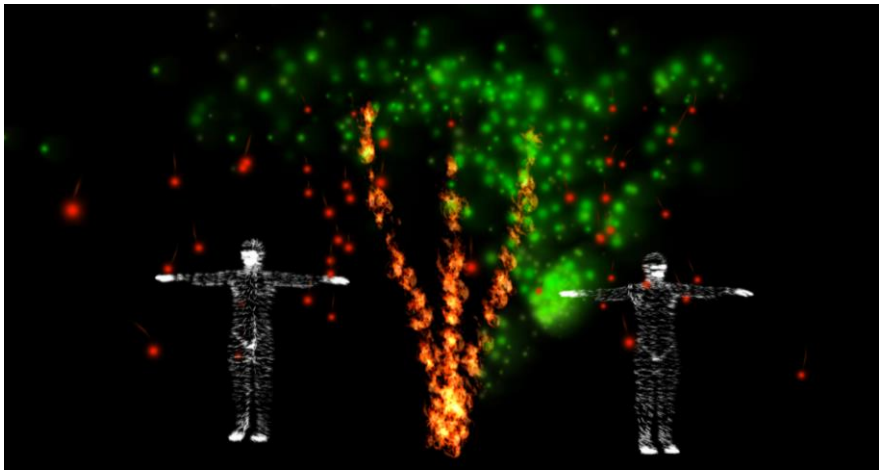

Figure 20. Red Particle Systems resemble fruits from the Uwi tree during transition 1.

The conclusion of this transition is a representation of the *chonta* fruit falling from the *Uwi* palm tree (Figure 20). This is achieved once the human particle system has reached a state of purification in which the colour of the particles turns to white (Figure 21).

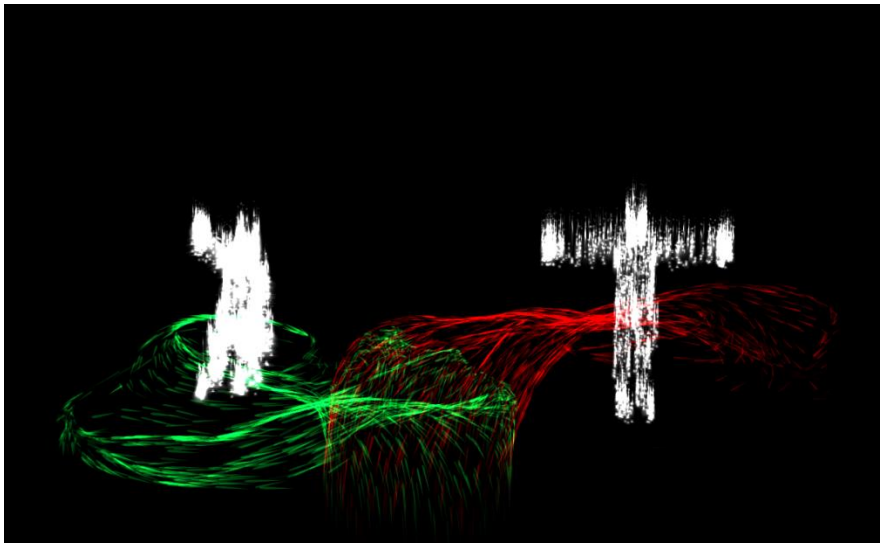

Figure 21. Human avatars into swirling auras of particle systems.

For the second and third transitions, the human-like particle system integrate into two different auras that swirl around an energy sphere which represents the summoned energy that grows through dancing performance.

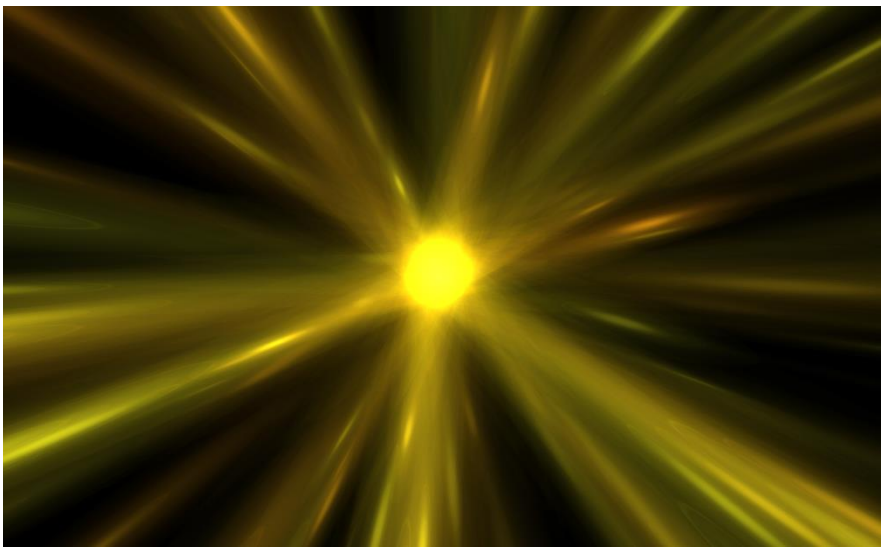

Figure 22. Energy sphere at the center of swirling aura grows triggered by motion.

By the end of the interaction, the energy sphere grows considerably and eventually disintegrates into a number of exploding particles that symbolize the distribution of the *Uwi* energy (Figure 22).

5.3.3 Prototype Version 1

The first version of the prototype was developed using Unity 3D and Kinect SDK to track participant's motion with the visual abstractions of the first transition of the narrative (Figure 23).

Figure 23. Initial User testing for Transition 1.

The prototype was tested numerous times, and it was optimized to be used by 2 participants (Figure 24).

Figure 24. Second session of user testing with 2 participants using a projection for display.

The feedback from the user testing with 2 participants was useful to understand how the users would behave during the interaction. It was important to analyze how two participants interact with each other while generating a response on the AR system. In this version of the prototype, participants were able to interact with their humanoid

representations, change their appearance with their movements and trigger the events that lead to the second transition of the narrative. At this point, it was important to use sounds to create a more immersive environment and generate a connection with the Shuar culture and the different events which are portrayed in every transition. Sounds of rainforest environments, musical instruments such as guitars and pan flutes were used as ambient sounds, while specific chants and narrations on Shuar language were incorporated at specific times during the interaction.

5.3.4 Prototype Version 2

Based on the feedback provided by participants in the first user testing session, the visuals of the prototype were improved and developed for the three transitions of the narrative using camera movements and new audio tracks for ambient sounds.

Figure 25. Third session of user testing with 2 participants using a projection for display.

In a third user testing session, participants were able to interact with the prototype in a projection of the visuals (Figure 25). This version of the prototype allowed participants to interact with the visual elements projected in front of them but no

interaction between each other was developed. Their comments on the interaction were mostly positive stating that interacting in a digital environment with an abstract representation of themselves was engaging from the start. Participants also suggested that there should be some way in which their representations can interact with each other. A final comment was that the sound should be improved for a final prototype version and the motion triggered sounds should be more evident.

5.3.5 Prototype Version 3

Initially, a third version of the prototype was meant to be developed for the final exhibition to create an interactive storytelling experience in collaboration with Shuar people. This version unfortunately could not be completed as planned. By the time the second version of the prototype was finished, since early December 2016, communication attempts with Mr. Gonzalo Nawech and Mr. Juan Francisco Cevallos were unsuccessful.

The situation between the community of Nankints, a neighbouring community to the San Luis de Inimkis community, and government authorities, working with the EXSA mining company, turned the peaceful Shuar community into an area of conflict. A great number of Shuar people were evicted from their land and it was for elected representatives, such as my primary contact Mr. Nawech, to focus on the wellbeing of the communities involved. In a last communication, Mr. Cevallos expressed the unavailability of Mr. Nawech and other members of the community to continue with their participation in the project despite their interest. But more importantly, Shuar

representatives also expressed their wishes to participate in a more complete collaboration in the future once the socio-political situation in the province stabilizes.

Considering the nature of this project as a decolonizing research process, this unanticipated turn of events disrupted its initial intent. The plan for this instantiation of the created work was to travel to the community and present this version of the prototype to members of the community for their reactions and interactions. The feedback obtained from this collaboration was intended to develop the final prototype in collaboration with them and to fully integrate their experiences of the project and its representation of their rituals.

As a modern indigenous community, the Shuar have access to digital technologies and communications, especially the younger generations. Their perspective as users of digital technologies in their community activities, and as participants in the ritual being represented and embodied, would have been ideal to develop the interactions and the visuals according to their understanding of the ritual and its Unity/Kinect instantiation. I hoped to develop each the visual audio sequences in the narrative with specific gestural interactions that would take into consideration elements of Shuar dance performance and vocalization in the ritual. None of this carefully planned and agreed upon work could be undertaken.

As a result, the second version of the prototype, with additional refinements, was presented for exhibition. Throughout this version, the events depicted are based in the traditional stories as told by the Shuar elders during the initial focus group session. The audio sequences used are a compilation of the traditional music, stories and chants which were provided by the people of the San Luis de Inimkis community. It is the final

intention of this project to present this last version of the prototype to the members of the Shuar community in San Luis de Inimkis in a future collaborative session as agreed in the last communication with Mr. Cevallos.

5.4 Exhibition

For exhibition purposes, the interactive installation consists of an open dark space in which the visuals will be projected life size. This way, the visual imagery will have more impact on the participants, creating the illusion of a giant mirror. The participant interaction is contemplated to last approximately five to seven minutes during which the three audiovisual transitions of the ritual are triggered by the participants' body performance.

The prototype has been intended for two participants to have control over the space and interact at the same time. More users could be added to the interaction; nonetheless it is important to consider that a limited exhibit space could become a risk for the participants if accidental physical contact occurs during their interaction. While the work presented to the public is still in a developmental stage due to the interruption of the involvement of the Shuar people in the final prototyping stage, this prototype will be presented to the members of the Shuar community, to complete the original plan for reciprocity.

Chapter 6. Conclusion

This thesis has significantly changed how I shall conduct research in the future. In 2009, I became interested in learning more about oral traditions of Ecuadorian indigenous communities and finding new ways to preserve their knowledge through visual adaptation. While I was clear on my decolonizing approach of reciprocity, I was hesitant as to what was the most appropriate approach to conduct ethnographic research within a decolonizing framework of reciprocity. Based on the experience gathered from this thesis project's focus on Shuar oral traditions, I realized that decolonization implies honouring the desire of the Shuar community to embrace change, or not, and preserving their knowledge respectfully.

I established a process consisting of three main components to answer core research questions on Shuar oral traditions and how they can relate to digital interactive platforms. The first component, ethnographic research, started by establishing contact with members of the Shuar community and respecting their desire to showcase their knowledge as they see fit. During the process, I discovered that not all existing ethnographic studies on their culture are accurate and that finding post-colonial ethnographic resources was imperative to answer my research questions. While researching the Shuar community testimonials, the *Uwi Ijiamtamu* ritual stood out as the most beloved ancestral celebration for the Shuar. Subsequently, one of the most significant results from the ethnographic research process was understanding there is a close bond between Shuar oral storytelling and the enactment of the events of the *Uwi Ijiamtamu* ritual.

The next main component of the project involved developing an appropriate technological approach and audiovisual adaptation of the *Uwi Ijiamtamu* ritual; analyzing digital technologies that can preserve and enhance cultural knowledge was the following step. When reviewing case studies that focused on cultural heritage using digital technologies for the preservation of knowledge, I realized that Augmented Reality through motion sensing technologies could visually recreate different cultural expressions. Specifically, these technologies could develop a visual abstraction of the main concepts of Shuar oral stories in the context of the *Uwi Ijiamtamu* ritual. Using this line of thinking allowed me to deploy the potential of digital technology with the Shuar community in a respectful way, acknowledging their collaboration in the development of any audiovisual narrative. This decolonizing approach can hopefully improve the relations between Shuar communities and non-indigenous people, a future which the Shuar believe is essential for their younger generations.

Prototype development was the final component of my research that resulted in an interactive installation that is intended for both indigenous and non-indigenous participants. This interactive installation consists of an audiovisual narrative of three main events of the *Uwi Ijiamtamu* ritual that according to Shuar oral traditions concludes in the summoning of a powerful ancestral spirit. These concepts of a spiritual nature are portrayed using abstract digital imagery and motion sensing technologies for an interactive storytelling experience as told by Shuar people. Nonetheless, this prototype is merely a starting point for new and more complex user interactions and embodied performances. Further research and development may result into a more fully developed

storytelling experience with more elaborate interactions not only of the participants with the audiovisual environment but between each other.

I consider that this project allowed me to find an appropriate research approach to conduct ethnographic research on other Ecuadorian oral traditions. This process changed my perspective towards a more respectful and reciprocal approach, understanding research not as appropriation of cultural heritage but as a respectful exchange of knowledge with indigenous people.

6.1 Challenges and Limitations

One of the most significant challenges in this research process was conceiving storytelling outside of the existing written text forms and more as a generative conversational act. A user may become more interested in indigenous knowledge when taking the role of an active participant instead of being a mere spectator. In that sense, technology becomes not only a tool to create imagery based on an specific indigenous cultural expression, but a platform for user interaction and the generator of an experience. An interactive conversational act through embodied performance was achieved to create new storytelling experiences.

Due to time and the current socio-political situation of the Shuar community with government authorities and mining companies in Ecuador, involvement with the community was limited, becoming the biggest limitation in the project. Establishing communication was a rather long process, even if the members of the community expressed their interest in the project and voluntarily provided the requested information.

Mr. Gonzalo Nawech in his position as a local authority in the Sevilla Don Bosco parish and Mr. Juan Francisco Cevallos who were the main collaborators in this project always had a positive response. However, the amount of time they could invest in this project was very limited due to their demanding work in the community, given the current political situation. It was rather difficult to gain all the necessary information without being physically present in the community and miscommunication occurred frequently. The confrontation between the Shuar community of Nankints and the EXSA mining company, along with the Ecuadorian government's intervention in the invasion of Shuar land, seriously affected communication with the Shuar. Mr. Nawech could no longer be involved in following stages of the project. This situation also prevented me from visiting the Shuar community of San Luis de Inimkis in the Sevilla Don Bosco parish to conduct intended testing and development with the community.

Nonetheless, the material provided by Mr. Nawech and the stories provided by Shuar elders were crucial in the development of this project, deployed in the most respectful way, honouring their desire to transmit Shuar ancestral wisdom and their hopes to be respected and acknowledged as one of Ecuador's First Nations. They are brave warriors who still struggle to defend their land and their traditions.

6.2 Afterlife of the Project

Considering that the *Uwi Ijiamtamu* ritual takes place in May of every year, it is possible to develop a more complex prototype and test it during the actual ritual. To do so, it will be necessary to become more involved with the community and request their permission to record their dancing and chanting performances with the equipment used

for this interactive installation. The audiovisual material obtained from this recording would be used to document and develop the digital interactive adaptation.

It is also interesting to consider that this project is the adaptation of one part of the Shuar cosmovision. In the future, it is possible to conduct research on other traditional oral stories and adapt that knowledge to AR, or other technological approaches as seen fit by the members of the Shuar community. This project is a starting point for the Shuar community and it could be adapted to the ancestral knowledge of other indigenous peoples in Ecuador and the storytelling of other cultures, depending on their desire to do so. Equally importantly, it is a project which is committed to deploying digital technologies in collaboration with a range of local communities to continue processes of decolonization and incorporation of indigenous traditions into evolving global cultural discourses, experiences and knowledges.

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8. Appendices

8.1 Appendix A: Research Ethics Board Process

The research process changed substantially after the response from Mr. Gonzalo Nawech who provided a signed Interview Release Form (Appendix C). Mr. Nawech agreed to give his information as a collaborator in this project and provide the information he considered relevant. The information and testimonials provided by Mr. Nawech and the Shuar elders in the provided video material showed the interest of the members of the community to be involved in this project. Therefore, it was necessary to document the information they provided in a respectful and ethical way.

Research Ethics Board (REB) was approached with the material provided by Mr. Nawech for retroactive approval (Appendix B). The REB considered this as a unique case since the information provided from Shuar elders was gathered before having approval to conduct research of this nature. The main concern of the REB was to ensure that the indigenous collaborators were fully informed of how the information they provided would be used before they were further involved. For that matter, it was necessary to request Mr. Nawech to review and sign a Focus Group Consent Form (Appendix D). The document describes the consent process Mr. Nawech conducted informally by informing the elder participants of the project in their native language and requesting their voluntary participation in the focus group discussion. The Focus Group Consent Form also requests that Mr. Nawech informs the participants with the specific details regarding the use of their information, and let them know of their rights of attribution and how their confidentiality would be preserved.

REB also granted approval for further collaboration with members of the community in a storytelling Session (Appendix E). This session was conducted to gather audio recordings of Shuar stories regarding the *Uwi Ijiamtamu* ritual and any particular experience the members of the community would consider relevant. The requested information is not meant to invade their intimacy and it would be gathered voluntarily.

A request for a user testing session was also approved by the REB (Appendix F). In a user testing session, two participants at the time can interact with the prototype and give their feedback. The information is meant to improve the audiovisual elements and user interaction for the development of the prototype.

These audiovisual elements become a new way of representing an indigenous culture and breaks old stereotypes that may have been imposed to a native community by reimagining the visual context in which their culture is presented to the public. Considering that the act of oral storytelling and this ritual are both performances that reenact the Shuar concepts of fertility, gratitude and respect for their land, the act of seeing, listening and performing interconnects the user's senses for the creation of new cultural meanings. These new cultural meanings of Shuar storytelling and performance are generated by visual imagery and supported by audio interactivity of traditional storytelling, music and environmental sounds that harmonize the complexity of this ritualistic environment for both indigenous and non-indigenous participants.

8.2 Appendix B: Research Ethics Board Approval Letter

February 09, 2017

David McIntosh
Faculty of Liberal Arts & Sciences & School of Interdisciplinary Studies
OCAD University

File No: 100884
Approval Date: February 09, 2017
Expiry Date: February 08, 2018

Dear David McIntosh, Ms. Beatriz Castro,

The Research Ethics Board has reviewed your application titled 'Augmented Reality Technologies for the Adaptation of Ecuadorian Intangible Cultural Heritage'. Your application has been approved. You may begin the proposed research. This REB approval, dated February 09, 2017, is valid for one year less a day: February 08, 2018. Your REB number is: 2017-09.

Throughout the duration of this REB approval, all requests for modifications, renewals and serious adverse event reports are submitted via the Research Portal. To continue your proposed research beyond February 08, 2018, you must submit a Renewal Form before February 01, 2018. If your research ends before February 08, 2018, please submit a Final Report Form to close out REB approval monitoring efforts.

If you have any questions about the REB review & approval process, please contact the Christine Crisol Pineda, Manager, REB secretariat at or

If you encounter any issues when working in the Research Portal, please contact our system administrator via

Sincerely,

Tony Kerr
Chair, Research Ethics Board

8.3 Appendix C: Interview Release Form

INTERVIEW RELEASE FORM

I, Gonzalo Cristobal Nawech Wajai (Full Name) in my position of Presidente del Gad Parroquial Sevilla D Bosco (Position as an authority or representative), understand that Beatriz Margarita Castro Gavilanes (the Author), a graduate student from the Digital Futures Program in OCAD University from Toronto, Canada, is preparing, writing, and will publish a work on the subject of shuar wisdom and traditional storytelling, which is currently titled Augmented Reality Technologies for the Adaptation of Ecuadorian Intangible Cultural Heritage (the Work).

In order to assist the Author in the preparation of the Work, I have agreed to be interviewed and to provide information and other materials to be used in connection with the Work, including my professional experience and any relevant data that I may choose to give to the Author.

I hereby grant and assign to the Author the following rights in connection with the Interview Materials for use as part of the Work, in any and all editions, versions, and media, in perpetuity and throughout the world.

1. The right to quote or paraphrase all or any portion of the Interview Materials, and to generally use and publish the Interview Materials, including my professional experience, recollections, remarks, and information, as well as any photographs and documents that I may give to the Author.

2. The right to use my name, image, and professional data.

3. The right to develop, produce, distribute, advertise, promote, or otherwise exploit the Work as a book or any other Work in any manner that the Author deems appropriate. I understand and acknowledge that the Author or her assigns will be the sole owner of all copyright and other rights in and to the Work.

Agreed an[redacted]

Sig[redacted] Date 10 - Noviembre 2016

Gonzalo Cristobal Nawech Wajai

Name

FORMULARIO DE AUTORIZACION

Yo, _____ (Nombre Completo) en mi calidad de_____ (cargo como autoridad o representante de una entidad), comprendo que Beatriz Margarita Castro Gavilanes (La Autora), estudiante de postgrado del Programa de Digital Futures en la Universidad "OCAD University" de Toronto, Canada, se encuentra desarrollando, escribiendo y publicará un proyecto de investigación con el tema de sabiduría shuar y narrativa costumbrista oral, el cual se titula Tecnologías de Realidad Aumentada para la Adaptación del Legado Cultural Inmaterial del Ecuador (El Proyecto).

Para asistir a La Autora en la preparación de El Proyecto, he acordado ser entrevistado y proveer la información y otros materiales para ser usados en relación con el El Proyecto, incluyendo mi experiencia profesional y cualquier otro dato que decida entregar a La Autora.

Por la presente otorgo y asigno al autor los siguientes derechos en relación con los materiales de la entrevista para su uso como parte de El Proyecto, en cualquiera y todas las ediciones, versiones y los medios de comunicación, a perpetuidad y en todo el mundo.

1. El derecho a citar o parafrasear la totalidad o parte de los materiales de la entrevista, y para usar en general, y publicar los materiales de la entrevista, incluyendo mi experiencia profesional, recuerdos, comentarios, e información, así como cualquier tipo de fotografías y documentos que pueda proveer a La Autora.

2. El derecho a utilizar mi nombre, imagen y datos profesionales.

3. El derecho a desarrollar, producir, distribuir, promocionar, promover, o de otra forma explotar la obra como un libro o cualquier otro trabajo de la manera que La Autora considere apropiados. Entiendo y reconozco que el autor o sus cesionarios será el único propietario de los derechos de autor y otros derechos sobre y para El Proyecto.

Ac[redacted]

[redacted] 26-10-2016

Fir[redacted] Fecha

GONZALO NAWECH.

Nombre

8.4 Appendix D: Focus Group Consent Form

FOCUS GROUP CONSENT FORM

Research Project Title: Augmented Reality Technologies for the Adaptation of Ecuadorian Intangible Cultural Heritage

Principal Investigator.: Dr. David McIntosh **Co-Supervisor:** Dr. Selmin Kara
Co-Investigator: Beatriz Castro

I, Gustavo Nawech Wajai
_____ (Full Name) in my position as President of the parish council of Sevilla Don Bosco, Canton Morona _____
_____ (Position as elected representative of the Shuar community of San Luis de Inimkis), have agreed to participate in this research as the main collaborator by providing the necessary information and any other materials to community members and investigators in connection with the Research Project. I have provided the investigators with audiovisual material of a focus group discussion with elder representatives of the Shuar community on October 28, 2016, who voluntarily, and without being requested to do so, shared their knowledge on the *Fiesta de la Chonta (Uwi Ijiamtamu)* celebration.

As the elected representative of the community and liaison with the investigators, I confirm that I have informed the participants in the October 28, 2016 audiovisual recording of group discussion of the *Fiesta de la Chonta (Uwi Ijiamtamu)* of the following before the discussion started:

- the rationale of the project and the information requested from them;
- they were to participate in discussion of their own free will, without coercion in any form, and they were free to end their participation at any time without repercussions;
- the discussion would be recorded with audio and video, and would be given to the investigators

All participants agreed to these terms.

I have also informed the participants in the October 28, 2016 audiovisual recording of group discussion of the *Fiesta de la Chonta (Uwi Ijiamtamu)* of the following:

1. The material they provided has been stored securely in a password secured google drive folder which can only be accessed by the research team. Once the research process and the release of the project's findings has concluded, all study data, documents and notes will be permanently deleted from the drive folder.
2. Rights of Attribution: Participants' identities will remain confidential, their names will not be used in any report that is published unless they allow the Principal Investigator to make use of their names to identify them as collaborators in this project.
3. Use of information: The video footage taken during the focus group will only be used as a reference and the information gathered by the investigators will be used solely as documentation for the OCAD University Master Degree thesis document. Images from the video, other than images of participants' faces, may be used as part of the thesis document as well.

Agreed and confirmed:

_____ _____
Signature Date

_____
Name

Formulario de Consentimiento del Grupo Focal

Título del Proyecto de Investigación: Tecnologías de Realidad Aumentada para la Adaptación del Patrimonio Cultural Intangible Ecuatoriano

Investigador Principal: Dr. David McIntosh **Co-Supervisor:** Dra. Selmin Kara
Co-Investigadora: Beatriz Castro

Yo, Gustavo Nawech Wajai
_____ (Nombre completo) en mi cargo el Presidente del Consejo Parroquial de Sevilla Don Bosco, Cantón Morona
_____ (Posición como representante elegido de la comunidad Shuar de San Luis de Inimkis), he acordado participar en esta investigación como el principal colaborador proporcionando la información necesaria y cualquier otro material a los miembros de la comunidad e investigadores en relación con el Proyecto de Investigación. He proporcionado a los investigadores material audiovisual de una discusión de grupo focal con representantes de la comunidad Shuar el 28 de octubre de 2016, quienes voluntariamente, compartieron sus conocimientos sobre la Celebración del Festival de Chonta (Uwi Ijiamtamu).

Como representante de la comunidad y enlace con los investigadores, confirmo que he informado a los participantes en la grabación audiovisual del 28 de octubre de 2016 de la discusión grupal de la Fiesta de la Chonta (Uwi Ijiamtamu) de lo siguiente antes de iniciar la discusión:

- La justificación del proyecto y la información solicitada desde el inicio de la sesión;
- La participación en la discusión era por su propia voluntad, sin coerción en ninguna forma, y eran libres de terminar su participación en cualquier momento sin repercusiones;
- La discusión sería grabada con audio y video, y se daría a los investigadores

Todos los participantes aceptaron estos términos.

También he informado a los participantes en la grabación audiovisual del 28 de octubre de 2016 de la discusión en grupo del Festival Chonta (Uwi Ijiamtamu) de lo siguiente:

1. El material que proporcionaron se ha almacenado de forma segura en la carpeta protegida por contraseña de Google que sólo puede ser accedido por el equipo de investigación. Una vez concluido el proceso de investigación y la publicación de los resultados del proyecto, todos los datos de estudio, documentos y notas se eliminarán de forma permanente.
2. Derechos de atribución: Las identidades de los participantes permanecerán confidenciales y sus nombres no se utilizarán en ningún informe publicado a menos que permitan que el Investigador Principal haga uso de sus nombres para identificar a los colaboradores en este proyecto.
3. Uso de la información: Las imágenes de video tomadas durante el grupo de enfoque solo serán usadas como referencia y la información recopilada por los investigadores. En la forma de lo que se dijo, será sólo la documentación para el documento de tesis de maestría de la Universidad OCAD. Las imágenes del video, además de las imágenes de las caras de los participantes, pueden ser utilizadas como parte del documento de tesis.

Convenido y confirmado:

_____ _____
Firma Fecha

_____
Nombre

8.5 Appendix E: Oral Storytelling Session Invitation / Consent Form

Oral Storytelling Session Invitation / Consent Form

Date: December, 2016
Project Title: Augmented Reality Technologies for the Adaptation of Ecuadorian Intangible Cultural Heritage

Principal Investigator:
Beatriz Castro
Graduate Candidate
Faculty of Liberal Arts & Sciences & School of Interdisciplinary Studies
OCAD University
[redacted]

Faculty Supervisor:
Davic McIntosh
Associate Professor
Faculty of Liberal Arts & Sciences & School of Interdisciplinary Studies
OCAD University
[redacted]

Faculty Co - Supervisor:
Selmin Kara
Associate Professor
Faculty of Liberal Arts & Sciences & School of Interdisciplinary Studies
OCAD University
[redacted]

INVITATION
You are invited to participate in a study that involves research. The purpose of this study is to explore the uses of new digital media platforms for an adaptation of ancestral storytelling of the ritual of the "Fiesta de la Chonta" celebrated by the Shuar indigenous community from the Ecuadorian Amazon.

WHAT'S INVOLVED
As a member of the Shuar community and participant, you will be asked to take part in a small oral storytelling session of traditional stories of the "Fiesta de la Chonta" celebration. Your stories will be recorded with an audio recorder during the session. Your participation is completely voluntary and it will take approximately 10 min of your time.

POTENTIAL BENEFITS AND RISKS
Possible benefits of participation include your participation as a collaborator in the development of a project portraying the Shuar culture at an international level. With your participation, this project will be able to showcase a respectful but accurate adaptation of some of the fantastic stories about the "Fiesta de la Chonta" celebration and the real meaning behind this ritual for the Shuar community.

There are no physical risks associated with your participation during the user testing session. This project doesn't require for any intimate or confidential information, if you feel uncomfortable during the conversation, you may choose not to participate and your audio files will be permanently deleted.

CONFIDENTIALITY
Since the entire session will be recorded, the audio files of your participation will be used for the creation of a mini documentary film of the development of the project, and some audio excerpts of your stories will be included in this project's prototype. All your data will be kept confidential, your name will not appear on any video, written document or report without your permission. If consent is received your name shall be included as collaborator in the project's documentation process and mini documentary.

All audio recordings, field notes and transcripts documented during this session will be stored on a password protected personal drive. Once the project concludes, all remaining unused audio footage and other documentation files will be permanently deleted from the drive in June 2017.

VOLUNTARY PARTICIPATION
Participation in this study is voluntary. You may decline to answer any questions or participate at anytime during the session. Further, you may decide to withdraw from this study at any time, or to request withdrawal of your data (10 days after the User Testing Session), and you may do so without any penalty or loss of benefits to which you are entitled.

To inform of your decision to withdraw from this study, you may contact the Principal Investigator of this project to the following e-mail address: [redacted] You may also contact Mr. Gonzalo Nawech Wajai the President of the Sevilla Don Bosco parish, to the following phone number: [redacted] or to the following e-mail address: [redacted]

PUBLICATION OF RESULTS

Results of this study may be published in reports, professional and scholarly journals, students theses, a mini documentary and/or presentations to conferences and colloquia. In any of these publications, data will be presented in proper quotations and video and photographic documentation from the focus group and user testing sessions. Quotations from interviews and focus group sessions will not be attributed to you without your permission.

CONTACT INFORMATION AND ETHICS CLEARANCE

If you have any questions about this study or require further information, please contact the Principal Investigator (Beatriz Castro) or the Faculty Supervisor (David McIntosh) using the contact information provided above. This study has been reviewed and received ethics clearance through the Research Ethics Board at OCAD University [file #]. If you have any comments or concerns, please contact the Research Ethics Office through

CONSENT FORM

I agree to participate in this study described above. I have made this decision based on the information I have read in the Information-Consent Letter. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time.

I will allow the Principal Investigator to make use of my name, to identify me as a participant in this project:

( ) YES ( ) NO

I consent to have my participation audio recorded:

( ) YES ( ) NO

The Principal Investigator may use the data I'm providing for transcripts, quotations and statements on written documents or audiovisual material he may require:

( ) YES ( ) NO

I agree to be contacted in the future for any additional data that may be required from me after this session:

( ) YES ( ) NO

Name: _____

Signature: _____ Date: _____

Thank you for your assistance in this project. Please keep a copy of this form for your records.

Invitación a sesión de historias tradicionales / Formulario de Consentimiento

Fecha: Diciembre, 2016
Título: Tecnologías de Realidad Aumentada para la Adaptación del Legado Cultural Inmaterial del Ecuador

Investigador Principal:
Beatriz Castro
Graduate Candidate
Faculty of Liberal Arts & Sciences & School of Interdisciplinary Studies
OCAD University

Supervisor:
Davic McIntosh
Associate Professor
Faculty of Liberal Arts & Sciences & School of Interdisciplinary Studies
OCAD University

Co - Supervisor:
Selmin Kara
Associate Professor
Faculty of Liberal Arts & Sciences & School of Interdisciplinary Studies
OCAD University

INVITACION
Usted ha sido invitado a participar en un proyecto de investigación. El proposito de este estudio es explorar los usos de nuevas tecnologías para la adaptación de narrativa costumbrista oral del ritual de la Fiesta de la Chonta celebrado por la comunidad Shuar en el Oriente ecuatoriano.

QUÉ ESTÁ INVOLUCRADO
Como miembro de la comunidad Shuar y participante, usted ha sido invitado a participar en una sesión de historias tradicionales sobre la Fiesta De la Chonta. Sus historias serán grabadas durante la sesión. Su participación es completamente voluntaria y tomará aproximadamente 10 minutos de su tiempo.

BENEFICIOS Y RIESGOS POTENCIALES
Los posibles beneficios de la participación incluyen su participación como colaborador en el desarrollo de un proyecto que retrata la cultura Shuar a nivel internacional. Con su participación, este proyecto podrá mostrar una adaptación respetuosa pero precisa de algunas de las fantásticas historias sobre la celebración de la Fiesta de la Chonta y el verdadero significado de este ritual para la comunidad Shuar.

No hay riesgos físicos asociados con su participación durante la sesión de prueba del usuario. Este proyecto no requiere ninguna información íntima o confidencial, si no se siente incómodo durante la conversación, puede optar por no participar y sus archivos de audio serán borrados permanentemente.

CONFIDENCIALIDAD
Dado que toda la sesión será grabada, los archivos de audio de su participación serán utilizados para la creación de un mini documental sobre el desarrollo del proyecto, y algunos fragmentos de audio de sus historias serán incluidos en el prototipo de este proyecto. Todos sus datos serán confidenciales, su nombre no aparecerá en ningún video, documento escrito o informe sin su permiso. Si se recibe su consentimiento, su nombre será incluido como colaborador en el proceso de documentación del proyecto y en el mini documental.

Todas las grabaciones de audio, notas de campo y transcripciones documentadas durante esta sesión se almacenarán en un disco duro protegido por contraseña. Una vez concluido el proyecto, todas las imágenes de audio no utilizadas y otros archivos de documentación se eliminarán de forma permanente del disco en junio de 2017.

PARTICIPACIÓN VOLUNTARIA
Su participación en este estudio es voluntaria. Usted puede negarse a contestar cualquier pregunta o participar en cualquier momento durante la sesión. Además, usted puede decidir retirarse de este estudio en cualquier momento, o solicitar la retirada de sus datos (10 días después de la Sesión de Prueba del Usuario), y puede hacerlo sin ninguna penalidad o pérdida de los beneficios a los que tiene derecho.

Para informar de su decisión de retirarse de este estudio, puede comunicarse con el Investigador Principal de este proyecto a la siguiente dirección de correo electrónico: También puede ponerse en contacto con el Sr. Gonzalo Nawech Wajai, Presidente de la parroquia Sevilla Don Bosco, al siguiente teléfono: o a la siguiente dirección de correo electrónico:

PUBLICACIÓN DE RESULTADOS

Los resultados de este estudio pueden publicarse en informes, revistas profesionales y académicas, tesis de estudiantes, mini documentales y / o presentaciones en conferencias y coloquios. En cualquiera de estas publicaciones, los datos se presentarán en las citas adecuadas y en la documentación fotográfica y de vídeo del grupo de enfoque y las sesiones de prueba del usuario. Las citas de entrevistas y sesiones de grupos focales no serán atribuidas a usted sin su permiso.

INFORMACIÓN DE CONTACTO Y DESTREZA DE ÉTICA

Si tiene alguna pregunta sobre este estudio o necesita más información, comuníquese con la Investigadora Principal (Beatriz Castro) o con el Supervisor de Facultad (David McIntosh) usando la información de contacto proporcionada anteriormente. Este estudio ha sido revisado y recibido autorización ética a través de la Junta de Ética en Investigación de la Universidad de OCAD [ ]. Si tiene algún comentario o inquietud, comuníquese con la Oficina de Ética de la Investigación a través de

FORMULARIO DE CONSENTIMIENTO

Acepto participar en este estudio descrito anteriormente. He tomado esta decisión basándome en la información que he leído en la Carta de consentimiento e Información. He tenido la oportunidad de recibir cualquier detalle adicional que quería sobre el estudio y entender que puedo hacer preguntas en el futuro. Entiendo que puedo retirar mi consentimiento en cualquier momento.

Permitiré al Investigador Principal hacer uso de mi nombre, para identificarme como participante en este proyecto:

( ) SI ( ) NO

Acepto que mi participación sea grabada:

( ) SI ( ) NO

El Investigador Principal puede usar los datos que estoy proporcionando para transcripciones, citas y declaraciones sobre documentos escritos o material audiovisual que pueda requerir:

( ) SI ( ) NO

Acepto ser contactado en el futuro para cualquier información adicional que pueda ser requerida de mí después de esta sesión:

( ) SI ( ) NO

Nombre: _____

Firma: _____ Fecha: _____

Gracias por su ayuda en este proyecto. Por favor, guarde una copia de este formulario para sus registros.

8.6 Appendix F: User Testing Session Invitation / Consent Form

User Testing Invitation / Consent Form

Date: December, 2016
Project Title: Augmented Reality Technologies for the Adaptation of Ecuadorian Intangible Cultural Heritage

Principal Investigator:
Beatriz Castro
Graduate Candidate
Faculty of Liberal Arts & Sciences & School of Interdisciplinary Studies
OCAD University

Faculty Supervisor:
Davic McIntosh
Associate Professor
Faculty of Liberal Arts & Sciences & School of Interdisciplinary Studies
OCAD University

Faculty Co - Supervisor:
Selmin Kara
Associate Professor
Faculty of Liberal Arts & Sciences & School of Interdisciplinary Studies
OCAD University

INVITATION
You are invited to participate in a study that involves research. The purpose of this study is to explore the uses of new digital media platforms for an adaptation of ancestral storytelling of the ritual of the "Fiesta de la Chonta" celebrated by the Shuar indigenous community from the Ecuadorian Amazon.

WHAT'S INVOLVED
As a member of the Shuar community and participant, you will be asked to take part in a small prototype testing of a visual adaptation of the "Fiesta de la Chonta" celebration. This prototype works as a small game in which you can control with your movements, characters that will be displayed on a screen in front you. Within your levels of comfort, you will be able to move freely within an open space in front of the screen playing with these characters. The estimated time of this game is of 5 to 7 min, after this, you will be asked to share your insights and opinions of the experience regarding to the "Fiesta de la Chonta" celebration and how you think this small game relates to it. You will be recorded with a camera during the session and photographs will be taken as well. Your participation is completely voluntary and it will take approximately 20 min of your time.

POTENTIAL BENEFITS AND RISKS
Possible benefits of participation include your participation as a collaborator in the development of a project portraying the Shuar culture at an international level. With your participation, this project will be able to showcase a respectful but accurate adaptation of some of the fantastic stories about the "Fiesta de la Chonta" celebration and the real meaning behind this ritual for the Shuar community.

There also may be minor risks associated with your participation during the user testing session, one of them is mild disorientation, visual straining and fatigue that could distract you from your immediate surroundings caused from by uncoordinated body movements for looking at a screen for long periods of time. Since the game is meant for 2 users, accidental physical contact between the participants may cause minor injuries if there are 2 users performing at the time.

CONFIDENTIALITY
Since the entire session will be video recorded, the filmed footage of your participation and the feedback you provide during the the testing session will be used for the creation of a mini documentary film of the development of the project. All your data will be kept confidential, your name will not appear on any video, written document or report without your permission. If consent is received your name shall be included as collaborator in the project's documentation process and mini documentary.

All video and audio recordings, photographs and field notes and transcripts documented during this session will be stored on a password protected personal drive. Once the project concludes, all remaining unused raw video and audio footage and other documentation files will be permanently deleted from the drive in June 2017.

VOLUNTARY PARTICIPATION
Participation in this study is voluntary. If you wish, you may decline to answer any questions or participate in any component of the session. Further, you may decide to withdraw from this study at any time, or to request withdrawal

of your data (10 days after the User Testing Session), and you may do so without any penalty or loss of benefits to which you are entitled.

To inform of your decision to withdraw from this study, you may contact the Principal Investigator of this project using the contact information provided above. You may also contact Mr. Gonzalo Nawech Wajai the President of the Sevilla Don Bosco parish, to the following phone number: [redacted] or the following e-mail address: [redacted]

PUBLICATION OF RESULTS

Results of this study may be published in reports, professional and scholarly journals, students theses, a mini documentary and/or presentations to conferences and colloquia. In any of these publications, data will be presented in proper quotations and video and photographic documentation from the focus group and user testing sessions. Quotations from interviews and focus group sessions will not be attributed to you without your permission.

CONTACT INFORMATION AND ETHICS CLEARANCE

If you have any questions about this study or require further information, please contact the Principal Investigator (Beatriz Castro) or the Faculty Supervisor (David McIntosh) using the contact information provided above. This study has been reviewed and received ethics clearance through the Research Ethics Board at OCAD University [file # [redacted]]. If you have any comments or concerns, please contact the Research Ethics Office through [redacted]

CONSENT FORM

I agree to participate in this study described above. I have made this decision based on the information I have read in the Information-Consent Letter. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time.

I will allow the Principal Investigator to make use of my name, to identify me as a participant in this project:

( ) YES ( ) NO

I consent to have my participation video and audio recorded and photographed:

( ) YES ( ) NO

The Principal Investigator may use the data I'm providing for transcripts, quotations and statements on written documents or audiovisual material he may require:

( ) YES ( ) NO

I agree to be contacted in the future for any additional data that may be required from me after this session:

( ) YES ( ) NO

Name: _____

Signature: _____ Date: _____

Thank you for your assistance in this project. Please keep a copy of this form for your records.

Invitación a Pruebas de Usuario / Formulario de Consentimiento

Date: December, 2016
Project Title: Augmented Reality Technologies for the Adaptation of Ecuadorian Intangible Cultural Heritage

Investigador Principal:
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OCAD University

Co - Supervisor:
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Associate Professor
Faculty of Liberal Arts & Sciences & School of Interdisciplinary Studies
OCAD University

INVITACION

Usted ha sido invitado a participar en un proyecto de investigación. El proposito de este estudio es explorar los usos de nuevas tecnologías para la adaptación de narrativa costumbrista oral del ritual de la Fiesta de la Chonta celebrado por la comunidad Shuar en el Oriente ecuatoriano.

QUÉ ESTÁ INVOLUCRADO

Como miembro de la comunidad Shuar y participante, se le pedirá que participe en un pequeño prototipo de prueba de una adaptación visual de la Fiesta de la Chonta. Este prototipo funciona como un pequeño juego en el que puedes controlar con tus movimientos, los personajes que se mostrarán en una pantalla delante de ti. Dentro de sus niveles de comodidad, podrá moverse libremente dentro de un espacio abierto frente a la pantalla jugando con estos personajes. El tiempo estimado de este juego es de 5 a 7 min, después de esto, se le pedirá que comparta sus ideas y opiniones de la experiencia con respecto a la celebración de "La Fiesta de la Chonta" y cómo piensa que este pequeño juego se relaciona con él. Se grabará con una cámara durante la sesión y se tomarán fotografías también. Su participación es completamente voluntaria y tomará aproximadamente 20 minutos de su tiempo.

BENEFICIOS Y RIESGOS POTENCIALES

Los posibles beneficios de la participación incluyen su participación como colaborador en el desarrollo de un proyecto que retrata la cultura Shuar a nivel internacional. Con su participación, este proyecto podrá mostrar una adaptación respetuosa pero precisa de algunas de las fantásticas historias sobre la celebración de la Fiesta de la Chonta y el verdadero significado de este ritual para la comunidad Shuar.

También puede haber riesgos menores asociados con su participación durante la sesión de prueba del usuario, una de ellas es la desorientación leve, esfuerzo visual y fatiga que podría distraerlo de su entorno inmediato causado por por movimientos no coordinados del cuerpo por mirar una pantalla durante largos períodos de tiempo. Dado que el juego está destinado a 2 usuarios, el contacto físico accidental entre los participantes puede causar lesiones leves si hay 2 usuarios en ese momento.

CONFIDENCIALIDAD

Dado que toda la sesión será grabada en video, las imágenes filmadas de su participación y la retroalimentación que usted proporcione durante la sesión de pruebas se utilizarán para la creación de un mini documental sobre el desarrollo del proyecto. Todos sus datos serán confidenciales, su nombre no aparecerá en ningún video, documento escrito o informe sin su permiso. Si se recibe su consentimiento, su nombre será incluido como colaborador en el proceso de documentación del proyecto y en el mini documental.

Todas las grabaciones de video y audio, fotografías y notas de campo y transcripciones documentadas durante esta sesión se almacenarán en un disco duro protegido con contraseña. Una vez concluido el proyecto, todos los archivos de audio y vídeo en bruto no utilizados y otros archivos de documentación se eliminarán permanentemente del disco en junio de 2017.

PARTICIPACIÓN VOLUNTARIA
Su participación en este estudio es voluntaria. Si lo desea, puede negarse a responder a cualquier pregunta o participar en cualquier componente de la sesión. Además, usted puede decidir retirarse de este estudio en cualquier momento, o solicitar la retirada de sus datos (10 días después de la Sesión de Prueba del Usuario), y puede hacerlo sin ninguna penalidad o pérdida de los beneficios a los que tiene derecho.

Para informar de su decisión de retirarse de este estudio, puede comunicarse con el Investigador Principal de este proyecto utilizando la información de contacto proporcionada anteriormente. También puede ponerse en contacto con el Sr. Gonzalo Nawech Wajai, Presidente de la parroquia Sevilla Don Bosco, al siguiente teléfono: [redacted] o a la siguiente dirección de correo electrónico: [redacted]

PUBLICACIÓN DE RESULTADOS
Los resultados de este estudio pueden publicarse en informes, revistas profesionales y académicas, tesis de estudiantes, mini documentales y / o presentaciones en conferencias y coloquios. En cualquiera de estas publicaciones, los datos se presentarán en las citas adecuadas y en la documentación fotográfica y de vídeo del grupo de enfoque y las sesiones de prueba del usuario. Las citas de entrevistas y sesiones de grupos de enfoque no serán atribuidas a usted sin su permiso.

INFORMACIÓN DE CONTACTO Y DESTREZA DE ÉTICA
Si tiene alguna pregunta sobre este estudio o necesita más información, comuníquese con la Investigadora Principal (Beatriz Castro) o con el Supervisor de Facultad (David McIntosh) usando la información de contacto proporcionada anteriormente. Este estudio ha sido revisado y recibido autorización ética a través de la Junta de Ética en Investigación de la Universidad de OCAD [archivo # [redacted]]. Si tiene algún comentario o inquietud, comuníquese con la Oficina de Ética de la Investigación a través de [redacted]

FORMULARIO DE CONSENTIMIENTO
Acepto participar en este estudio descrito anteriormente. He tomado esta decisión basándome en la información que he leído en la Carta de consentimiento e Información. He tenido la oportunidad de recibir cualquier detalle adicional que quería sobre el estudio y entender que puedo hacer preguntas en el futuro. Entiendo que puedo retirar mi consentimiento en cualquier momento.

Permitiré al Investigador Principal hacer uso de mi nombre, para identificarme como participante en este proyecto:

( ) SI ( ) NO

Acepto que mi participación sea grabada:

( ) SI ( ) NO

El Investigador Principal puede usar los datos que estoy proporcionando para transcripciones, citas y declaraciones sobre documentos escritos o material audiovisual que pueda requerir:

( ) SI ( ) NO

Acepto ser contactado en el futuro para cualquier información adicional que pueda ser requerida de mí después de esta sesión:

( ) SI ( ) NO

Nombre: _____

Firma: _____ Fecha: _____

8.7 Appendix G: Visual Process of the Prototype

The earliest versions of the visuals were particle systems representations of the *Uwi* tree, humanoid characters in a state of purification and red particles falling from the palm tree that represent the *chonta* fruit:

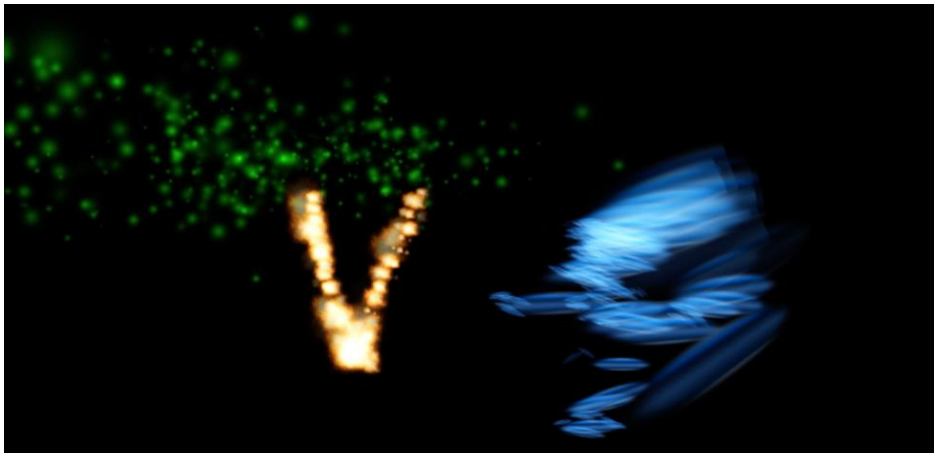

Figure 26. First version of Particle Systems of transition 1 with Unity3D.

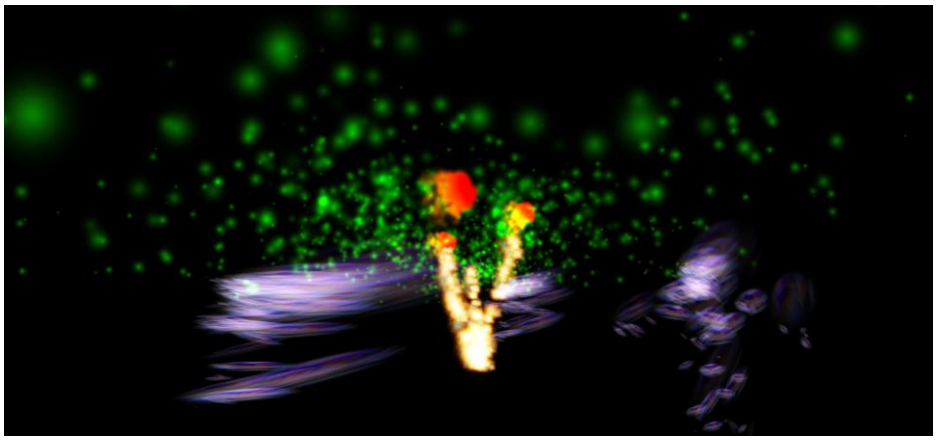

Figure 27. Second version of Particle Systems of transition 1 with Unity3D.

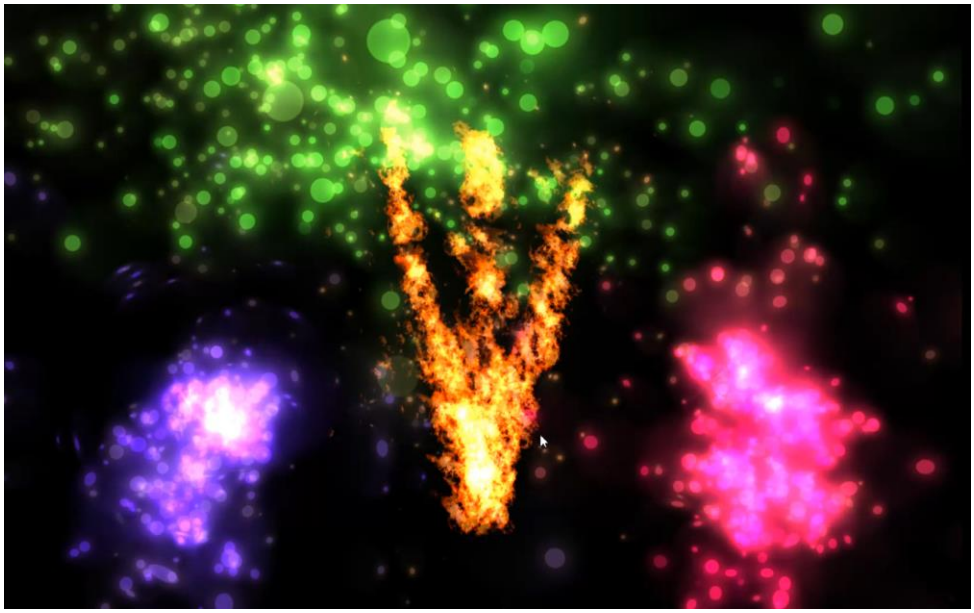

Figure 28. Third version of Particle Systems of transition 1 with Unity3D.

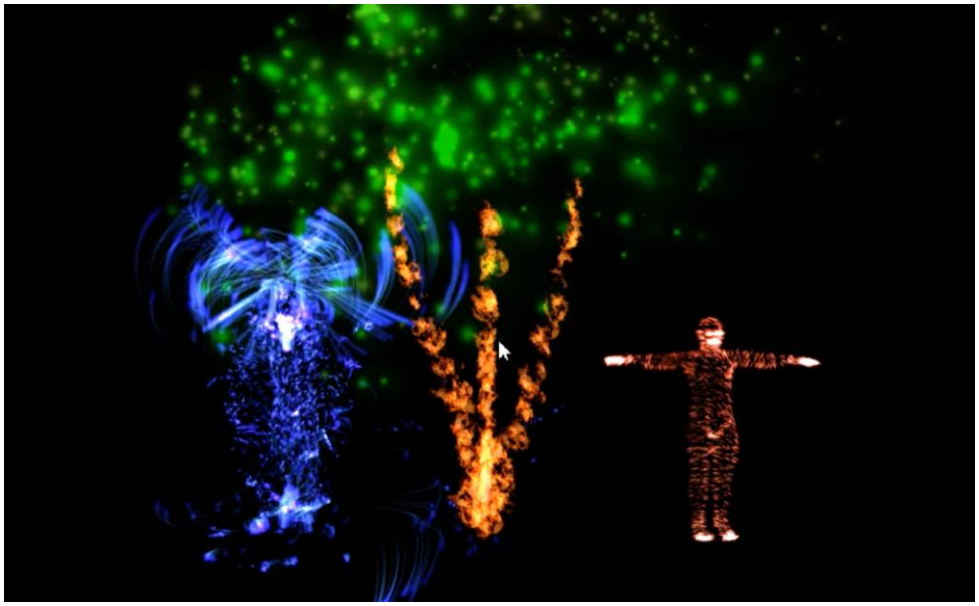

Figure 29. Final version of Particle Systems of transition 1 with Unity3D.

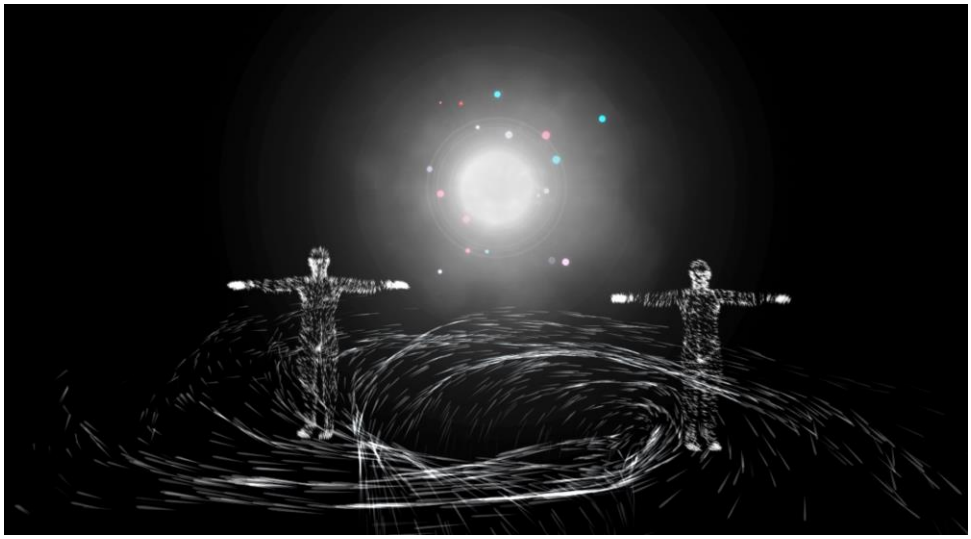

Figure 30. First version of Particle Systems of transition 2 with Unity3D.

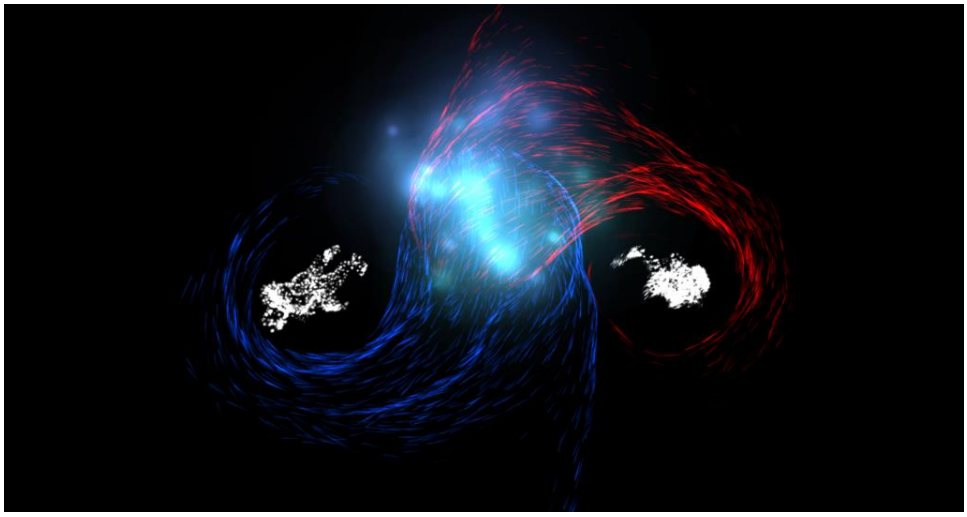

Figure 31. Second version of Particle Systems of transition 2 with Unity3D.

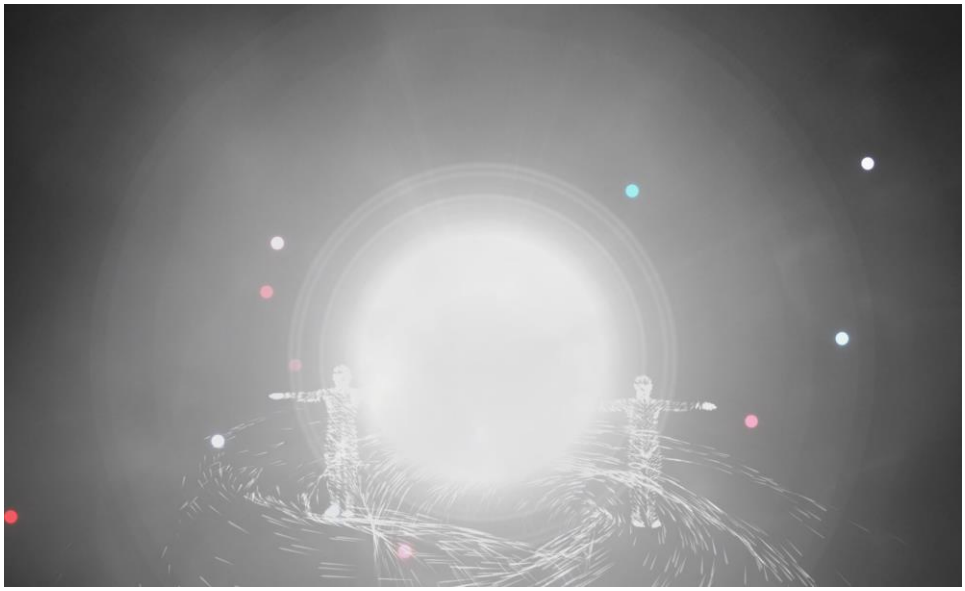

Figure 32. First version of Particle Systems of transition 3 with Unity3D.

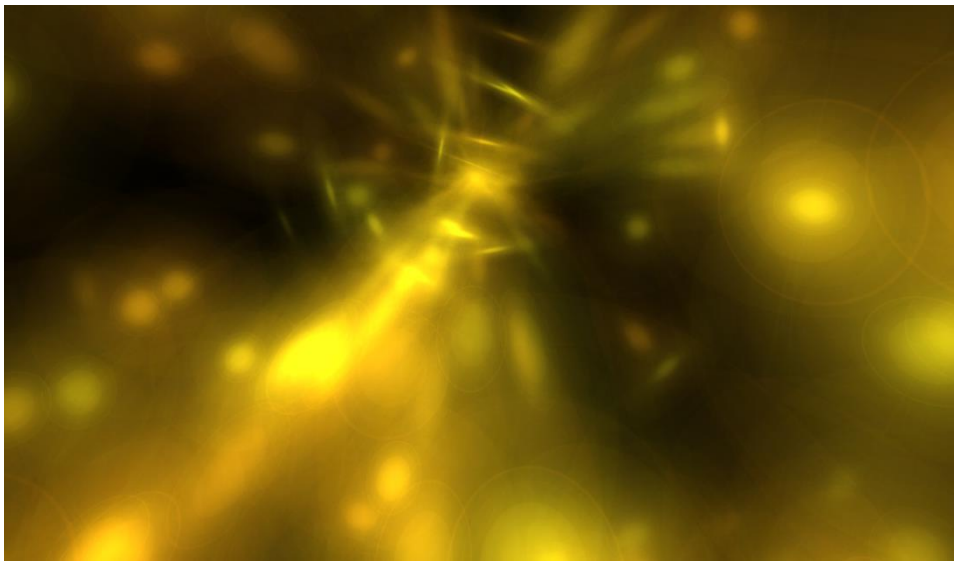

Figure 33. Second version of Particle Systems of transition 3 with Unity3D.